

Digitising English for Engineers: Innovations in Learning technologies in ELT

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ABSTRACT

English language engineering students have been at the verge of modern technology-driven paths for quite some time now. Now that since everybody knows that English monopoly is the factor which plays a significant role in digitally assisted learning, English learners have a significant target to accomplish at their hands. The learners, who belong to technical streams like Engineering, grapple with multiple communicative skills concerns. These undergraduates, who study Professional English nowadays, are introduced to facets in a curriculum that adapts a much more learner-centric attitude with the modern age digital technology. Software-based learning has proved to be very useful in terms of personal contact and self-help, as well as offering descriptive and real-time knowledge. Some technology aided learning tools often help burgeoning engineers interact better. The internet is, of course, a strong tool that affects the language learner in a positive way, yet the instructor is irreplaceable. Nowadays, Industry 4.0 is a development in industrial transformation and digitalization. Industry 4.0's impacts and significance represent many facets of our lives. This study attempts to examine literatures based on an exploratory analysis approach basis the above mentioned factors.

Engineering students still face a shortage of digital community, instruction manuals, authentic information and language needs when applying digitally assisted activities to their learning. The study evaluates Digital Language, Learners' needs and Industry 4.0 literature from different platforms. Surprisingly, the findings reveal that the study conducted in these domains are so narrow, concentrating only on one of the earlier threads in the above mentioned regions; although, some study papers were found describing the interrelationships between these regions. Therefore, the report suggests that addressing the differences and performing experiments in these fields will be helpful in addressing some of the engineering students' problems and proposes that researchers undertake potential studies focused on Modern English Language interconnections with the evolving industry trends and education.

Keywords

Digital English, Digital Learning, Engineering, Industry 4.0, Internet of Things (IoT)

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English Language Learning through ICT in Engineering Colleges

It is an evident fact now that new technical developments including "sensors, cyber-physical devices, the Internet of Things (IoT), smart networks, computer control, etc. affect many aspects of everyday life." Since engineering industry keeps evolving continuously, new problems continue emerging in the learning environment too. From a global viewpoint, the most significant problems in adopting industry 4.0 seen among staff and members of any administration are: lack of technical culture and preparation, lack of consistent direction or administrative help, uncertain economic gains from investments in emerging technology, strong financial commitment expectations (Slusarczyk 2018) and recruiting and development of new talent, and knowledge of genetic engineering. This research reflects on one of engineering industry's problems, which is inadequate workforce qualification and a shortage of digital culture and training. Digitalization effects can be observed in our everyday lives and mirrored in all fields ("Madrak-Grochowska 2015"). The acquisition of teaching and learning based on technology is increasingly rising ("Markauskaite, 2003; Mashhadi and Kargozari, 2011"). Technology-implemented up skilling is regarded as Education 4.0, and influences the engineering students largely. English is the most favoured language of the

modern world and with the introduction of English in the new setup and Education 4.0 and its implementations have significant implications on the learning of a Language. In a specific sense, it seeks to stress that English has broken the boundaries of all languages. English-speaking non-native nations have also begun to acknowledge English as an official language, such as in African countries ("Plonski 2013"). Approximately 100 nations teach English as a primary or second language, with the list expanding to "China, Russia, Germany, Spain, Egypt and Brazil (Crystal 2003)." English has acquired the status of a global language ("Hariharasudan et al. 2017; Crystal 2003"). ("Ananiadou et al. 2011; Hariharasudan et al. 2017"). Internet of Things (IoT) systems and the digitalization of teaching and learning methods and production activities carried out through the English media are known as Modern English, literally meaning that Modern Language is the interactive form of English, and is commonly seen in the multiple functions of the Fourth Industrial Revolution. It is evident that supporting Education 4.0 by Digital English is a positive step towards productive outcomes (Anggraeni 2018). Education 4.0 is adopted as a means of learning in many public establishments. It is fascinating to see how digitalization helps improve Language in education of engineering learners. With the aid of the modern environment and its technical advancements and improvements, everyday social scenario and lives become simpler than ever. Technology has a beneficial effect on

both lifestyles and schooling (Kondratiuk-Nierodzińska 2016; Zygmont 2017).

Due to the rapid escalation of rapidly evolving instructional technology, the features of teaching and learning experiences have shifted considerably ("Chang et al. 2015"). As noted, the teaching and learning phase often impacts the educational fields. "Although teachers around the world do use the chalk and board teaching form, modern aids are now used to sharpen the teaching and learning phase in smart classrooms (Jo and Lim 2015) worldwide. Accordingly, the words 'internet learning' (Garavaglia et al. 2012; Akyuz and Yavuz 2015) and 'technology of knowledge and communication (ICT) learning' (Gunuç and Babacan 2017; Alemi 2016; Markauskaite 2003; Raudeliūnienė et al. 2018) held a coveted position in schooling. Acquiring multimedia and ICT teaching and learning tools accelerates the schooling of students (Kayimbasioglu et al. 2016)." These kinds of tech-based instruction and learning environment offer student-specific self-learning resources. Industrial Revolution 4.0 offers the arrival of the modern era, stating that public organisations now support a public revolution. Education 4.0 offers the notion of creativity in teaching and studying via the utilization of technology. Various educational platforms like "Byju's — The Learning App, Topper, Khan Academy: Free Learning App, and Math Tricks"; are increasingly making use of the platform. To the best of our understanding, there is no such study undertaken for Industry with the interconnections of Modern English, and only unique studies have been performed based on either of the above-mentioned contexts. One of critical problems in global content when introducing Industry 4.0 is a shortage of digital culture, preparation and awareness ("Slusarczyk 2018"). "Digital English and Education 4.0" acquisitions enable people transition to the digital world; introducing Business 4.0 without key barriers which is quite helpful a knowledge in the modern world.

This paper stresses and analyses the impact and importance of "Digital English and Educational Revolution for Industry"; offering some significant analysis.. This research seeks to explore selected areas using the Analysis method and to encourage potential relevant new zone studies.

The fundamental issue with alternative ways of learning is that if the learner did not grasp the lessons they were taught in class, no research would support them. Only effective educational methods, cutting-edge learning tools and the best instructors will accelerate the learning phase and form and inspire the learner's mindset together to render him able to meet the relentless flux.

Objectives

This research study has the following objectives which are given below in points:

- "To identify the interconnections of Digital English and engineering Education,"
- "To identify that Digital English and Education 4.0 are connected."
- "To access the importance of Digital English in one of the applications of Industry 4.0, which is IoT?"
- To understand the research gaps from the papers reviewed by engineering industry. Engineering students still face a shortage of active digital community, instruction

manuals, information overload and language needs when applying its language learning activities.

Teaching and Learning English Language in the Modern Classroom Setting

English language learning, which is no longer too cumbersome, has made great strides from a generation earlier. It was limited to what the teacher taught the distracted learners, primarily an inactive act. Currently, the approach to language learning has been more collaborative and learning-centric or "learner-centric" (Choudhury 2013). Pedagogues have happily welcomed the use of numerous ICT resources to prepare learners for global competition and to help them connect skillfully and empower their development engine. Thus, it is proved that successful English teaching and learning has gone beyond traditional approaches owing to the evolution of numerous electronic gadgets. Technology has become a major component in all homes around the globe, impacting all aspects of human life, including schooling and higher education.

ICT for studying English

The English Language Learning (ELL) scenario is fully changed by evolving educational technologies. Knowledge distribution knows no limits nowadays, and with a few clicks on your mouse you can quickly access numerous details on the topics you wish to.

Alternatives to learning technologies emerge from challenges in the modern-day learning scenario, and ICT-based language learning is an answer to language learner's issues through its problem-centered approach. The technique enables neutralise physical or spatial distance, investigation, discovery, and creative solutions. This problem-based learning utilising ICT therefore tends to induce imagination for language teaching. ICT in language teaching may be seen in different ways such as language laboratory use, online tools, websites, social networking and smart phone apps. It has developed a curriculum that essentially involves ICT, i.e.; including a decent combination of traditional classroom teaching tools with a wide quotient of digital e-materials to be custom-made utilising online tools and other instructor references. Therefore, the universities today strive to be innovative in ELL (English Language Learning) technologies introducing CALL (Computer Aided Learning) for complementing classroom teaching.

Digital English / Education Interconnections

English is, as mentioned, the learning format of the modern world, and Modern English also undeniably supports Education 4.0 ("Vanorsdale 2017; Hockly 2014; Azim and Rahman 2014"). There are many technology-assisted teaching and learning programs that are accessible in the modern world, and most are used for self-directed learning by learners. Interestingly, English is the chosen language to use these resources to succeed internationally, since it is the primary language for education. Conversely, learning English as the foreign language for a second and non-native English speaker is difficult. The Integrated Technology

Strategy (Education 4.0) is used to facilitate the teaching and learning of the English language. (Alemlı 2016; Šafranjić 2013; Martins 2015). Golonka et al.'s study findings show that learners love to use technology in foreign language learning and continue to use technology more than traditional materials and techniques. Technology allows them to be more interested in the growth of learning, and they seem more positive about education. ("Golonka et al. 2014"). "In Taiwan, Lan et al. published a joint research on peer-assisted learning habits among EFL (English as a Foreign Language) learners in limited reading classes, with and without tablet PCs" ("Lan et al. 2007"). Mobile computers are the most-used wireless ICT methods ("Allabouche et al. 2016"). The tablet PC community uses contact tools, Skype, and the non-tablet party cannot reach machines. The study outcome indicates that tablet PC group pays more attention to reading activities and indicates more constructive habits including providing help and suggestions and preventing disagreements, whereas non-tablet PC group shows low development." Artyushina and Sheypak's research also shows that cell phones help build English communication abilities and enhance the communicative practice of students (Artyushina and Sheypak, 2018). "Integrated technology English language learning brings commendable progress (Lan et al. 2007). The investigation analysis was performed among Thai English language teachers to learn the usefulness of Facebook writing and studying. The study outcome shows that Facebook has an optimistic impact on the English writing and learning abilities of Thai English students, and also shows that Facebook can be a helpful medium and preferred forum for English learning. The research also suggests this technique not only to English instructors, but also to individual learners or other field instructors (Sirivedin et al. 2018). Digital English and Education 4.0 are both interlinked and cannot be differentiated as required globally; both rely on each other for sustainable development."

Not only the language of communication, business and education, but also the Language of the Internet is considered to be the value of Digital English. The online and electronic edition of English is also known as New English. Visual English is inseparable from the Internet. Although several websites use many languages, English is preferred and dominates web content by the largest group of Internet users ("Flammia and Saunders 2007"). The dominance of English as a language of the Internet is evident in its association with the search engines. The figures below show the number of users of the World English Internet. English is the dominant language on the Internet, although it is equivalent to other languages. While China's population is similar to the English equivalent, Internet users in English are marginally higher and their percentage is 25.3 percent, while the percentage of Chinese users is 19.4 percent and the number of people who use Chinese as their Internet language is lower than English. It is clear that most non-English speakers still prefer to use English and the Internet in their daily lives (Hodžić 2013; Crystal 2003; ("Hodžić 2013; Crystal 2003; Zikmundová 2016").

Internet application applies to other areas as well. The Internet is a vital modern-day weapon in every field today. Internet of Things (IoT)'s soul is Internet ("Vermesan and Friess, 2013"). IoT extends human interdependence. It is

one of Industry 4.0's main features. In this age of artificial intelligence, IoT holds a major human position equivalent to our shadows. Without IoT, mankind's daily life cannot have mobility, like, a car cannot be driven without wheels. It helps citizens worldwide to communicate peer-to-peer (Draishpits 2016). As a consequence, innovative theories, modern definitions and different interpretations soon started coming into effect. IoT's industrial technologies work in a large arena such as "Consumer Apps, Smart House, Business Applications, Engineering, Production, Energy Efficiency, Environmental Control, Building and Home Automation, Metropolitan Scope Implementations, Medical And Childcare, Elder Care, and Transportation." As human beings, we create our own mechanisms to state new items and respond to various interaction styles. As the modern era changed the way we interact, it also affected how we use words. English is used virtually and helps teach and enforce an online networking approach in IoT's Industrial Applications. It's still noticeable in IoT's programming languages. "IoT's top six programming languages are C, Java, Python, JavaScript, Swift, and PHP, and its instructive keywords are all in English. However, there are several reports on the applications and advantages of IoT (Talari et al. 2017), technology incorporation in English language teaching and learning (Gunuç and Babacan 2017; Kalanzadeh et al. 2014), digital English on the Internet (Flammia and Saunders 2007) but, to the best of our knowledge, and investigation no specific analysis has been done on the need of modern digital English in Engineering field."

Language Laboratory

Using language laboratory is the perfect way for learners to improve their linguistic skills and where education - learning cycles actually occur via the teacher's console of language learning tools. The software-based learner-centric modules enable the learner to practice while one is reading the text. These immersive softwares are really challenging and enhance the pupil's knowledge with "vocabulary, phonetics, intonation, grammar and readymade modules." Some high-end learning softwares also contain "communications skill-based courses, work skills, interview abilities, personality growth, body language, and providing evaluation features simultaneously. The app checks the learner daily activities" With the exception of the specialized programs, the language laboratory server could stream contents of different syllabus-related learning CDs so students could profit themselves from it. The instructor often presents instructional resources and guidance and uses the Teacher's monitor. The Language Laboratory provides the learner "immersive learning," and is counted amongst one of the fastest emerging machine and internet learning tools.

"An interactive experience enables students to be fully submerged in a self-contained artificial or virtual environment while observing it as actual. Immersive experiences may deliver rich and nuanced content-based learning to learners whilst helping to develop their academic, innovative and problem-solving skills. Since virtual experiences are so rich and vivid, people prefer to be interested. [Burns, 2012]

The Language Lab has the following advantages:

- Audio and video texts allow instruction and drilling of facts quick and fascinating.
- Helps recognize complexities of arguments.
- Different speech and accentual trends, both native and non-native; use IPA speech.
- Students could learn concepts learned in the class separately.
- Grammatical precision, comprehension and vocabulary.
- Expertise in the spoken and handwritten expressions and creative correspondence.
- Students may view media effects and react to audio content compatible with the teacher's syllabus, like classical English movies.

Evidently, these apps are a must-to-have in any target language set up in every realm of higher education.

Internet tools

The World Wide Web provides numerous learning resources and open-source software in all areas, including education. Hundreds of open source learning tools are available for free download, and can be used for language learning and teaching as well as grammar and assessment apps, language games etc. These sites also provide courses and certifications the learner may pick up at their speed.

"Implementation of CALL not only increases the efficacy of language instruction, it also offers the learner the greatest happiness in the learning scenario."

Talking about 'Webogogy' which is an analytical word is a "web-based learning methodology utilizing a pattern that distinguishes instruction and measurement. Typical learner experience is to cover a particular learning lesson and immediately cover a brief review (usually several choices) that checks for instant knowledge retrieval. The learner will then switch to the corresponding module or transfer to the next one, depending on his performance"(Khirwadkar, 2005)

The internet promises to be the interactive guru and aids in self-learning, inspiring learners to study themselves. Internet has also purchased mobile devices that make internet access fast. These systems may be fitted with software that promote language learning. Learners may be inspired to utilise open-source technology tools.

Context of blogs

Blogs are the finest examples of social networking that can be used to broaden classroom instruction that fosters engagement. The instructor might create a blog to help class members, where members might log in and communicate with the instructor or other classmates. Thus, the instructor might include the requisite back-up learning resources, include instructions on different subjects, and also delegate tasks and review the same. The instructor might recommend links to helpful websites and students might share their suggestions and comments.

Institutions or teachers may use large internet space domains to meet their pupils' needs. They might build web portals by setting up a local server specifically for their students and utilising these portals to act as a social network where teachers might share their lesson plans, lecture notes and assignments. Language teachers may use these platforms to

launch discussion boards, administer language quiz, and even recommend successful reading books and allow students to share their feedback and feedback on the books they read.

The Disadvantage- The Digital Gap

Digitization has another side to it as well, i.e. the global divide. Bridging the digital divide between urban India and rural India is a challenge, but it may take some time to solve this. India's government has taken measures like — launching educational satellites, providing tablets at subsidized costs, and providing free laptops that have created quite a ripple on the educational front.

These principles, which may be used in English Language Learning using ICT, do not require a tutor or instructor. Softwares embed knowledge and encourage teacher-led interactive workshops and courses, which brings out the learner's best. This validated method ensures constant encouragement, enthusiasm and direction for the learners to succeed. "Computers can / will never replace instructors, but provide fresh possibilities for improved language instruction. They will eventually render the language learning process much richer and play a crucial role in changing a country's educational system "(Lee, Kuang-wu, 2000)

After close review of previously published studies relevant to Modern Language, Education, the report establishes three outcomes (gaps). First, there is a lively interconnection between Digital English and Education, and in many countries, both are interdependent and embraced to boost individual and institutional growth. The results indicate that the introduction of Education 4.0 (technology-based method) increases the ability to speak English and is more student-centered and less time consuming. ("Mashhadi and Kargozari 2011; Solanki 2012; Parrilla 2016; Günüç and Babacan 2017"). Simultaneously, Flammia's research findings suggest that English is the chosen language for digital literacy and is introduced in several organisations ("Flammia and Saunders 2007"). The study, however, also proposes to examine the usage of education in other subjects. Second, the most IoT operations are only designed through English. Visual English is an IoT platform in both the programming language and the instructive language. However, no such analysis was conducted in IoT or any other industry service by examining the effects and significance of Modern English. Thus, authenticating the study outcome would foster inculcating practices to perform IoT interactive English analysis or some of the fourth industrial revolution applications. Third, Slusarczyk's research understands that one of Industry 4.0's problems is a 'lack of preparation or awareness' ("Slusarczyk '2018"). Nearly half of the respondents registered a negative response in their survey, indicating a lack of preparation or expertise in Africa and lack of properly trained workers. (Slusarczyk '2018). From the background of Thailand, Buasuwan's study results show that Thailand needs new mentality and abilities of lecturers and students, and advanced learning technologies ("Buasuwan 2018"). One of "Wallner and Wagner's" ideas shows a future full of business automation. If students need to interact with Business 4.0, they must follow a precondition — Education

("Wallner and Wagner 2016"). From the studies examined, it is obvious that education 4.0 is the perfect path to introduce Business without any main obstacles. The report indicates no such analysis was done by evaluating the impacts and significance of Education for Business. Thus, adequate topics were uncovered from the study findings for potential studies to fill the gaps in these fields.

Conclusions

By implementing this research study, the findings and comprehensive discussions of the latest evidence accessible for engineering industry on Digital English and also Education indicate the following study gaps: "(1) Extension of Education 4.0 to subjects other than English; (2) Impacts and Relevance of Digital English in Industry 4.0; and (3) Connecting Education 4.0 to Industry 4.0. Filling the loopholes and doing studies in these fields is helpful to address certain Business 4.0 problems." From the various literature examined, it is inferred that while many research were performed in the fields of Modern Language, Education 4.0 and Industry(Engineering), each field is special in nature and unassociated with one another.. There may arise several research questions; such as Why aren't Interactive Language, Engineering Education Specialists doing interdependent or integrated research? Were there no chances to perform studies in these areas? How to perform combined analysis in these fields? These questions are subjected to investigation in future researches. The planet is upgrading every day in terms of the technological horizons, and automation in any field is a welcome change. Therefore, above mentioned are several suggestions to ensure that potential research is done for the upliftment of the Modern Language and Industry 4.0 interconnections. In order to illuminate the actual scenario of the Fourth Industrial Revolution and Digital technology, training and knowledge, future research in this field may be required

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