



## NEED OF PROFESSIONAL DEVELOPMENT AND E-TRAINING FOR ACADEMIC STAFF TEACHING AT BIOLOGY DEPARTMENT

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### **Abstract:**

Teaching of English for specific purpose (ESP) is more crucial and difficult than teaching general English to target learners. Sometimes difficulties arise on account of English teachers' lack of knowledge of the field or subject which they are supposed to deal with. Similarly, biology teachers may not teach effectively due to lack of proficiency in English among both teachers and learners. Both English teachers and biology teachers need to be ready to teach English and biology. Main objectives were to find out the types of issues and learning difficulties faced by the teachers of biological subjects related to English as medium of instruction at KAU, and to explore the preparedness of English teachers to teach the students of biology. The study is of descriptive-exploratory type based on the data gathered from a self-developed questionnaire. The findings of the study will contribute to the assessment of learning needs, betterment of methods of teaching of biology and related subjects, and provision of training and teacher development.

**Keywords:** English for Specific Purposes (ESP), ESP teacher, learning difficulties, teacher development, e-training

### **1. Introduction**

Teaching of specific English is as important as general English; however, importance varies from context to context. Students and teachers face difficulties in both the cases mainly due to the teachers' lack of knowledge of the field or subject which they are supposed to deal with. For example, English language centres may casually assign

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classes of English at medical colleges to those teachers who have no knowledge of medical/applied medical sciences or even related subject like biology. On the other hand, teachers of biology also face problems in teaching students in English for two reasons: the learners' humble background of L2, and teachers' lack of experience and preparedness to teach in English. In other words, most teachers are not able to effectively use English as the medium of instruction for many reasons.

Keeping the pedagogic importance of teaching related issues of both the cases as mentioned above, the present study is expected to be quite helpful towards the finding out the actual causes, and evolution of some fruitful and compatible strategies of enhancing purposive English competence, and developing teachers of scientific subjects to teach in English. In addition, English teachers also need to be ready to teach English to the students at biology department whose first language is not English yet it is the medium of teaching.

Main objectives were to find out the types of issues and learning difficulties faced by the teachers of biological subjects related to English as medium of instruction at KAU, and to explore the preparedness of English teachers to teach the students of biology. In particular, the study aims to explore the need of e-learning and teachers' preparedness for technology integration. The study is of descriptive-exploratory type based on the data gathered from a self-developed questionnaire. The findings of the study will contribute to the assessment of learning needs, betterment of methods of teaching of biology and related subjects, and provision of training and teacher development in general and electronic learning in particular.

The need for English for specific purpose (ESP) for science, technology, education, and business has gradually increased in recent past. Therefore, researches and pedagogues have started exploring the possibilities of modification in ESP curriculum and methods of teaching. Based on the need analysis, the ESP approach provides opportunities to the learners to learn specific English in an effectiveness way. Therefore, this paper aims to highlight some concepts, characteristics and principles of the 'English for Specific Purposes' (ESP) approach to language teaching, difficulties in learning/teaching English and ESP, ESP teachers' training and preparedness especially in the context of e-learning/blended learning.

### **1.1 Rationale and Context**

The case of medium of teaching for scientific subjects has also been a pedagogic issue. The differences on the selection of suitable methods have always been noticed. The justifications provided by believers of different teaching/learning theories are of different types. Therefore, there is a need to explore the topic and related objectives to

arrive at some relevant conclusions as to what and how to teach ESP in a given context.

This study intends to find out learning difficulties and corresponding factors, and a possible solution for the effective teaching/learning of Biology and related courses/modules using English as medium of instruction at KAU-Jeddah.

Saudi Arabia has genuinely entered into new and innovative pedagogy of English as a second/ foreign language. The focus at tertiary level has shifted from general approach to specific techniques of teaching English for specific purpose (ESP). All the students of specialty courses of different areas of medicine, applied health sciences, sciences, engineering and management are now taught by sophisticated methods with technology. As a matter of fact, a blend of technique and disciplines has come into force in educational setting.

Each discipline needs special attention and approach. For example, a humanities student may not find a method of teaching English which is used in the scientific disciplines because of the disciplinary differences. Normally general English teachers are trained as pre-service teachers. However, they can develop themselves as ESP teachers by in service training/teacher development or research/publication.

On the other hand, each biology teacher can't be affective using English which is characterized by special biological terms which may be difficult for both the learners and teachers due to only fact: inappropriate proficiency in the target language and terms: their inflections and description such as 'prefix', 'root' and 'suffix'.

Despite the fact the modification/change in curriculum or teaching techniques are quite normal and on-going at most Biology departments of my institutions, some such problems still exist. The case of KAU, Jeddah is not much different.

The focal point of different teaching/learning environment, instructional approaches or integration of approaches/courses revolve around the need of the learners and subject to be taught. Teachers are general English may not be equally effective as ESP teachers; therefore, different kind of training and preparation is needed including technology access and effective use.

The department of Biology at KAU is showing concern like many other colleges for modification of courses/syllabi keeping the urgent and crucial need of the existing students, their courses and future career. The university offers teaching of English in foundation year to prepare students to take up specialties in second, third years and even later. However, there is a proposal to teach some English in second to fourth years so that the learners don't forget what they learnt, at the same time they can strengthen their subjects/specialties too. Teaching of English for biology students should not be done the way it is used for technology students. In addition, specific terminology

should be taught by an ESP expert and it will be appreciated in he uses blended learning approaches.

Keeping the above reference in view, is felt that there is need of good proficiency in the medium of instruction (English). Therefore, the present attempt is expected to be quite helpful in finding out learning problems, their possible causes, and designing of specific teaching methods as well as syllabus/course. The entire process may include the following but not restricted to: curriculum analysis, availability of textbooks/learning material, books, students' readiness to learn through these resources, teachers preparedness to use the books/resources in English(both off and online), proper assessment, focus on medical/biological terms, overall language proficiency and so on.

### **1.2 Statement of the Problem**

The study is an attempt to explore need of training, professional development and e-training for teachers of English for Biology and biology teaching staff who teach their subjects through English as medium of instruction at department of biology, KAU-Jeddah, KSA.

### **1.3 Objectives**

The present study will focus on the below objectives:

1. to find out problems faced by learners and teachers in learning/teaching English,
2. to find out problems faced by learners and teachers in learning/teaching biology using English as medium of instruction at KAU,
3. to study the possible factors that affect the learning of English: target language background, mother-tongue interference, learners' motivation, teacher-factor,
4. to find out factors affecting learning of biology using English as medium of teaching,
5. to suggest possible measures to overcome existing problems: such as syllabus change and teacher training in general and e-training in particular.

## **2. Literature Review**

Literature review for this study has a few dimensions:

1. English language background of the learners,
2. importance of ESP,
3. level of motivation for learning Biology as a subject in English, and possible causes,

4. continuous development of the teachers of biology to teach in English and through technology.

### **2.1 Learners Background of English**

Knowledge of English as a communication tool is perhaps the key issue in the entire higher education perspectives. Khan (2011, 5332-36) perceived, 'the learners' attitudes seem to be quite influential among many other factors. The study reveals that the poor background of English, the fear of making grammatical mistakes; lack of confidence and peer support lead to less performance. Consequently, the role of teachers becomes significant in the process of developing positive attitude for learning and using the target language.

Khan (2016, 1-10) revealed that all the general, specific and personal barriers exist especially in the case of learning. The result of English is quite below the expectations. Each barrier has a specific reason which needs to be studied and tackled appropriately. As it has already been mentioned that almost all the necessary infrastructural facilities are available (including e-resource), one can point one's finger towards these barriers and a suitable strategy should also be evolved to cope with them.

The overall weakness of English language learners in general has been attributed to various factors. Some of these follow: lack of knowledge, curricula, methodology, inappropriate environment and motivation to learn (Suleiman, 1983; Mukattash, 1983; Zughoul, 1983, 1987; Ibrahim, 1983).

Motivation also plays an important part in improving and developing the learners' communicative ability. Attitudinal studies conducted on Arab students, such as those of Harrison et al., 1975, have consistently shown that Arab students are instrumentally motivated to learn English and that they are well aware of the utility of knowing English (Zughoul, 1987, 225). This means that the main stimulus for learning English is instrumental, i.e. to achieve a goal, e.g. a career. It is true that some learners are quite motivated, but they are in a minority. Khan (2016, p.2) reported that most students had failed to learn a target subject due to lack of motivation and similar other variables.

### **2.2 English for Specific Purposes: Concept and Principles**

English for Specific Purposes (ESP) emerges as a concept in 60's, and since then it has been an important area in English pedagogy. As English continues to function as the world *lingua franca* for general communication, it is equally significant for specific purposes for business, media, technology, medicine, education, and research. Universities and institutes all over the world are offering ESP courses to meet the global

need as well as professional needs of future aspirants. Therefore, “*English for specific purposes is a term that refers to teaching or studying English for a particular career (like law, medicine) or for business in general*”. (International Teacher Training Organization, 2005).

Hutchinson and Waters (1992) emphasize ESP to be an approach not product that means language learning not language use is highlighted. They draw the attention to a ‘learning centered approach’, and they are much more aware of the importance of needs analysis to match the learning goals.

### **2.3 Importance of ESP**

English for specific purpose (ESP) is extremely important to be taught to students pursuing those subjects which use difficult terms in English and other languages such as Greek and Latin. (Khan, 2016, p.78-93). Materials for specific terms need to be developed specially in the area of medicine/biology/microbiology and laboratory sciences. Khan (2016) authored a book on medical terms for hospital professionals keeping the importance of specific terms. The teaching of biological curricula through English is equally important like teaching of hospital related subjects because English proficiency is extremely essential for content delivery through effective strategies.

### **2.4 Features of ESP course**

The term “specific” in ESP refers to a specific purpose for which English is learnt and teacher should be familiar with. He or she should be able to find an answer to what has been described as “language description” which involves questions: what topics to be covered? ‘What are the students’ need? ‘What aspects of language will be required and so on. (Hutchinson & Waters, 1992, p 19, 22). The authors further point out other aspects affecting ESP course which relates to learner’s surrounding. Questions were asked about “who”, “why”, “where” and “when” related to the nature of particular target and learning situation.

#### **2.4.1 Selecting ESP material**

Choosing ESP materials determines the success of the course based on effective delivery of the content of the lesson. Good material should help the teacher should design and organize effective and interesting material. He should choose and if needed evolve appropriate technique of teaching for easy learning. Materials may reflect the quality and vision of a teacher. (Hutchinson & Waters, 1992, 107). The authors continue, ‘good material should be based on various interesting texts and activities providing a wide range of skills. In addition, it should also function as a link between previous and current knowledge.

### **2.4.2 Teacher of ESP**

An ESP teacher should be well aware of academic and pedagogic issues. Therefore, he has to research from time to time to fulfil the students' needs. Initially, he should explore the aims of the learners and their career to meet the demand of teaching. He can also work for designing a course, compiling learning material, selecting/writing text books and evaluation towards the end. Most importantly, he must differentiate between the aims and teaching methods of general and specific English.

### **2.4.3 Development of Teachers**

Khan (2011, 1583) opines, 'professional development as a component of in-service training has been found very effective in educational sector as there is always a chance that a new incumbent doesn't possess suitable qualification or experience, so trainings can refresh him/her and bring to the level of requirement and expectations'. The author in other study (2011, 112-114) states that Continuous Professional Development must go on in order to avoid waste of resource. Training and professional development is always essential in this fast changing society. Thus, in order to be update, modern and sophisticated, one should attend in-service training or professional development programs.

As regards factors contributing to the challenges of teaching English in KSA, Khan once again Khan (2011, 69-78) contended, 'the role of teachers as well as management can play very important role. The teachers can try to develop themselves, and the management can provide the opportunities for the teachers to develop and utilize the e-resources for the betterment of teaching/learning management of teaching.

### **2.4.4 Training and Professional Development**

Teacher factor is the most important of all in the educational setting. It is the teacher's responsibility to refresh his knowledge, update his potential and equip himself with the advancement of the society and use of technology in general and educational environment in particular. (Khan, 2011, 885-88).

### **2.4.5 Training and Development of ESP Teacher**

Training of the teachers is very important for ESP courses because they should be well specialized so that they can meet students' needs. Therefore, following dimensions need to be considered: Each English teacher can't be specialized for ESP courses therefore, the selection of ESP teacher is crucial. ESP teachers should be qualified and knowledgeable. A current or future ESP teacher should first be trained in general

education. Also required in the process is a special training as a teacher of a foreign or second language leading to ESP training.

#### **2.4.6 Teachers' Preparedness to Utilize e-Learning**

Enochsson and Rizza (2009) published a literature review reporting on studies and papers presenting empirical research in the area of how teacher training institutions prepare future teachers for the integration of technologies. Interestingly they found that there were many examples of student teachers being taught online, there were fewer cases of student teachers being taught to teach online. They specially mentioned one course in the United States to prepare K-12 teachers for future online teaching (Davis et al., 2007) where 52 student teachers piloted for virtual schooling. They also noticed changes in the level of awareness, confidence in teaching online, competence in teaching online and competence in developing virtual courses (Enochsson and Rizza, 2009). A successful virtual practicum organised in the USA where 30 student teachers engaged with two experienced teachers and their students over a six week period (Karchmer-Klein, 2007). In a further programme, 'Preparing Tomorrow Teachers to use Technology (PT3) in Florida', Enochsson and Rizza (2009) describe how the course model *"was built upon 10 conditions defined by The International Society for Technology in Education. The 10 conditions were mentioned: commonly shared vision, access, skilled educators, professional development, technical assistance, content standards and curriculum resources, student-centered teaching, assessment, community support, and support policies"* (p.10). Student teachers were provided with laptops to facilitate electronic use for learning.

According to Judge and O'Bannon (2007), *"the evaluation of this project supports the effectiveness of this multi-approach model for developing new teachers that are capable of integrating technology into teaching/learning activities"* (p.299). Haydn and Barton (2007) found that student teachers in the UK look for role models in schools. Larose et al (2002) *"claim the student teachers' use of ICT in their future teaching strongly depend on representations and practices of teachers they meet during their field placements and training."* Grove et al. (2004) find a technology rich environment is important. Peraya, Lombard and Bétrancourt (2008) report on a change in approach over that period for ICT in teacher training from an initial focus on the use of technology. Enochsson and Rizza (2009) finally concluded that: *"It is important that student teachers have the possibility to see and experience pedagogical integration of ICT in the classroom during internship, both looking at good examples and being able to learn by doing themselves."*

### **3. Methodology**

The study is of descriptive–exploratory type. Data are collected through self-made questionnaires for teachers teaching at biology departments (English and biology teachers) in India, Pakistan, Arab countries including KSA, Sudan, Egypt (where mother-tongue is still important in teaching/learning process, and English as a second/foreign language can serve limited/specific/academic purpose despite being lingua franca like the case in Indian classrooms. But, it must be borne in mind that there is a huge difference between learning environment in rural and urban India. Their perceptions are used to support the idea as to how English teachers teach ESP, and how biology staff deal with English while teaching subjects like biology. Interview schedules are used to interact with local teachers who have first-hand exposure and experience. In addition, personal observation, experience is also utilized to substantiate data collection duly supported by existing literature reviews.

#### **3.1 Research Questions**

1. Does English language background affect learning/teaching of English and biology?
2. Is lack of learners' motivation influential in teaching/learning of English and biology?
3. Do teachers use mother-tongue in teaching English and biology?
4. Is media/technology used while teaching English or biology?
5. Is a teacher training crucial in achievement of learning/teaching goals?

#### **3.2 Limitations**

The study is limited to a small sample. Tools of research are not tested for statistical validity or reliability. The study is initially exploratory as statistical techniques are not employed.

#### **3.3 Tools of Data Collection**

##### **3.3.1 Questionnaires & Interview schedules**

The data are basically gathered through researcher made questionnaires for two types of teachers. Content validity was assured prior to the administration of the tools. In addition, some concerned teachers were also interviewed.

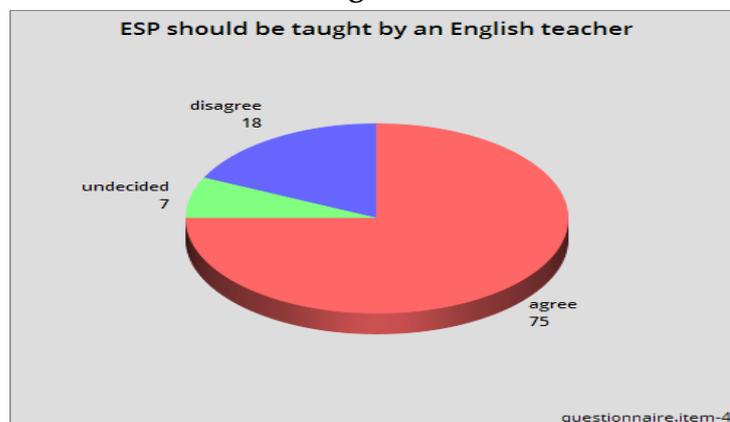
#### **3.4 Data Analysis**

##### **3.4.1 Analysis of Questionnaire for English teachers (N=39)**

Item wise analysis:

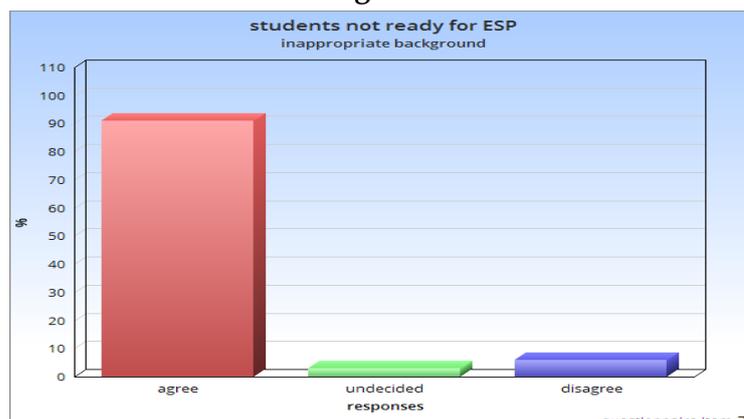
1. 40% teacher of English say that English is more important than ESP for biology students. That means ESP for biology is more significant.
2. 63% teachers are of the opinion that ESP should occupy a place in English curriculum at preparatory level for biology students.
3. 85% are of the view that ESP should continue throughout the program.
4. 75% teachers of English contend that specific biological terms should be taught by an ESP teacher may be because ESP comes under English rather than biology as a discipline.

Figure 1



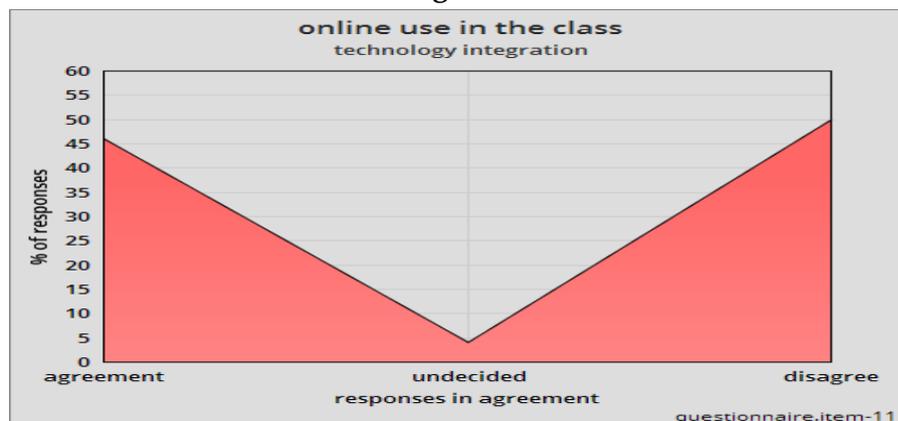
5. Only 55% teachers opine that English teachers should be trained to teach ESP in specialty courses. The reasons attributed could be due to the fact that they already have had received training or they don't want to teach ESP for some reasons.
6. 71% teachers believe that ESP classes should be assigned their classes according to their experience and interest.
7. 91% teachers state that Students are not ready to take up ESP classes.

Figure 2



8. 74% teachers think that students face problems in both general and specific English, however the degree may vary.
9. 81% teachers state that there is a need to select teaching material according to needs in second year and later
10. All the teachers of English claim that they can teach their subject(s) through English without any problems.
11. Only 46% confirm that they use online resources to facilitate learning.

Figure 3



12. Just 44% admit that they usually teach by ppts.
13. Only 21% state that there is an internet connection in their classes, and necessary equipment.
14. 41% confirm that they have attended some training for technology integration in teaching.
15. 21% respondents admit that they use mother tongue while teaching their subject(s).

#### 4.2. Interview Schedule for English Teachers (to assess problems in learning/teaching English)

**Q1: Why do you think the students face problems in learning English in foundation year?**

**Teacher 1:** *“Mostly because of their humble background in English which they carried forward from secondary schools due to many reasons. However, exceptions are there: some students are product of good schools under efficient teachers especially in a city like Jeddah.”*

**Teacher 2:** *“...because of lack of motivation in education in general and English. Their vision is quite narrow.”*

**Q2: Do you think the students are ready to take up the courses which are designed for English in foundation year?**

**Teacher 1:** *“Most of them are not ready to take up. It is very frustrating when a teacher works really hard, but they don't use the opportunities to learn.”*

**Teacher 2:** *“They are not ready, and they don't want to prepare themselves also probably because of their learning habits.”*

**Q3: Do you think that foundation year English course should include sort of ESP so That the students are comfortable in second to four year?**

**Teacher 1:** *“Yes, there is a need of some 75% general English and 25% ESP combination in at least module.2/term. 2 so the students can prepare themselves for ESP.”*

**Teacher 2:** *“I think yes. There is a need of ESP inclusion to some extent to prepare them for ESP.”*

**Q4: Should they be taught by ESP expert? If so, why?**

**Teacher 1:** *“Yes, there is a need of ESP experts because all English teachers can't be comfortable in teaching ESP for many reasons.”*

**Teacher 2:** *“An ESP expert has developed him as a teacher of Specific English. In the course of development, he might have earned certificates, attended workshops, carried our researches for growing him as a specific teacher. Therefore, he should be assigned ESP classes for better achievement.”*

**Q5: Is there a need to train the English teacher who is assigned to teach those students who is going to teach biology students?**

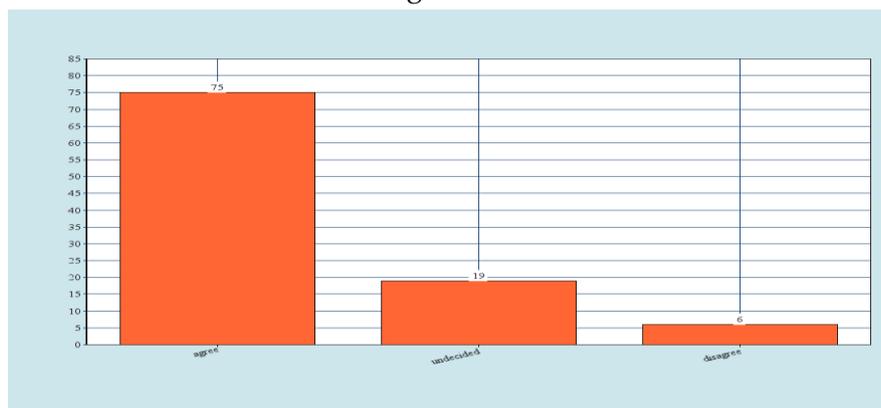
**Teacher 1:** *“It is better if he is trained.”*

**Teacher 2:** *“There is always a need of training for better performance in an ESP class.”*

#### 4.3 Questionnaire Analysis (for Biology teachers)

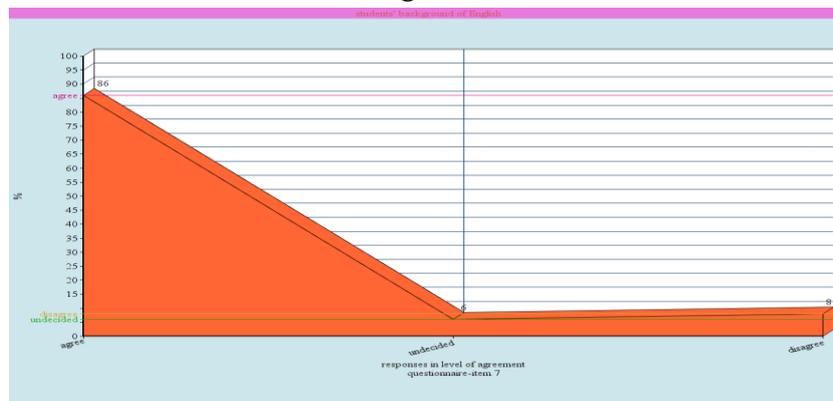
1. A total of 75% biology teachers agree that teaching of ESP is more important than general English for biology students. However, English teachers perceptions are quite different from them.

Figure 4



2. 80% biology teachers contend that General English should be taught in foundation year with an integrated module of ESP.
3. 85% biology teachers feel that ESP should continue throughout the course to reduce the burden of biology teachers.
4. 71% biology teachers opine that Specific terms should be taught by ESP teachers.
5. 55% biology teachers are of the opinion that they need training to learn how to deal with English related issues in the biology class.
6. 51% concerned teachers believe that they need training courses in teaching methodology in general.
7. 84% respondents confirm that students have humble background in the target language so teaching biology is more difficult.

Figure 5



8. 79% biology teachers believe that the students have more problems in specific English than general English.
9. There is an urgent need to select suitable material for teaching English, say 82% of the bio teachers.
10. 78% state that they can teach their subjects in English without any problems.
11. Only 35% teachers admit that they use online/e- resources to facilitate learning.
12. I usually teach by ppts, admit only 31% biology teachers. This percentage is affected by countries like India, Pakistan where biology teachers hardly use PPTs especially in rural areas. But, departments of biology encourage such presentation with online resources especially in a place like Jeddah and other cities in KSA. It is because that most classrooms are equipped with required technology.
13. Only 24% biology teachers say that there is internet connection and other equipment in their classrooms.

14. 53% biology teachers confirm that they have attended some training for technology integration in teaching.
15. Only 19% admit that they use mother tongue while teaching my subject.

**4.4 Interview schedule for biology teachers at KAU** (To assess problems in learning/teaching biology in English)

**Q1: Why do you think the students face problems in learning biology and related subjects?**

**Teacher 1:** *"I think ...because of their humble background in English, and also due to existing English curriculum and methods of teaching."*

**Teacher 2:** *"Lack of motivation in learning English and biology is the reason."*

**Q2: Do u think the students are ready to take up the courses which are designed in English for then at biology dept.?**

**Teacher 1:** *"That's the question. It seems as if they are not ready due to different reasons."*

**Teacher-2:** *"They are not ready, and many factors contribute to this unpreparedness."*

**Q3: Should they be taught by ESP expert? If so, why?**

**Teacher 1:** *"Yes, there is a need of ESP experts because all English teachers can't be comfortable in teaching ESP for many reasons."*

**Teacher 2:** *"An ESP expert has developed him as a teacher of Specific English. In the course of development, he might have earned certificates, attended workshops, carried our researches for growing him as a specific teacher. Therefore, he should be assigned ESP classes for better achievement."*

**Q4: Do they fail to learn biology as they are weak in English?**

**Teacher 1:** *"Yes, it may be because English is the medium of teaching."*

**Teacher.2:** *"I think yes. There is a need to strengthen English to learn Biology because the subject includes a lot of difficult terms in English and borrowings."*

**Q5: Do you think ESP should be integrated with English curriculum so that the students are comfortable while pursuing their specialty courses?**

**Teacher 1:** *"It is a wonderful idea."*

**Teacher 2:** *"There is always a need of a nice combination of general and specific English."*

**Q6: Is there a need to train the English teacher who is assigned to teach those students who is going to teach biology students?**

**Teacher 1:** *"It is better if he is trained so that he can give his best."*

**Teacher 2:** *"There is always a need of training for any teacher to grow."*

## 5. Conclusion, Implementation and Suggestions for Further Studies

### 5.1 Conclusions

Based on the analyses of questionnaires, interviews and observations, conclusions are hereby drawn: Inappropriate English language background of the target learners negatively affect learning/teaching of English and biology. In addition, lack of learners' motivation is quite influential in teaching/learning of English and biology. Out of need and strategy, some teachers use mother-tongue in English and biology classes. Quite a few teachers use media/technology while teaching English or biology, however, it was noticed that all the classes are not equipped with technology. It was also found that teacher training in general and e-training in particular is pedagogically required for better outcomes.

### 5.2 Implementation

The result is going to be utilized not only in the Dept. of Biology, KAU- Jeddah or other colleges in the kingdom where Biological sciences are taught using English as a medium of instruction. It will also contribute to the curricular planning of similar institutions outside the kingdom in assessing the issues, problems of learning English, learning scientific subjects like Biology and developing innovative strategies to teach/learn. The use of an electronic platform such as LMS and an e-tool like 'blackboard' and other blended learning techniques will be explored in the given context.

### 5.3 Suggestions for Future Research

Since the present research is descriptive-exploratory carried on a small sample to support the theory, there is an urgent need of an empirical or case study research which could be strictly institution based to elicit more informative and in-depth data to be analysed more systematically and statistically to arrive at much better conclusions in order to recommend curricular and pedagogical development. Separate studies can be conducted empirically in the area e-learning, e-training and blended learning scenario.

### About the Author

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