

## Chapter 20

# Applying the English Language Needs of Students of Computer Engineering: Developing an Online Technical English Course

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### **ABSTRACT**

*Learners' engagement is one of the important challenges of online classes. This case study aims to examine using a needs-based syllabus as a way to solve the engagement problem in an online technical English course. For this purpose, 42 computer engineering students' needs were explored at the beginning of an online course using a survey, in-class questioning, and interviews. Their perceived needs were used in developing the syllabus. A second survey was used to measure the students' satisfaction at the end of the course. The results indicated that taking into account the particular needs of this group, including different aspects of technical words, reading technical texts on new developments in the field and written communication skills needed for successful communication in their related networks and careers, increased learners' online engagement as was evident from their reports. Finally, students' satisfaction with the content and practices was significantly high. These results are beneficial to all ESP teachers, especially online instructors.*

### **INTRODUCTION**

Generally speaking, learners' engagement has been considered as one of the most important factors contributing to their success and achievement or failure and dropout (Finn & Zimmer, 2012; Li & Ju, 2023; Ma et al., 2015). However, both previous literature and our personal experience as teachers supports the idea that engagement in online classes is much greater a problem as there is a higher rate of attrition, lower participation as well as more students' silence in these classes (Bond et al., 2020; Farrell

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& Brunton, 2020; Woodley & Simpson, 2014). Student engagement is a complex concept for which many definitions and conceptualizations are provided over the past decades. It has been related to better achievement, perseverance and retention (Chen et al., 2010). There are models and conceptualizations of student engagement considering it as a multifaceted and multicomponent concept encompassing behavioral (participation, persistence and effort), emotional (attitudes, motivations and interests), cognitive (self-regulation, goal-orientation) (Fredricks et al., 2016) and academic aspects (graduation credits, time on task, and homework completion). Therefore, student engagement is more than mere participation in the course or completion of the required assignments and tasks, rather, it is students' overall investment in the learning that causes students to be behaviorally, cognitively, emotionally and academically involved in their learning process. Many different physical, personality, attentional, affective and motivational factors or a combination of them may attribute to learners' engagement in classes.

In online classes, many of the factors which contribute to the learners' engagement in face-to-face classes may be missing. As a result, online student engagement is one of the most important challenges of online education as there may be a high sense of detachment, isolation and disconnection. Therefore, the role of student engagement in online classes is essential as students can perform a successful online learning only if they actively engage in online learning activities and processes. If it is not the case, the content, no matter how good it is prepared and presented, cannot by itself lead to successful online learning. Different methods and solutions are presented for engagement problems in online classes (Redmond et al., 2018). In academic settings, this is even a more important problem. (Farrell & Brunton, 2020). The fact is that online general proficiency courses can benefit from many innovative activities like role plays, online games, digital storytelling, etc., which are not so compatible with academic classes while teaching academic content. Therefore, other ways must be sought to both engage university students in online classes and be suitable for the academic contexts and the content which is taught these. This study is an attempt to deal with this problem.

English language is an important aspect of computer technology and sciences and as a result many students of computer engineering and sciences are in an inevitable need of becoming proficient English language users. This proficiency can be content-directed or language directed (Lue et al., 2014). The content-directed aspect is more focused on different genres including various technical comprehension texts (both written and oral), instructions and manuals, computer languages, programs, commands, reports, etc. On the other hand, the language-directed needs are related to different general proficiency skills (discussion and argumentation skills in speaking and writing). In addition to these needs, some indefinite needs can also be identified which include both content and language proficiencies such as recognizing and producing technical jargon of the field (in terms of meaning, pronunciation, collocations and usage), comprehending and producing academic texts, filling application forms, writing reports, etc.

New developments in the field of foreign language teaching especially teaching English as a foreign language (TEFL), English for academic purposes (EAP) and English for science and technology purposes (ESTP) have changed the traditional dominant approach to curriculum and course development in which "learners were fed an undifferentiated linguistic diet regardless of their communicative ends" (Nunan, 1999, p. 148). What is more important now is the learners' needs, goals, motives and demands to help students reach the desired level of English language proficiency needed for competent performance in a particular scientific field. In other words, developing courses for students and based on their needs is emphasized over fitting students to ESP courses. Therefore, needs of students are important in developing a particular ESTP course in order to meet their satisfaction from the learning process.

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