

IoT Based English Vocabulary Teaching

Jyothi Katari¹, Dr.Jampana Usha², Ms. Vanaja Sivalanka³ and Dr. U. Pushpa Latha³

¹Assistant Professor, School of Technology Woxsen University, Hyderabad

²Associate Professor, Raghu Inst of Technology, Visakapatnam

³Assistant Professor of English Malla Reddy Engineering College (Autonomous)

Abstract- Because of the wealth of information that can be found online, today's students are urged to take a more active role in their education. This research draws parallels between ESP (English for Specific Purposes) instruction and the IoT environment. Our focus is on the Internet of Things (IoT), and we define it, describe its features, and answer fundamental concerns regarding its potential impact on the classroom. After examining the data, we zero in on how digital tools might improve language teachers' methods in the classroom. We provide an instructional strategy that, by using digital tools, increased students' interest, participation, and enthusiasm in class. The paper concludes that the importance of technology in the classroom will continue to grow, but that policymakers should take an active interest in digital technologies' potential as pedagogical tools and collaborate closely with educators and experts/developers in the field to create new methods of teaching.

Keywords: *English for Specific Purposes, Internet of Things, instruction, lesson plan*

I.INTRODUCTION

The term "Internet of Things" (IoT) has different meanings depending on the context, but generally refers to a network of gadgets (including automobiles, smartphones, and other portable electronics) that may exchange data with one another [1]. While giving a presentation on supply chain management (Ashton, 2009; [3]), [2] coined the term "Internet of Things" (IoT). Technology reportedly undergoes a major shift every 90 days, according to reports from ICT specialists. IDC predicts that by 2019, global expenditure on the IoT will have increased from \$698.6 billion in 2015 to approximately \$1.3 trillion[4]. Forecasting the number of connected devices until 2021, as illustrated in Figure 1 [5], indicates that the IoT's development rate is exponential.

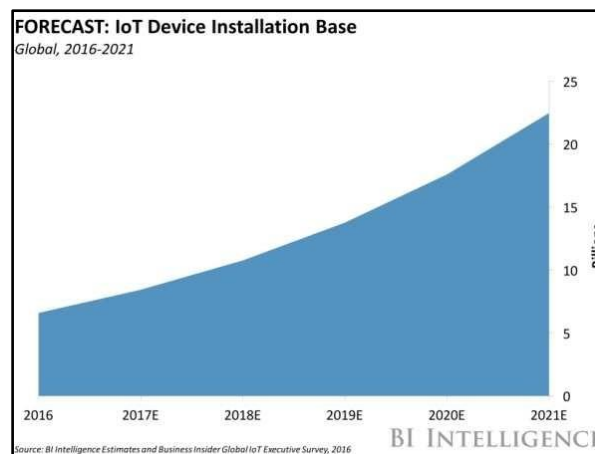


Figure1:IoT growthrate

Following is a list of the most prominent features of IoT [6]

- **Distributivity:** The evolution of the Internet of Things will occur in a highly dispersed setting. The data will be gathered from various locations and processed by a number of independent businesses;
- **Interoperability:** In order to get the desired results, equipment manufactured by several manufacturers will need to work together. In order for objects (devices) from various manufacturers to communicate with one another and share data, interoperable systems and protocols will need to be developed.
- **Scalability:**the IoT envisions a future when billions of items are connected online. Because of this, programmes and services operating at the network layer will have to cope with a deluge of information.
- **Scarcity of resources:** both power and computing power will be in short supply;
- **Safety:** If individuals are irritated by the existence of an external, unexpected control, they will be less likely to support the growth of the Internet of Things.

II LITERATURE SURVEY

Many modern definitions of the phrase "Internet of Things" employ either a "object smartness" or a "network smartness" to distinguish it from similar ideas like sensor networks [7].

How do we, as language instructors, need to modify our pedagogy to accommodate IoT gadgets? Keynote speaker and Associate Vice Chancellor for Mobilisation& Emerging Technology at the Tennessee Board of Regents Robbie Melton recommends the following method for integrating web-enabled devices and software into educational settings [8]:

- Revising our target demographics. He stresses the need of not assuming anything about the learners or their prior experience with training materials or delivery mechanisms. Furthermore, he believes it is our duty to assess their competence before to integrating technological elements into our curriculum;
- Recognize mobile's significance in education and the ways it may inspire innovative approaches to teaching by fusing content with students' everyday lives;
- Rethink our position as trainers/teachers to validate the knowledge obtained and the experiences of our learners, and to steer journeys rather than create them from beginning;
- Don't only utilise new tech for what it was designed for; instead, use your imagination to come up with novel ways of teaching and learning that take use of the portability of mobile devices.

It is impossible to overestimate the importance of English for particular purposes, given the widespread use of English by speakers of a broad range of other languages in today's globalised world. An economist or other professional working in the area of information and communication technologies[9] might benefit from learning the language most often spoken by international business contacts. Due to the need for quick decision making, businesses are continually implementing new communication techniques; nevertheless, poor communication with others may slow down corporate collaboration and the introduction of new products to the market[10]. Globalisation has led to an even greater reliance on English in the business sector, and researchers have spent decades studying the spread of Anglicisms

from the English language. Tonkin argues that the English-speaking world, and the United States in particular[11], benefit from the fact that the world's most powerful and important individuals speak English. This, he says, may be traced back to "a set of non-linguistic factors having to do with global economic integration and with significant changes in the way of life of a highly influential and increasingly numerous global elite [12]." The global economic infrastructure runs on English, giving those with command of the language a competitive edge [13].

The language instructor can use a mobile device to plan lessons and assess students' progress in real time. Since all students already own smartphones, allowing them to use them as learning tools in English classes is both an incentive for students and a professional development opportunity for teachers [14]. Only the device's operating system and the amount of available apps may restrict the manner in which mobile devices can be utilised as a learning tool.

We agree with Meyer's assessment of the IoT's potential impact[15] on schools: Teachers may be liberated from their physical screens and perhaps even administrative duties as a result of technological advancements in the classroom, as stated in the article, "Advances in emerging technology offer educators a chance to move beyond some of the challenges that have traditionally hindered effective technology use in the classroom." Connected gadgets, formerly seen as a distraction in the classroom, may usher in an exciting new age of educational technology and enhance teachers' primary craft[16]. Furthermore, we would want to stress the importance of platforms in organising student assessments of their English language learning activities. They also facilitate a more competitive academic atmosphere since they are conveniently available via mobile devices and allow, for example, the construction of learning instruments in the style of questions with two to four response alternatives that are given as a competition.

III RESEARCH METHODOLOGY

Descriptive and analytic methods are employed to investigate the matter. A questionnaire was sent out to get feedback on the researcher's planned Internet of Things (IoT) activities. Google Forms 2020 was

used to collect the survey data.

Helpful, not helpful, underutilised but useful, and unaware are the four categories for how often Internet of Things (IoT) activities are used.

Table 1: Description of samples

Category	Number
Male	20
Female	20
Total	40

IV. TEACHING ENGLISH FOR SPECIFIC PURPOSES (ESP)

There are many ways to teach English, but English for Specific Purposes (ESP) is a novel approach that has been utilised and studied scientifically for decades across the globe. Language expert David Crystal says, "Teachers need to prepare their kids for a world of startling linguistic variety" in today's globalised, highly mobile culture. They need to be exposed to as many dialects of English as possible, with an emphasis on the ones they are most likely to hear in their everyday lives. To replace the prevalent absolutist concept of 'good English,' we need relativistic models in which literary and educational standards are seen to preserve their position alongside other norms, some of which vary dramatically from what was previously regarded as 'right. As stated by [17].

English as a Second Language (ESP) refers to a range of methods for teaching English to non-native speakers where the focus is on the needs of the individual learner and the application of English in a professional or academic context. The originality of this method lies in its customization to the needs of computer science students majoring in Economic Informatics through the use of primary sources (professional magazines, reports, conference materials, interviews with experts, etc.) that relate directly to technological developments and the most frequently addressed phenomena in information and communications technology.

Our lessons are designed to help students acquire a professional vocabulary, with a focus on more

nuanced examples from the subject of IoT. The primary goals are to learn and apply domain-specific ideas, tactics, and methods of work (with linguistic assistance in English), and to expand one's domain-specific vocabularies. By studying the forms, structure, and norms of the specialised genres in this domain, students may hone their abilities in conducting operations using linguistic structures dedicated to the aforementioned sector in English.

Incorporating computer literacy into the classroom and conducting in-depth analyses of the numerous impacts on the way education is delivered are two indicators of the significance of technology development. The true effect of ICT on English language acquisition may be grasped after the pedagogical connection between instructor and student, as well as the goals and purpose of education, are defined[18]. The following steps are also necessary for the widespread adoption of technology education/

Web-Recording

Do IoT platforms' quick development in English language instruction have a positive impact on vocabulary knowledge, asks the first query. Eight out of ten respondents who were surveyed said they have used Internet of Things (IoT) activities to improve their vocabulary while studying. In the second question, do you think IoT may be used to supplement language and literature for effective comprehension?

IoT technology should be used to make learning entertaining, according to six out of 10 interviewees. They claimed that the IoT activities may hold students' attention.

actively in linguistic classes as well. More chances and a learning environment were established on the IoT platform, according to the comments of all the interviewees. Students' understanding would increase thanks to language classes. Do you believe that IoT can make English language learning more active for students? is the third query. IoT activities, in the opinion of seven out of ten interviewees, were more in table 2.

Table 2 Implications of IoT actions on English as a Second Language (ESL) students

SNo	Items in the questionnaire	Helpful	Not helpful	Not used but Helpful	Not aware
1	What role does IoT technology play in expanding one's vocabulary?	35	2	3	0
2	Confusion was reduced because to Internet of Things (IoT) initiatives.	28	5	2	4
3	Internet of Things (IoT) platform enables a broader selection of word games	27	8	4	1
4	The vocabulary tests I took advantage of through the Internet of Things (IoT) were more accurate.	25	10	5	0
5	Participating in IoT-related events helped me learn new things and expand my horizons.	34	6	0	0
6	Participating in IoT-based games aided in grasping related subject matter.	22	3	7	0
7	Enhanced vocabulary acquisition when words were contextualised inside IoT-based games	38	1	1	0
8	Learning communities may benefit from IoT's ability to facilitate peer and collaborative teaching and study.	26	4	9	1
9	Use a vocabulary notebook to track IoT-related terms.	23	9	8	0
10	Use English Language Media	24	7	6	3
Mean		28.2	5.5	4.5	0.9
Median		26.5	5.5	4.5	0
Standard deviation		5.24	2.87	2.87	1.37

- Making arrangements for and providing funding for,
- Systematization of Instruction and
- Developing a more detailed course outline.

In terms of budgets, societal concerns, and political agendas, the implementation of cutting-edge educational methods should take prime position [ibid]. Researchers investigated the reasons schools have not adopted learning technologies and identified the following five problems[19]:

- Education infrastructures are notoriously slow to alter and adapt.
- Many high-ranking educators have little idea of recent breakthroughs in teaching techniques and technology.
- The commercialism that fuels successful innovation in other sectors has a harder time permeating the educational system because of the government policies at the national and international levels.
- Because of the political climate, school administrations have become more top-down, bureaucratic, and resistant to change.
- When educators aren't given a voice in shaping educational policies, it becomes more difficult for educators to adopt the types of radical, paradigm-shifting alterations to classroom practises that have become necessary with the rise of cutting-edge educational technologies and pedagogical methods. (ibidem)
- Providing effective teaching is crucial to providing equal access to educational opportunities. Our plan for comprehensive ESP education includes elements from both the holistic and cognitive pedagogical approaches. The Holistic Model of Instruction Four-stage approach that focuses on the student's needs (instructional, social, motivational, and commitment) as they relate to learning.
- Aspects of procedure (Planning, Lesson design, Classroom dynamics, Instructional techniques, Assessment of learning, and Implementation of state standards)
- Alternative Viewpoints for Education (Developmental, Behavioral and Cognitive)
- Perspectives and Mindsets (Equity, Active learning, Supportive environs, Commitment)

The cognitive paradigm, on the other hand, is effective because it allows pupils to arrange their own learning and instruction. Students will, of course, require information, the ability to organise that knowledge, and the will to study on their own. The cognitive model of education is predicated on the following tenets:

- Participation and problem-solving on the part of students;
- College students use a variety of instructional approaches;
- Students are given opportunities to put their knowledge to use;
- In this model, students take on more of the onus of their own education and problem-solving.
- The procedures that students must learn are described in depth;
- The speed of instruction is determined by the teacher;
- It is the responsibility of the educator to use pedagogical judgement.

V. CONNECTING SCHOOLS FOR EDUCATIONAL PURPOSES.

Helen Basturkmen suggests that before designing a course and gathering data/texts, ESP instructors and course designers could find it helpful to reflect on the following.

- What linguistic competence (forms, functions, and characteristics) would the students require?
- Is there existing data/descriptions available on these?
- If this is not possible, how can researchers and designers of ESP curricula get information on such factors?
- If that's the case, how can we use the existing information and/or descriptions to complement or replace the study conducted by the course developers? (ibidem)

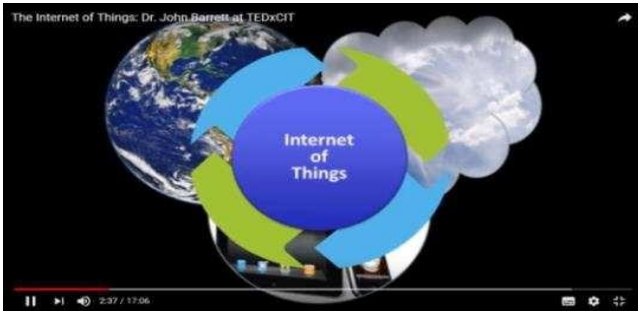
We suggest that learning English for a specific purpose may be seen as a process of creating reality, one that takes use of prior knowledge, mental models, and a positive setting. To put it another way, if the material being learned is irrelevant to the student's immediate needs and interests, it will be put on hold and eventually forgotten. Numerous experts have come to the opinion that technological advances are having a wide-ranging, and consequential, effect on research and language instruction. Furthermore, they stress the importance of information technology,

citing the Internet's growing involvement in both student and educator activities and assistance (ibidem).

At the Faculty of Computer Science for Business Management, students study English with a focus on describing how people utilise language and technology in business contexts. To help students get a deeper comprehension of how people in the aforementioned domains of expertise communicate and use language, the practise lessons are designed to provide accurate descriptions of discourse based on actual research. Following are the specifics of a lesson plan we developed for our intermediate-to-advanced students:

Students started by looking for and using texts from their own field, such as articles by real journalists and industry insiders that discuss IoT. We have to depend on texts created for purposes other than language teaching and learning to satisfy the requirements of our students since only texts published for causes other than language teaching and learning may contain the language our students need [ibidem]. For instance, one assignment required pupils to peruse The Economist's online publication in search of the article "Where the clever is." Some students knew something about IoT, but even those who didn't found the paper useful since the author presented a comprehensive picture of the current problems plaguing the IoT ecosystem. Students were instructed to scan the QR code with their smart phones to launch a multiple-choice exam after reading the article. This was done to ensure that the information was retained, as well as to gauge the students' grasp of the contents and their capacity for synthesis.

The second phase included oral, aural, and written components. We began by having a class discussion to ensure that everyone had a firm grasp of the concepts introduced in the preceding activity, and then we had them define "smart" and speculate on how "smart" things may become in the near future. Next, we had them view a presentation by Dr. Ted Barrett on The Internet of Things (see Fig. 2.), then debrief in small groups to discuss what they saw and how it related to what they read, using the terms we had covered earlier.



“Figure2:Presentation“TheInternetofThings”

Writing about the features (in terms of utility and benefit) of their smart phones within the framework of the Internet of Things was the last task, which was designed to put students' writing skills to use while also cultivating their imaginations. Three students presented their papers in front of the class, and the rest of the students discussed and voted on which one was the best.

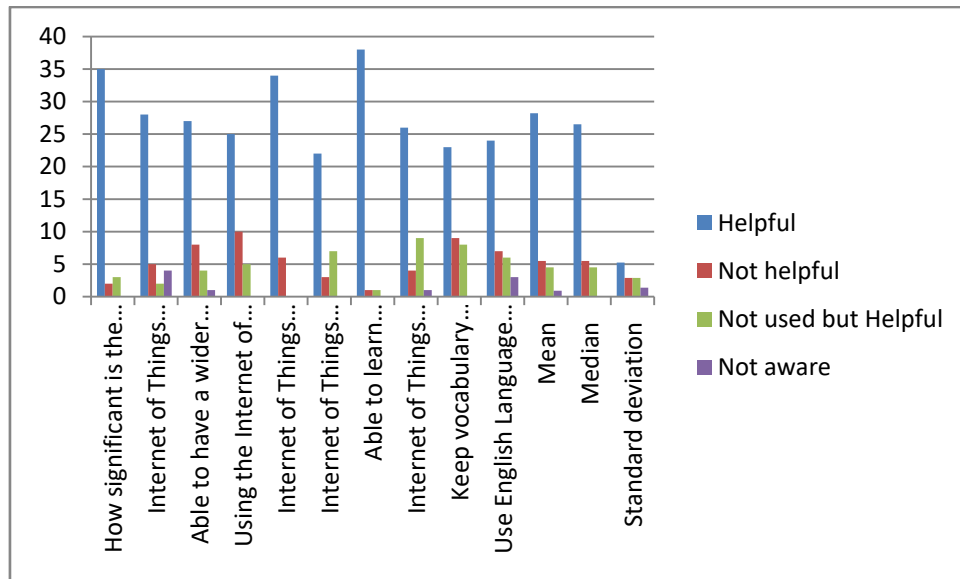


Fig. Activities that ESL students engage in while using the Internet of Things (IoT) shown graphically

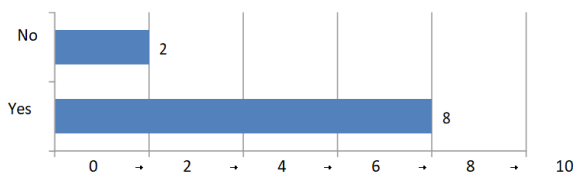


Fig.4 The first question from the semi-structured interview with ESL students' replies

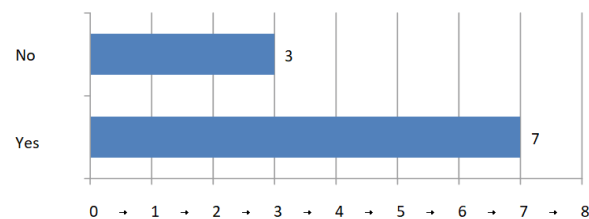


Fig.6 Semi-structured interview replies to the third question from a group of ESL students

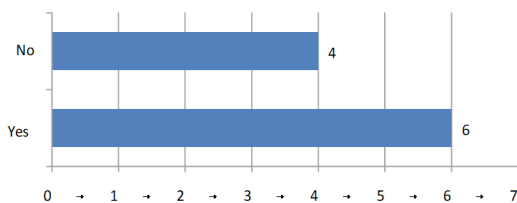


Fig.5 Semi-structured interview replies to the second question from a group of ESL students

VI.CONCLUSION

Taking into account the demands of contemporary education, the term "English competence" can no longer be limited to the ability to express an opinion on a topic based on in-depth knowledge of the subject in an informative sense, while dismissing the pragmatic aspect of pedagogical knowledge despite the scientific justification it provides for action. Acquiring a body of pedagogical science knowledge provides a theoretical foundation, but it is the

students' own methods of recognising and learning about pressing issues that will lead to their practical mobilisation and application, thereby honing their cognitive capacities, fortifying their sense of rational independence and autonomy, and fostering the development of a set of distinctive educational skills characterised by a sense of responsibility.

Our perspective is predicated on the idea that people need to have constant access to a wider variety of information sources in today's dynamic global environment, where their ability to communicate effectively across cultural and professional boundaries and have a voice in decision-making processes is more important than ever.

As a result, it is essential for university administration and policymakers to construct new paradigms in education that include all professors and students into the Internet of Things via openness, intensive training programmes, and mutually beneficial learning activities. As our research demonstrates, ESP instructors may be accommodating to their students' demands by using digital technology into their lesson plans and bringing relevant information from their own fields of expertise into the classroom.

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