

Investigating Engineering Students' Needs for ICT Integration in ESP Classes

Souad Belabcir
Moulay Ismail University, Morocco

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Submitted : 30 January 2024 Accepted : 26 March 2024 Published : 29 March 2024	<p>The innovations in science and technology and the continuous development of educational theories and methods have urged the need for creative uses of Information and Communication Technology (ICT) in English language teaching in Moroccan Higher Education and especially in the teaching and learning of English for Specific Purposes (ESP). For this reason and others, the present study aims to investigate the integration of ICT in ESP classes by identifying engineering students' needs for ICT integration in ESP classes at the Engineering school (ENSAM), Meknes. To meet this aim, the study adopted a quantitative method approach, which utilized a close-ended questionnaire administered to 64 civil engineering students. The data gathered was analyzed through Statistical Package of Social Sciences (SPSS). The results revealed the significance of ICT integration in ESP classes for Engineering students. Furthermore, the students expressed a number of lacks and necessities to improve their English proficiency level in general. The current research contributes to expanding literature on ESP in Morocco. Additionally, the implications and recommendations proposed will guide future practices and reforms in ESP teaching and learning.</p>
KEYWORDS	
ESP, ICT integration, Needs Analysis, Engineering schools.	
CORRESPONDENCE	
E-mail: s.belabcir@edu.umi.ac.ma	
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Introduction

The rapid growth of globalization and the increasing demands to learn the English language worldwide led to the evolution of ESP as a prominent field in English language teaching. The main goal of ESP is to meet the individual's socioeconomic needs and improve his life conditions. Therefore, in ESP both content and methodology are supposed to be meet students' needs (Hutchinson and Waters, 1987). Today, students are emerged in this era of technology and are aware of its importance in life-long learning. In this regard, research in applied linguistics and language teaching and learning has highlighted an indirect positive impact of ICT integration on the teaching and learning of language in English classrooms (Hubbard,2009).

In ESP, many of the studies on ICT integration (Munoz-luna et Taillefer 2018; Saree & Whyte 2017; Barcena et al. 2014; Anthony 2018) emphasized the benefits of ICT use in ESP classes. The fact that, raises their readiness and motivation for the use of innovative teaching and learning methods. On the other hand, research on ESP has raised issues regarding the extent to which students' needs are met.

In the Moroccan context, EFL (English as a Foreign Language) and in particular ESP is facing many challenges at the levels of theory and practice. Though, studies have demonstrated that students and teachers expressed their enthusiasm for the use of technology in ESP settings (Belmekki and Ibrahim, 2014), literature highlights the importance of conducting needs analysis in Moroccan ESP classes (Zaki, 1996; Ouakrim ,1997; Mahraj, 2019; Ouardi, 2021;). Further, Hattani (2019) recommended ESP practitioners to be aware of the new trends in needs analysis' theory and practice, in order

to provide learners with effective learning opportunities. Yet, students' needs are not generally taken into consideration (Ennaji 1990, Mahraj 2019, Akhajam 2019).

On the other hand, very few studies were carried out to investigate ICT integration in teaching and learning ESP. In a study about the role of ICT in teaching ESP classes, Zakhir (2018) demonstrated that both ESP teachers and students have positive attitudes towards the use of ICT and this affects positively the teaching and learning of ESP. However, students expressed their need for guidance in using ICT to benefit from it inside and outside the classroom. The studies conducted on ESP and ICT integration focused mainly on teachers' and students' attitudes but they did not address students' needs and preferences for ICT integration. Additionally, most of the studies on needs analysis highlighted ESP students' language needs while their learning needs have been much neglected.

For this reason and others, this study provides a new dimension of needs analysis where the focus is on how students wish to learn (West, 1994). In other words, it is concerned with the process of learning because learners learn in different ways (Dudley-Evans and St. John, 1998). And, with the affordances of ICT, it is necessary to explore how students want to learn using ICT. Eventually, the aim of this article is to provide insights and recommendations on how to integrate ICT in ESP teaching and learning, taking into account Engineering students' needs and preferences. For the main goal, to adapt the teaching and learning of ESP content and methodology to students' needs in Engineering schools.

English for Specific Purposes (ESP) is one of the English Language Teaching (ELT) fields that gained interest recently due to its practical aims. The emergence of ESP was mainly because of the increasing demands to learn the English language to keep up with the advances in science and technology, the linguistic revolution and the shift of education psychology towards a more learner-centered approach. Accordingly, this led to the spread of ESP worldwide.

During the rising of ESP, applied linguists, scholars and field experts tried to demystify the ambiguities around the term by highlighting the reasons for the need of teaching English for Specific Purposes. Hutchinson (1987) stressed the fact that ESP should not be regarded as a product but as an approach to language teaching. The choice of content and method should stem from learners' reasons for learning to achieve linguistic efficiency in academic, professional or workplace environments (Basturkmen, 2010). The absolute and variable characteristics proposed by Dudley-Evans (1997), confirm the learner-centeredness of ESP and how the methodology and activities adopted serve learners' specific needs, while the variable characteristics show the flexibility of the field in terms of the methods used, the proficiency level required and the targeted age category. Moreover, describing ESP into absolute and variable characteristics has helped greatly in resolving arguments about what is and what is not ESP (Anthony, 2002).

The arrival of ESP was not planned but was a result of trending revolutions that operated differently all over the world at different speeds namely; the demands of a brave new world, a revolution in linguistics and a focus on the learner (Hutchinson and Waters, 1987). The development in technology and economy contributed to the rise of new needs to learn the English language to keep up with the international trends in technology and commerce. As a result, the study of language shifted from defining formal features of language usage to discovering the actual use of the language in real communication (Widdowson, 1978). This fact, paved the way for the guiding principle of ESP "Tell me what you need English for and I will tell you the English that you need." (Hutchinson 1987, p: 8).

Education psychology has also switched the focus from teacher-centered approaches to learner-centered approaches to learning. Obviously, learners have different needs and interests for language learning that affect their motivation and ultimately their learning. That is why, the focus on learners' needs and their various learning styles is of paramount importance to develop courses that can increase their motivation and make learning more efficient and effective.

The status of ESP in Morocco

The teaching and learning of English as a Foreign Language in general and ESP in particular has been reinforced in the 21st century due to many factors, however, it encounters various challenges and obstacles. Recently, Moroccan educational reforms have mainly stressed the necessity to equip students with the essential skills to meet the demands of the job market. In August 2019, the Moroccan parliament approved the 51-17 framework-law which incorporates most of Morocco's educational reforms in the last couple of years and which has laid down the foundations for the strategic plan 2015-2030 of Morocco's national education system. The strategic vision calls for the mastery of Arabic and Tamazight along with French and English. Meanwhile, the reforms of higher education in Morocco focused on strengthening language learning, promoting digital technology, and teaching skills required in the job market.

Generally, Morocco is characterized by EGP instead of ESP but Sadiqi (1991) asserted that there are many private business schools which teach English to serve the needs of secretarial training, commerce and computer science. Nevertheless, the ESP field faces many challenges that should be addressed by educationalists, applied linguists and researchers. Generally, students have positive attitudes towards English that boosts their occupational English skills (Belkbir,2019). Still, after undertaking needs analysis, many researchers claim that students face difficulties with productive language skills such as speaking and writing.

Conversely, the role of the ESP practitioner is not only limited to teaching language skills but, he or she has also to conduct needs analysis, design courses, select teaching materials and appropriate teaching methods, in addition to that, he or she should have up-to-date information about science and technology (Ennaji,1997). That is why, they insist on the major role of needs analysis in designing ESP courses; Hattani (2019) emphasized that ESP practitioners should have up-dated knowledge to provide learners with effective learning opportunities. Consequently, there is an urgent need for a well-established training for ESP teachers.

One of the reasons why students' needs are not fully met in ESP contexts, is the limited time schedule allocated for English classes in Morocco. Engineering students receive from 1hour and a half to two hours of English each week (Akhajam, 2019) and this could occur in only one semester, as the case for Third year engineering students. The fact that does not allow students to refine their learning skills nor to utilize them for communication purposes in multiple situations inside and outside the classroom environment.

These are only few of the chronic matters that the ESP field in Morocco struggle with and that are still unsolved. Nonetheless, with the firm decisions of stakeholders, policy makers and educationalists, newly-made educational reforms should be effectively put into practice and more attention needs to be paid to the ESP field. Meanwhile, researchers, practitioners and applied linguists ought to contribute to the success of these amendments by critically evaluating the present situation through bridging the gap

between theory and practice to come up with possible suggestions and recommendations for future interventions.

Needs analysis in ESP

Needs Analysis or Needs Assessment (NA) is an integral part of curriculum development since it is the basis for lesson planning, syllabus design, materials development, instructional design and assessment procedures. It first appeared in India (1920) (West, 1994). In the 1970s, it was dominant in EOP (English for Occupational Purposes) and then changed to EAP (English for Academic Purposes) and ESP but has been neglected in teaching EGP (English for General Purposes) (Hutchinson and Waters, 1987).

The complexity of needs and its significance in ESP practice have generated numerous attempts to specify the meaning of needs analysis. One of the famous categories of NA was developed by Hutchinson and Waters (1987, p.54-58). They divided needs into target needs (what students require to do) and learning needs (what the students need to do to learn). The target needs are subdivided into three categories: necessities (the demands of the target learning situation), lacks (the gap between the target proficiency and what students already know), and wants (what learners need).

Linguists proposed definitions of needs analysis from different angles. Some focused on defining needs analysis in relation to curriculum development as the systematic collection of necessary information to design a valid curriculum (Brown, 2009). While others referred to NA as a tool to identify students' needs, Fatihi (2003) stated that NA is a device to know the learner' necessities, needs and lacks. In the same respect, NA is considered to be goal-oriented, context-dependent and population-specific which provides an insight on the nature of needs analysis as a process (Krohn, 2009). In general terms, Needs Analysis is a systematic activity of collecting, analyzing and interpreting information about students' needs to guide the design and development of curriculum, syllabus, materials and methods. And, it should be conducted constantly because of the dynamic nature of needs.

Various approaches to needs analysis have been proposed so as to cover the different needs of language learners. Target Situation Analysis (TSA) Chambers (1980), Present Situation Analysis (PSA) Richterich and Chancerel (1980) and Pedagogic Needs Analysis (PSA). This latter, was first used by West (1994) to fulfill the lacks in the TSA and PSA, it includes three main forms of needs analysis: deficiency needs analysis, means analysis, and strategy or learning needs.

Deficiency Analysis (DA) analyses the gap between the present knowledge of learners and what they need to achieve. It can form the basis of the language syllabus because it is supposed to provide information about the gap between the present and the target language skills. While means Analysis (MA) provides a tool for designing an environmentally sensitive course influenced by contextual factors like classroom culture, ESP staff, TSA and others.

Whereas strategy or learning needs analysis, is more concerned with the strategies' learners use. It tries to get data about how learners wish to learn rather than what they need to learn (West, 1994). Hutchinson and Waters (1987) developed this learning-centered approach to needs analysis by putting learners at the center of the teaching and learning process. According to this approach, needs fall into three categories: wants (what learners think they need), lacks (what people do not know) and necessities (what students need to know to be able to perform their responsibilities). In other words, in needs

analysis, not only the skills should be considered but also the process of learning and motivation because learners learn in different ways (Dudley-Evans and St. John, 1998).

Adopting this needs analysis approach has a number of advantages. It can offer a picture of students' conception of learning by looking at learning strategies and methods (Allwright 1982, quoted in West, 1994). Additionally, it has implications on selecting and developing materials in ESP courses. To achieve this, questionnaires, interviews, surveys, and observations can be used as research instruments for data collection (Alsamadani, 2017). Ultimately, as the learning-centered approach focuses on how students learn, the information gathered will influence teachers' pedagogy and didactics.

The many approaches proposed for needs analysis have not undermined the importance of some over others but they have contributed to the attempt of reaching a complete picture of language learning in ESP classes. By providing various perspectives, needs analysis proved to be fundamental not only in ESP but also in EGP.

Materials and Methods in ESP

Many researchers have pointed out to the necessity of materials' development in ESP. As Dudley-Evans and St. John (1998) put it, they are the source of real language; because they expose learners to the language of a particular discipline as it is actually used. However, it is advisable to conduct ongoing evaluative reviews to existing materials in order to adjust them over time in response to implementation outcomes and the trends in research findings because these are likely to serve students and teacher audiences more than materials that do not (Stoller et al, 2006, p.175).

In ESP settings the effective teaching and learning methodology, is the one aligned with learners' needs and interests, the materials used and the learning environment. Methodology is defined by Widdowson (1983) "as a set of activities designed to develop the procedural problem-solving capacity of learners" (P.107). These activities and tasks are generated from teaching and learning theories that cater for ESP learners needs.

Even though the use of appropriate teaching and learning methods is of high importance in ESP, the emphasis in research is more on content rather than on methodology, the fact that neglects the specificities of ESP context. The different branches of ESP involve the existence of multiple purposes that require various manners of implementation, and of course these should respond to the results of needs analysis to fit learners' expectations and interests.

In ESP, learner-centered approaches seem to be more effective; it is assumed that they work well in regularly scheduled courses particularly in short and intensive courses where the teacher plays the role of a language coach (Anthony, 2018). Another approach which directs ESP practices is the learning centered approach that focuses on understanding the processes of language learning (Hutchinson and Waters, 1987). Both approaches go in line with the principles of Communicative Language Teaching (CLT). ESP teachers generally use CLT methods as stated by Larouz and Kerouad (2016). Team teaching is another method in ESP, that enables teachers to seek assistance from each other whenever it is necessary and to work cooperatively on achieving learning objectives and goals.

Further, the limited time allotted to ESP courses drives practitioners to adopt teaching and learning procedures that best face the time constraints. Generally, there is no best method to follow in teaching and learning ESP, the ESP teacher ought to take into account the specificities of the ESP context to decide upon the most successful methodology to be adopted.

Evaluation

The different theoretical language learning approaches and methods and the obligation to respond to the socioeconomic needs of language learners have imposed thinking of practical evaluation procedures. In the ESP context, two major levels of evaluation were proposed: learner assessment and course evaluation (Hutchinson and Waters, 1987):

- Learner Assessment

Evaluation has a significant impact on learners' rate and pace of learning as it affects their motivation and engagement either positively or negatively. Nevertheless, there is a lack of discussion and guidance as to how learners' assessment should be proceeded in ESP, though, there is a number of examination types listed for example by Davies and West (1984) and others.

Hutchinson and Waters (1987) outlined three basic tests related to ESP: proficiency tests (used to know learners' ability to cope with a specific situation), placement tests (used in the beginning of the course to place learners in the most suited ESP course) and achievement tests (used to know how well students keep up with the syllabus). Anthony (2018) added two more kinds to this list: progress assessment (used to measure learners' progress towards achieving the course objectives) and diagnostic assessment (aims at identifying learners' strengths and weaknesses). Having distinct functions, these tests provide ESP practitioners with sufficient information on learners' learning that guide their practices to meet their students' needs and level.

- Course evaluation

The evaluation of ESP courses is of major importance to the fulfillment of the desired outcomes set by the different stakeholders in ESP settings. The course assessment forms the basis for essential modifications and revisions of courses since it has implications on the teaching materials and methods used. Another point is that at the program level, course evaluation might be conducted to determine which courses should receive additional funding and resources, which courses should be expanded or reduced in size and where, when, and how changes should be introduced (Anthony, 2018, P.137). So, course evaluation exhibits a democratic view in designing ESP courses that takes into consideration the views of the different parties involved.

In broad terms, both learners and course evaluation are time-consuming and complex. Both types of evaluation are complementary since that learners' evaluation provides information about course effectiveness, and course evaluation provides insights on learners' needs. However, the process of evaluation should be systematic and well thought of to meet learning goals and outcomes.

Theoretical Foundation of ICT integration in ESP

Due to shifts in pedagogical theoretical position from behaviorism to socio-constructivism, the role of technology has changed from being a tutor to a communication tool. In terms of ICT integration, this shift occurred in the 90s during the integrative phase of Computer Assisted Language Learning (CALL), influenced by two revolutionary advancements; multimedia and internet.

In this regard, Computer Assisted Language Learning is used to support language learning as an approach to ICT integration, using a wide range of technological devices, applications and environments. Many devices may be used such as Personal Digital Assistants (PDA), laptops, smart phones, Mp3s, Interactive white boards and others. There are also technological applications and software packages like word processors, media production and presentation programs, in addition to technological environments

of the World Wide Web and all its affordances (blogs, online dictionaries, wikis, corpora and others).

The recent European reforms in higher education are under the notion “learning is an active and constructive process” (Europarat, 2020). Learning is not anymore perceived as an accumulation of knowledge, but a making of meaning based on learners’ abilities. Social constructivism views students as active doers making them competent language users. Recent European educational frameworks such as the new European Higher Education Area (EHEA) adopt many of the principles of the social cultural theory by promoting learners’ autonomy and collaborative work. Thus, by focusing on learners, socio-constructivism has supported the shift from teacher-centered to learner-centered learning.

Many of ESP features go along with the principles of socio-constructivism that serve ICT integration in ESP classes. Virtual activities that can be practiced in ESP settings offer great occasions for student/teacher and student/student interaction in order to put up knowledge socially and cooperatively. Also, the main goal of ESP is preparing learners to face socioeconomic challenges of their future workplace, which for sure will be in a collaborative environment characterized by teamwork and shared responsibility. And, where online technologies constitute the main means of communication. Respectively, the emphasis put on learners by socio-constructivists corresponds to the description of ESP as being learner and learning centered, taking into consideration learners’ affective side including learners’ needs, attitudes, expectations and other variables in addition to, the impact of the learning environment.

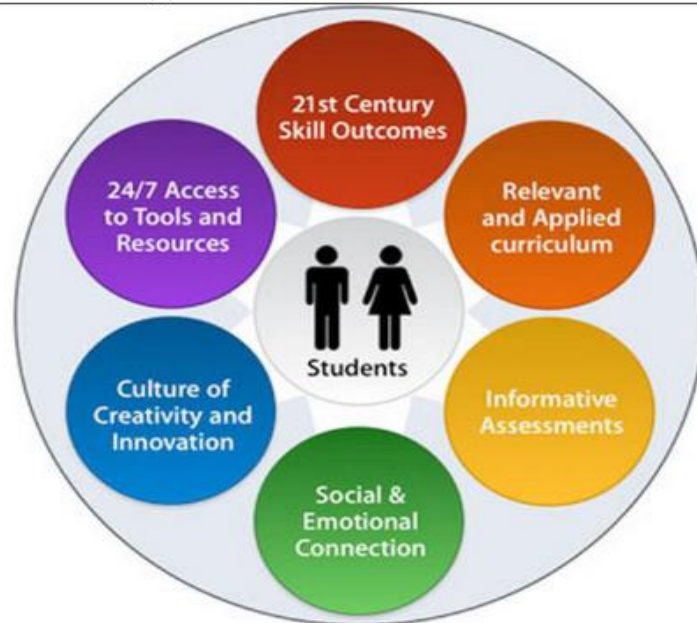
In a study conducted about pedagogical principles of integrating technology in ESP, Li (2017) proposed five principles of ICT integration:

1. Understanding the benefits and role of technology
2. Linking technology to learners’ needs
3. Integrating rather than adding technology in teaching
4. Considering the role of the teacher
5. Enhancing authenticity of both language and task

In short, the successful integration of ICT in ESP classes necessitates a collaborative approach to teaching and learning. Both the teacher and the students should be able to benefit from the affordances of technology by considering students’ needs and teachers’ roles, also, by embedding ICT at different levels of course design including assessment.

Models of ICT integration: ACOT2 Model

To help teachers integrate ICT successfully in English classes, various models were developed to support language learning. One of the models that focused on the importance of taking into account students’ needs in ICT integration is the Apple Classrooms of Tomorrow Model (ACOT) (1990, 2008). It is a project which started in 1985 with the association of schools and Apple Computer to investigate how the technologies used by teachers and students affect learning and teaching. The model has introduced five stages of ICT integration: Entry, adoption, adaptation, appropriation, and invention (Dwyer, 1994). Later, six components of the second phase of ACOT 2 emphasized the impact of students’ environment, needs and expectations on the teaching methods used.



The components of ACOT2 Model

In the same respect, the model maintains that students should be given the opportunity to use ICT tools innovatively and that the curriculum should fit their current and future lives. The use of ICT should also allow students to socialize inside and outside classes using authentic language via online activities or other tasks based on collaborative work. Concerning evaluation, teachers should adopt evaluation measures that aim at developing students learning continuously and provide them with relevant information on their level, progress and lacks. The social and emotional connection is another component in ACOT's model that does not only concern learners but also the learning environment including the school which needs to support the creative integration of ICT by providing necessary equipment, tools and gadgets that keep pace with the advancements in technology and serve educational purposes. Hence, ACOT 2 Model supports ICT integration in ESP classes in a constructivist manner that prepares students to face the challenges of the workplace.

Although many of the classrooms worldwide are equipped with the latest technological innovations that serve the teaching and learning process, many teachers are reluctant to the integration of technology because of their beliefs and perceptions (Ertmer & Ottenbreit, 2010). Consequently, without a positive attitude towards the use of technology and a willingness to put effort in trying new teaching and learning methods that serve this purpose, ICT integration models cannot be applicable nor obtain the results wanted.

Research Method

Typically, an ESP course is designed with the objective to meet students' needs and follow the new socio-economic changes and technological advances. Against this backdrop, the main purpose of this study was to identify engineering students' needs for ICT integration in ESP classes at the Engineering school (ENSAM), Meknes.

Any well-grounded study should follow a research design to integrate the different research components in a logical and coherent way to effectively address the research problem (Creswell & Creswell, 2018). The study adopted a quantitative research design investigating one main qualitative variable, which is Engineering students' ICT needs.

The quantitative data analysis of students' needs imposed the development of measurable indicators.

Consequently, the data gathered through a face-to-face questionnaire was entered and codified in SPSS (Statistical Package for Social Sciences) for the processing and analysis of data. The type of statistical analysis utilized is a descriptive analysis in the form of frequencies and percentages. After the analysis of data, an interpretation of statistics helped the researcher to draw conclusions concerning the needs of Civil Engineering students for ICT integration in teaching and learning ESP at ENSAM, Meknes.

The population of the study were Engineering students studying at ENSAM, Meknes. Thus, the questionnaire was administered to 64 Third year Civil Engineering students studying at the same institution for a number of reasons. First, because they follow Engineering studies and engineers are in extreme need of getting acquainted with ICT both during their studies and training. Their future jobs require daily use of technology for multiple functions using foreign languages especially French and English. Second, they have received ESP classes. Third, they can understand and answer the questions in English. Finally, they are aware of their needs, attitudes, expectations and wants.

The sampling strategy used in this research is convenience sampling. It is one of the non-probability sampling methods for both quantitative and qualitative data collection and by which the researcher selects samples based on his or her subjective judgment rather than on random selection. Convenience sampling results into a sample available to the researcher by virtue of its accessibility especially if the participants are drawn from a close population group. It's the most common non-probability sampling method used because of its speed, cost-effectiveness and availability of the sample (Creswell & Clark, 2018). In this case, the sample units are drawn from ENSAM, an engineering school at Meknes to represent the engineering students at this institution. The study results are presented in graphs, tables, or descriptive. Analysis and interpretation of these results are needed before being discussed.

Result and Discussion

The bar-chart clearly shows that Civil Engineering perceived English proficiency level varies between intermediate to advanced level. 37.5% of the participants perceive themselves as intermediate English learners, (35.9%) are upper-intermediate learners whereas (12.5%) believe they are advanced students. However, there is a minority of students which constitute (7.8%) who think they are Elementary English learners.

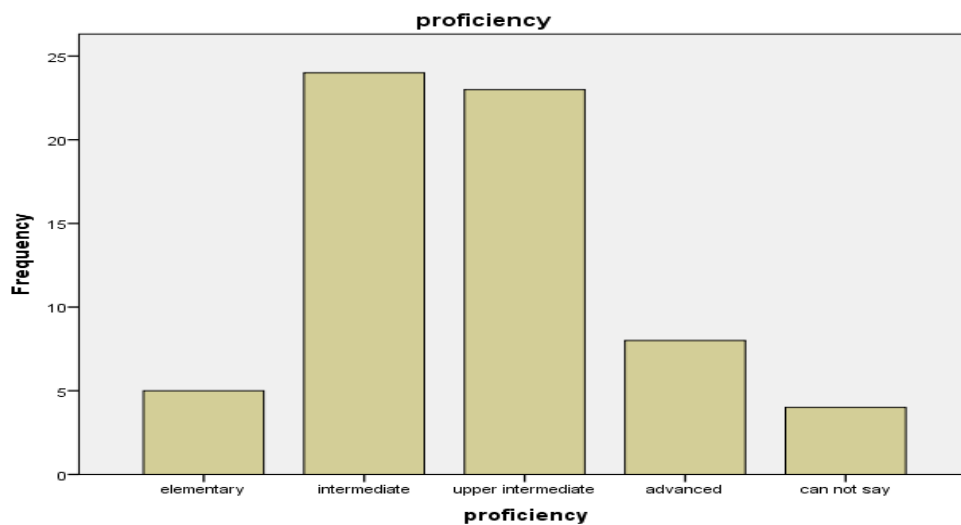


Figure 1. Engineering Students' Perceived English Proficiency Level

Concerning Engineering students' needs for learning English, (N=59 ;35.5%) of the respondents indicated they need to learn English for communication and another (N=51; 30.7%) think they need it for job purposes. Additionally, (N= 37; 22.3%) of the respondents believe they need English for studies. As a result, students need English for different purposes but mostly for communication, job purposes and studies.

Needs	Responses	
	N	Percent
For Communication	59	35,5%
For job purposes	51	30,7%
For fun	17	10,2%
For studies	37	22,3%
Compulsory	2	1,2%
Total	166	100,0%

Table 1. Engineering Students' Needs for Learning English

The question analyzed is a five-point Likert scale question which evaluates the respondents' computer skills level. To enter the data, the five scales were coded, Poor=1, Medium=2, Good=3, Excellent=4 and Cannot say=5 and, then analyzed in terms of frequencies and percentages. The analysis concluded that students are acquainted with different computer skills, but in various degrees.

As it is clearly represented in the graph, the majority of students think they are good at word processing (word, etc.) (59.4%), spreadsheets (excel, etc.) (48.4%), and presentation software (PowerPoint, etc.) (47.6%). On the other hand, (59.4%) respondents indicated they are poor at creating web pages, (35.5%) at graphics, (38.1%) at creating and editing video and audio and (28.6%) at computer maintenance. Eventually, students'

computer skills are still limited to progress successfully in their educational and professional career.

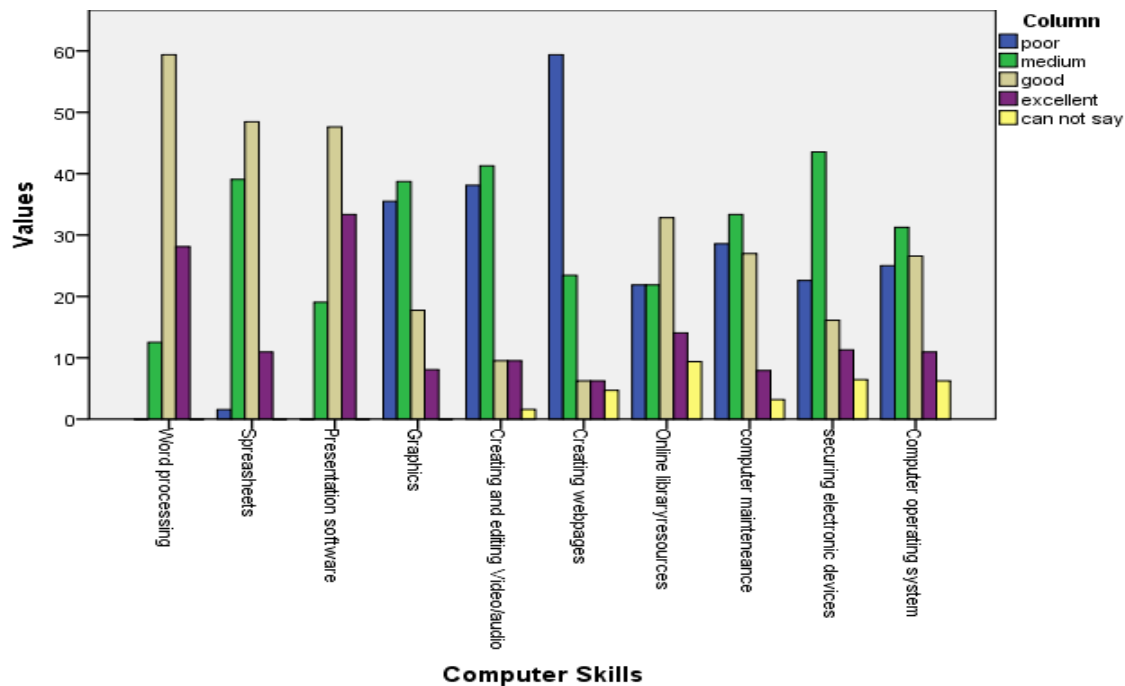


Figure 2. Engineering Students’ Perceived Computer Skills Level

To investigate the benefits of technology use, the researcher used a multiple-choice question with four options. The results revealed that (N=51; 46.4%) of the responses show that students believe that technology use in ESP courses improves their learning, another (N=32; 29.1%) of the responses demonstrated that students think it increases their motivation whereas (N=26; 23.6%) of the responses show that students believe it helps them to communicate with their classmates and instructor. Hence, the majority of students believe the use of technology in ESP courses improves their learning. When asking about students’ preferences concerning the degree of technology integration in ESP courses.

Results have shown that (43.5%) of the respondents prefer taking courses with extensive use of technology (e.g., class lecture, notes online, computer simulations, PowerPoint presentations, streaming video or audio, etc...) whereas (38.7%) prefer taking courses with moderate use (e.g., e-mail, several PowerPoint presentations and some online activities and content), However, only (1.6%) prefer no use of information technology in ESP courses. On the whole, the respondents prefer an extensive use of information technology in ESP courses.

Technology Benefits	Responses	
	N	Percent
1. Improve my learning	51	46,4%
2. Increase my motivation	32	29,1%
3. Help me to communicate with my classmates and instructor.	26	23,6%
4. No benefits	1	0,9%
Total	110	100,0%

Table 2.The Benefits of Technology Use in ESP Courses

The respondents expressed the necessity of using technology in language skills learning by answering a 3 point-Likert question. The scales were coded as follows: Not necessary =1, Necessary = 2 and Very necessary =3. The data was entered and analyzed into frequencies and percentages as shown in the figure above.

The responses indicated that it is very necessary to use technology to improve learning in listening (62.3%), pronunciation (56.5%) and speaking (55.7%). Additionally, the use of technology seemed to be necessary in reading (65.1%), grammar (60.7%) and vocabulary (50.8%). On the other hand, (27.4%) of the responses demonstrated that it is not necessary to use technology in learning writing. Overall, the respondents believe that the use of technology is necessary to improve the learning of most language skills.

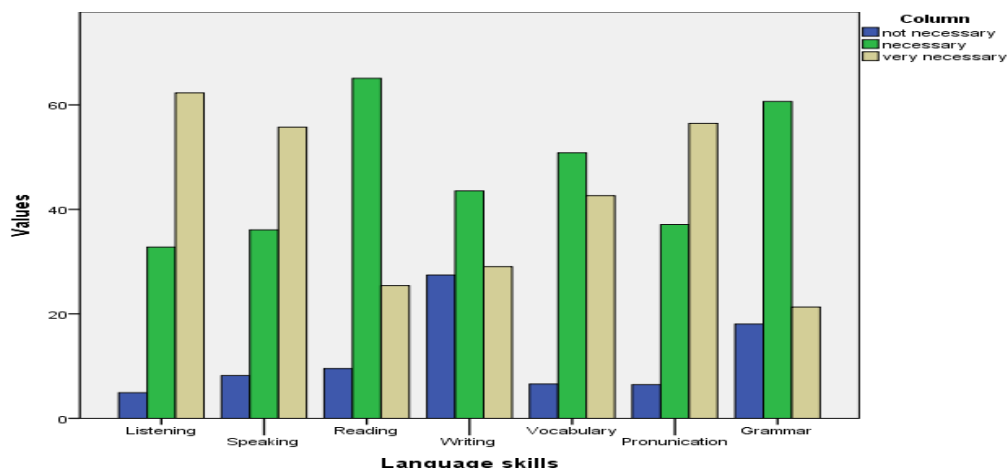


Figure 3.The Necessity of Technology Use in Language Skills Learning

The respondents were questioned concerning their preferred work method in the classroom, especially when working on tasks that require the use of ICT. As it is clearly represented in the frequency table, (N= 28; 43.8%) of the respondents prefer to work in groups while (N=18; 28.1%) prefer working in pairs and another (N=13; 20.3%) favor working individually. Many of the students inquired prefer working in groups on tasks that require the use of ICT.

	Frequency	Percent	Valid Percent	Cumulative Percent
1. Individually	13	20,3	20,3	20,3
2. In pairs	18	28,1	28,1	48,4
3. In groups	28	43,8	43,8	92,2
4. No preference	5	7,8	7,8	100,0
Total	64	100,0	100,0	

Table 3. Preferred Work Methods in the ESP Classroom

As far as evaluation is concerned, students expressed their agreement or disagreement with online assessment by answering a yes, or no question. As represented in the following figures, (N= 31; 48.4%) of the respondents do not agree with online assessment whereas (N= 27; 42.2%) agree with online assessment. The difference between the two percentages is not very representative, so, there is no clear agreement on this issue.

	Frequency	Percent	Valid Percent
Yes	27	42,2	46,6
No	31	48,4	53,4
Total	58	90,6	100,0
Missing	6	9,4	
Total	64	100,0	

Table 4. Engineering Students’ Perceptions about Online Assessment

Last but not least, the frequency table below reveals the respondents’ level of satisfaction concerning the use of technology in the ESP classroom. The majority of the respondents (N=38; 59.4%) confirmed they are satisfied with the use of technology, (N=22; 34.4%) expressed their non-satisfaction from the use of technology in class, while only (N=4; 6%) stated they are very satisfied.

Levels of satisfaction	Frequency	Percent	Valid Percent	Cumulative Percent
1. Not satisfied	22	34,4	34,4	34,4
2. Satisfied	38	59,4	59,4	93,8
3. Very satisfied	4	6,3	6,3	100,0
Total	64	100,0	100,0	

Table 5. Engineering Students’ Satisfaction Level from Technology Use in the ESP Classroom

The results revealed that students have positive attitudes towards the learning of the English language in general and ESP in particular as already confirmed in previous Moroccan studies (Ait Hattani ,2019; Mahraj 2017; Makhoukh and Aherahrou ,2015; Ouardi, 2021), since that they need it to succeed in their academic and professional career.

Yet, perceived English proficiency level of the majority of the participants in the

study ranged between intermediate to advanced, but most of them are intermediate English learners. Likewise, El Ouardi (2021) concluded that agriculture engineering students' proficiency level ranges between intermediate and advanced. Consequently, mixed-abilities of ESP students make it difficult for teachers to meet students' individual needs.

Concerning ICT integration in ESP, Third Year Civil Engineering students have stressed upon the importance of using technology in teaching and learning ESP. The majority believe the use ICT has a positive impact on their learning; it increases their motivation and helps them to communicate better. In literature, the affordances of technology in the English language learning in general and ESP instruction in particular, are well documented from different perspectives and in various aspects.

Civil engineering students indicated they use ICT devices inside and outside the classroom for personal, educational and professional aims. This fact, goes along with Prensky's (2001) description of learners as "digital natives" who feel comfortable with the use of technology. Subsequently, when asked about their preferences with regard to technology use in ESP, Civil Engineering students prefer courses with extensive technology use; for example, there is class lecture, notes online, computer simulations, powerpoint presentations, streaming video and audio etc.

Civil engineering students' perceived Information Technology (IT) competency level ranges between medium to good. The most noticeable computer skills that students claim are good at, are related to Microsoft Office use, specifically word processing, presentation software and spreadsheets, however, they lack other computer skills such as creating webpages, graphics, computer maintenance and others. Consequently, students' use of technology in the ESP classroom is limited to giving presentations. Obviously, being aware of students IT competency, enables teachers, curriculum developers and syllabus designers to have a widely shared understanding of information technologies they want to use, their level of sophistication and for what purposes they should be employed (Kvavik and Caruso, 2005).

When working on tasks or activities that require the use of technology, the data results have shown that the majority of students inquired prefer working in groups. The fact that abides by the principles of socio-constructivism and the socio-cultural theory that form the theoretical foundation of ICT integration in ESP classes by emphasizing the importance of cooperative work and co-construction of meaning to develop students' knowledge and skills.

In the ESP context, students' language needs are generally the first to be identified and analyzed in the teaching and learning of language skills. Relatedly, students believe the use of ICT is necessary to improve their learning of all language skills (listening, speaking, reading, writing, vocabulary, pronunciation and grammar). Likewise, research indicates that ICT supports the learning of language skills, for instance multimedia presentation, including graphics and videoclips has a positive effect on vocabulary acquisition (Kim and Gilman, 2008), it has also been reported that technology improves writing, listening, comprehension and grammar accuracy. Furthermore, the use of the internet offers different opportunities to improve students' listening and speaking skills as it enables students to upload, record and evaluate speaking, and listening tasks.

ICT integration requires the use of technology also in assessment by means of different methods. The data has demonstrated that most of the students inquired disagreed with online assessment because of a number of reasons. First, Civil Engineering students believe they need the presence of an authority figure to keep them focused during exams. Second, they referred to their previous bad experiences with online classes. Third,

they think it can be unfair because of internet connection problems and cheating. Fourth, they stated teachers have a hard time using technology. And finally, some believe it does not suit traditional learners. Broadly, the majority of Civil Engineering respondents have negative attitudes towards online assessment, but most of them are satisfied with the use of ICT in their ESP classrooms.

The following recommendations are outlined to serve ESP purposes in Morocco and improve future ICT integration practices in the ESP classroom to meet Engineering students' needs:

- Engineering schools in Morocco should set up language labs for ESP teaching and learning and that should be equipped with the necessary technological materials and gadgets to develop students' language and communicative skills.
- A systematic needs' analysis should be conducted in all Engineering schools regularly.
- Policy Makers in education should provide Engineering students with the necessary trainings to develop their Information Technology (IT) competence.
- Engineering Students should be given the necessary financial and technical support to participate in national and international competitions that call for innovative and creative High-Tech projects in order to improve their computer and communicative skills.
- Teachers should think of the implementation of blended learning especially the flipped classroom strategy in ESP to cover student's individual needs.

Conclusion

To sum up, the study helped to come up with valuable insights about the needs of Third year Civil engineering students for ICT integration in teaching and learning ESP at ENSAM, Meknes. The majority of Civil Engineering students who participated in the study, hold positive attitudes towards learning the English language and the use of technology in the ESP classroom as they are aware of the importance of using ICT to improve their learning and to increase their motivation. That is why, most of them think it is necessary to use ICT in the learning of different language skills.

Furthermore, students expressed their preference for taking courses with extensive use of technology, although they still need to develop their information technology (IT) competence for a more innovative use of ICT. Also, they seem to hold negative attitudes towards online assessment due to a number of reasons. Nevertheless, most of civil Engineering students are satisfied with the use of ICT in their ESP classrooms.

For future research on Engineering students' needs for ICT integration, a mixed approach is suggested to bring depth and corroboration into the research results using qualitative data collection methods such as classroom observation and interviews. To add to this, there is an ultimate need to compare teachers' practices to students' needs in order to find out the extent to which the teaching methods and approaches meet students' learning needs and preferences. This would help to get a holistic picture of the teaching and learning of ESP in Morocco and form a well-established background for future needs analyses.

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