

# LEARNING ENGLISH FOR MEDICAL PURPOSES IN DISTANCE EDUCATION. A CONCEPTUAL APPROACH

## APRENDIENDO INGLÉS CON OBJETIVOS MÉDICOS EN UN AMBIENTE EDUCATIVO A DISTANCIA. UNA APROXIMACIÓN CONCEPTUAL

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# LEARNING ENGLISH FOR MEDICAL PURPOSES IN DISTANCE EDUCATION. A CONCEPTUAL APPROACH

## APRENDIENDO INGLÉS CON OBJETIVOS MÉDICOS EN UN AMBIENTE EDUCATIVO A DISTANCIA. UN ENFOQUE CONCEPTUAL. UNA APROXIMACIÓN CONCEPTUAL

### Abstract

Learning English for Specific Purposes (ESP) has become widely available through a variety of online tools and e-learning platforms. In many cases the e-learning courses provide an electronic replication of in-presence courses focusing largely and only on developing lexical and grammatical knowledge, as well as receptive skills. Research shows the importance of Virtual Teams (VT) for fostering deeper learning and developing critical thinking, yet insufficient number of studies has researched the implementation of VT in learning English for Specific Purposes in the field of Medicine. The current study aims at developing a conceptual approach for enhancing English for Medical Purposes (EMP) e-learning programmes focused on the development of communicative skills, critical thinking, intercultural cooperation, lifelong learning and motivation through the use of Virtual Teams. The conceptual approach includes a set of problem solving tasks associated with actual medical cases organised entirely in a technology-mediated environment. Through problem-based learning, participants and tutors organized in Virtual Teams will be expected to reach solutions to outlined medical cases and problems. The proposed conceptual approach will develop foreign language proficiency for medical purposes, team working skills and critical thinking in recurring social interactions and collaboration in an online setting.

**Keywords:** e-learning; virtual teams; English for medical purposes; critical thinking

### Resumen

El aprendizaje de inglés para fines específicos (English for Specific Purposes) ha estado ampliamente disponible a través de una variedad de herramientas en línea y plataformas de aprendizaje electrónicas. Frecuentemente, los cursos de aprendizaje electrónico ofrecen una réplica electrónica de los cursos presenciales que se centran principalmente en el desarrollo del conocimiento léxico y gramatical, así como en el desarrollo de habilidades receptivas. Estudios han mostrado la importancia de los equipos virtuales (Virtual Teams) para fomentar un aprendizaje más profundo y desarrollar el pensamiento crítico del estudiante; sin embargo, pocos estudios han investigado la implementación de los equipos virtuales en el aprendizaje del inglés para fines específicos en el campo médico. El presente estudio tiene como objetivo desarrollar un enfoque conceptual para mejorar los programas de aprendizaje electrónico del inglés con fines médicos (English for Medical Purposes) centrándose principalmente en el desarrollo de las habilidades comunicativas, el pensamiento crítico, la cooperación intercultural, el aprendizaje permanente y la motivación mediante el uso de equipos virtuales. El enfoque conceptual incluye un conjunto de tareas de resolución de problemas asociados con casos médicos reales organizados completamente en un entorno completamente mediado por la tecnología. A través del aprendizaje basado en problemas (problem-based learning), se espera que los participantes y los tutores or-

ganizados en equipos virtuales alcanzarán soluciones a los casos y los problemas médicos descritos. El enfoque conceptual propuesto desarrollará el dominio del idioma extranjero para fines médicos, así como también elaborará las habilidades de trabajo en equipo, el pensamiento crítico en interacciones sociales recurrentes y la colaboración en un entorno en línea.

**Palabras clave:** educación a distancia; equipos virtuales; inglés para fines médicos; pensamiento crítico.

## INTRODUCTION

A number of studies have observed e-learning as a popular and beneficial tool in both the educational and business spheres. As Carter and Salyers (2015) point out, a key feature for providing e-learning teaching and learning environments is the essential combination of pedagogy, instructional technology and the Internet. In other words, e-learning is not an educational system itself, it involves the use of technological tools that can be applied in various contexts in both distance education and face-to-face traditional settings. (Eisenstadt & Vincent, 2012). Thus, as defined by authors, e-learning is an approach to teaching and learning based on the full or key parts of the traditional face-to-face model of education offered in a computer-mediated environment, which makes possible for learners to receive global access to education and training, through the means of technology and computer-mediated communication and interaction with peers and instructors. Moreover, the e-learning approach facilitates and offers possibilities for embracing new ways of understanding and developing new concepts and knowledge (Sangrà, Vlachopoulos, & Cabrera, 2012).

### Benefits of E-learning for Creating Student-Centered Environment

Some of the main benefits of e-learning are in providing students with the opportunity to study at their own pace on the one hand (Bergmann & Sams, 2012) and on the other, instructors' duties focus on mentoring and guiding students in solving problems and engaging with peers, rather than serving solely as a source of information and providing instruction (Reigeluth, 2012). Additionally, in terms of instruction and learning processes, another benefit of e-learning is the possibility of delivering student-centered learning with the means of connectivism (Siemens, 2005) and constructivism instructional principles (Vygotsky, 1980; Edwards & Bone, 2012). Through social interaction and peer feedback, the constructivist framework benefits students to achieve knowledge acquisition as opposed to performing mechanical memorization of information (Lave & Wenger, 1991; Scardamalia & Bereiter, 2006;

Tobias & Duffy, 2009). Acquiring knowledge is characterized by active learning. Active learning happens when students are provided with tasks which help their understanding in combination with peer-interaction and immediate feedback (Andrews et al., 2011). In terms of student connectedness, several lines of practical evidence confirm that the social component of learning, which is realized through peer-interaction and group work interactions in an e-learning environment, enhances not only social connections and student motivation but moreover, fosters deeper learning. Last but not least, Morrison (2006) maintains that developing teamwork and social interactions is the focus of any professional training programme and further on, a necessary skillset in the workplace. Additionally, Park and Choi (2009) suggest the idea of expanding communication outside of class time with the goal to ensure student connectedness and reduce potential feelings of isolation in the e-learning environment. Green et al. (2017) expand this idea by suggesting that in order for students to feel engaged, motivated and connected, communication should expand in a two-way trajectory – on academic level, through communication with faculty and staff and on social level, through communication with peers. Thus, through development of virtual communities, students' communication can be expanded throughout an entire online programme and extended beyond a particular course or series of courses, which are normally limited to a specific timeframe. In terms of practical realization of communication between participants and instructors, it has been demonstrated that the methods and types of providing communication are of crucial importance for students' satisfaction and especially retention in a distance course (Allen et al., 2002, 2004). With that in mind, we differentiate synchronous – time dependent communication happening in real time and asynchronous communication, where the social interactions may happen over shorter or longer periods of time (Bates & Pole, 2003). Cummings and Teng (2003) have observed that the incorporation of asynchronous communication provides participants within the group with more time for digestion and reduces pressure in students with concerns about fitting into the group. Bullen (1998) has observed higher involvement of participants within the group with the means of asynchronous communication where learners could engage in exchange of ideas over short periods of time. Additionally, research incorporating meta-analysis, conducted by Zhao et al. (2005) has established that online courses providing the combination of both synchronous and asynchronous methods of communication proved to be more effective than using one or the other type. It should also be pointed out that the presence and support of the instructor in providing discussion topics for fostering deeper learning and critical thinking which stimulate online discussion are proved to play a central role for student participation and engagement (H.O.P.E., Prasad, & Barker, 2006).

## Methods of Teaching in E-learning

Influence on the progress of teaching and learning highly depends on the type of teaching method. Research evidences that deeper learning is reinforced by any teaching method, which provokes students' to engage with the content and reflect on it (Prince, 2004). Moreover, research observes that deeper learning is provoked through the application of problem-centered instruction gives the opportunity for students to activate their prior knowledge (Brooke, 2006) and also engage in relevant real-world tasks (Merrill, 2002).

### *Problem-Based Method*

Through problem-based learning (PBL) students are engaged in problem-based tasks, consequently, they develop problem-solving skills and effective communication skills through collaborative learning (Hmelo-Silver, 2004). Research reveals that the application of PBL environment in a distance education setting, benefits the learning process within a team as it allows for direct contact with peers and most of all, it gives learners sufficient time to think and reflect on other participants' opinions. This part of the learning process is of crucial importance as it gives opportunities for learners to engage naturally in meaningful discussions, go through the process of evaluation of opinions and finally arrive at solutions to real life problem situations. Going through that process, PBL forms an organic ground for cultivating and developing critical and analytical thinking skills in students involved in distance education (Haghparast et al., 2014). In terms of providing this natural ground for developing students' higher-order thinking skills, Barrows and Kelson (2005) point out that creating a PBL environment is based on both curriculum design and learning process. Curriculum for PBL environment should involve careful selection materials, developed on the basis of real-world problem situations. By putting the learner in this kind of environment the goal of the instructor is to nurture critical thinking and develop flawless problem solving skills in students both as individual players as well as part of a team.

A way of creating conditions for involving learners in a PBL setting, Brooke (2006) presents the application of the case method, a form of PBL, as a successful strategy in distance education that promotes active learning and students' engagement in higher order thinking. When working on a case method, students are actively engaged within the group in collaborative efforts to exchange ideas and opinions leading to possible solutions to the case problem, as opposed to relying on the instructor to present them with views and solutions (Herreid, 1994). Brooke (2006) draws a parallel between the Bau Hause method, which is based on the process of 'learning by doing', and the case method, as both methods incorporate active learning strate-

gies. As a result, students are presented with the opportunity to work on real-life examples and practice decision-making and problem solving skills. The case method has proved to be successful student-centered means of instruction as it provides a smooth transition and strong parallels between theory and real-world situations (Brooke, 2006), which leads to increase of motivation in learners (Waschull, 2005).

### *Case Method*

A major challenge of distance education courses is the engagement of learners in the presented material and furthermore, the support and promotion of higher order thinking. In that sense, research reveals several benefits of the case method when applied in a distance education setting: students' understanding of core concepts, students' engagement in Socratic dialogue with the teacher (Brooke, 2006), development of analytical and decision-making skills (Erskine, Michiel, & Mauffette-Leenders, 1981), application of theory, synthesizing material, and making evaluations relevant to the course and equally, to real-world situations. These benefits result in both, igniting students' curiosity about the subject matter (Lopez, 2004) and development of reinforced learning environment, which overcomes the static learning process of the simple recall and recognition (Brooke, 2006).

Brooke (2006) evaluates 3 approaches as most successful for incorporating the case method as a means of instruction in distance learning: discussion, debate and trial. Herreid (1998) characterizes the discussion approach as the best well known for presenting cases, where students are given a problematic situation which they need to evaluate according to given criteria. The approach of developing debates is utilized best in the cases when students are in the process of understanding subjects-matters based on two opposing views and thus, are given the opportunity to defend their point of view. Debates have been proven to be a very successful way of instruction, which reinforces the promotion of intercultural awareness and communication within the group (Brooke, 2006). The trial approach of the case method is centralized on a particular topic or material, which has been previously presented to students. The goal of this approach is to provoke students' collaborative work, research and communication skills in the form of respectively, written tasks supported by references and leading a discourse. All in all, the approaches utilized for the successful application of the case method, have been proven a successful means of instruction, mainly due to the fact that they allow students not only to reflect on their own opinions through collaboration and discourse but also, to form a comfortable medium for transferring learners' academic experience and knowledge to real-world tasks and specifically to the context of their own work environment (Brooke, 2006). Therefore, supporting and reinforcing active and deeper learning can be achieved through collaborative and problem-based learning in a distance education setting.

### *Creating Student-Centred Learning Environment in E-learning*

In the aspect of learning English as a foreign language, out of the four language skills reading, writing, listening and speaking, the latter is observed as the most challenging one (Bailey, 2006, as cited in Soraya, 2010). Students are often reluctant to freely participate in speaking activities and to immediately initiate social interactions with their peers. At the base of creating opportunities for successful language acquisition for either general or specific purposes lies the challenge of creating student-centered learning environment as a result of which, students can be encouraged to become active participants in the learning process (Unin & Bearing, 2016). Studies observe that brainstorming, as a base for speaking engagement, brings the benefits of creating student-centered learning environment, increases students' motivation, confidence and engagement in the learning process, due to its characteristics of an open sharing communicative activity (Unin & Bearing, 2016). The approach of creating student-centered environment through engaging students in speaking activities and conversation, where they share ideas, creates a discourse between participants and teachers which promotes students' critical thinking and reflection on the content. Therefore, the student-centered learning environment as a tool which provokes active participation (Brandes & Ginnis, 1996), becomes a method to engage language learners in communicative activities for achieving higher engagement in the language learning process (Unin & Bearing, 2016). In other words, in an educational scenario where students share their life experiences, active learning happens through communication with other members. On the one hand, students construct knowledge and understand concepts through communication and on the other, deeper learning is produced within the group and by the group itself (Savin-Baden & Major, 2004).

### **Communication in Medicine**

In the context of learning English for medical purposes the task of developing communication skills in English as a foreign language in the medical field is of utmost importance for creating a patient-centered care (Đorđević, Braš, & Brajković, 2012; Haidet & Paterniti, 2003; Levinson, Lesser, & Epstein, 2010). Doctor-patient communication is defined as a complex type of spoken discourse as it embodies internal variations depending on the type of interaction, that is, variation of communicative characteristics between simple history taking, which consists of several questions asked in more or less direct manner as opposed to the type of discourse developed in a situation of communicating a diagnosis or such involving therapeutic plan instruction (Coupland, Robinson & Coupland, 1994). Research shows that physicians' ability to build trust and rapport with patients plays a big role in the therapeutic

processes and well being of the patient (Halpern, 2007, 2011, 2012). Studies confirm that the interaction and rapport built by the physician with the patient is of greater importance than the physician's competence, which on the other hand is formed at a much later stage (Richards, 1990; Geraedts, 2008). As Stewart (1995) demonstrates, the manner of interaction and communication with the patient is as equally important for the health outcomes of a patient as the content of what the physician says. Thus, Kress (2009) stresses on the importance of the use of language forms that create and maintain a constructive relationship between the physician and the patient. Therefore, 2 main corpus-based studies by Thomas and Wilson (1996) and Adolphs et al. (2007) on effective physician-patient communication reveal that language used in physician-patient interaction contain more distinctive linguistic elements leading to more informal and interpersonal type of discourse with the patient. A number of research studies show the importance of developing effective communication in the field of medicine, hence, proper speaking interaction and communication in the foreign language have a fundamental role in building trust (Candlin & Crichton, 2013) and conclusively in improving patient's health and the quality of medical practice overall (Duffy et al., 2004). Additionally, effective communication and collaboration between medical professionals with different professional backgrounds (e.g. doctor – nurse, doctor – laboratory specialist, physician – administrative staff) is also vitally important. However, the literature on that part of medical communication is exceptionally scarce.

An approach using virtual teams (VT) for improving cross-professional collaboration on project-based work has proved effective in various professional fields. The idea of VT originates from the business environment as a means to increase sales. In the general sense, VTs are groups of people with complementary skills who are geographically separated. With the means of online interaction in a technology-mediated environment, they transcend the limits of time and distance in order to collaborate together towards a common goal (Ale, Ahmed, & Taha, 2009; Green & Roberts, 2010; Martins, Gilson, & Maynard, 2004; Zenun et al., 2007).

## Virtual Teams

Some of the main norms for managing successful VTs observed by research are: keeping small groups of contributors (Slavin, 1995; Hamzah et al., 2010) who have shared responsibilities and work in collaboration towards a common purpose; ensuring that contributors have a developed level of interpersonal awareness and willingness for self-management (Lee-Kelley and Sankey, 2008). Additionally, a technology facilitator has been proven to play an important role in the smooth operation of

VTs as well as appropriate use of technology and networking ability of the contributors (Thomas and Bostrom, 2005; Kratzer et al., 2005; Rice et al., 2007).

For ensuring their high effectiveness, unlike traditional teams, VTs require highly structured tasks and adoption of formal procedures (Rice et al., 2007), which help participants stay on track. Some of the main benefits of VTs pointed out by literature include: overcome of time and space constraints (Piccoli, 2004; Rice et al., 2007), cost efficiency, increased participation, capability, responsiveness and flexibility (Piccoli, 2004; Rabelo and Jr., 2005), enhanced level of diversity (Griffith & Neale, 2001), and international perspective through learning (Green & Roberts, 2010).

Despite all of the mentioned advantages of VTs, we have to acknowledge some of their disadvantages and have them in mind when forming and managing successful virtual groups. Research observes that VTs are much more vulnerable to mistrust and conflicts (Bell and Kozlowski, 2002), as communication issues are easily magnified by distance (Rosen et al., 2007). Power struggle is another common disadvantage as VTs are characterised by decreased monitoring and control of activities (Hinds and Mortensen, 2005). Unlike traditional teams, virtual teams can be easily challenged by technology (Bergiel et al., 2008) which requires VT members to have a sufficient level of computer literacy and use of technology.

Although, the importance of effective communication in English as a foreign language forming the ground for deeper learning and critical thinking, so vitally important in the field of medicine, has been recognised, the full potential of e-learning, providing strengthening of communication skills in the specialized foreign language, deeper learning and solid ground for critical and analytical thinking through problem-based tasks in the field of medicine and peer evaluation have not been realized. Research reveals that most e-learning courses replicate or transfer traditional material and approaches into e-learning environments (Salmon, 2005). A report by Contact North (2012, p.17), observes the deficient design and quality of some online courses and consequently, the low level of student engagement in the course, as a major obstacle to the development of e-learning. Edwards & Bone (2012) explain that a reason for such low level of positive student experience in e-learning is due to lack of conceptualization on how educators can adequately transfer teaching and learning approaches from traditional setting to e-learning setting, implementing the social features, such as think-pair-share discussions, based on which deeper learning has the potential to occur. Therefore, there is a growing need for a sounder and more thorough understanding and conceptualization of e-learning as a means of instruction and realization of its full potential that reinforces and fosters not only increased English knowledge acquisition in medicine, but as importantly, effective communication skills, so necessary for building rapport with patients and medical

professionals in the field in general, critical thinking and intercultural awareness as counterparts of the language acquisition process.

## AIM

The current study aims at developing a conceptual approach using VTs as a tool for improving, developing and maintaining English language competence, communication and analytical skills, critical thinking, effective collaboration, intercultural communication, lifelong learning and motivation in learners of English for Medical Purposes.

## Hypotheses

With the proposed conceptual approach we hypothesise that:

- participants will improve their EMP knowledge, speaking and communication skills through working in virtual teams
- participants will achieve deeper learning and critical thinking through collaboration and working as a team in virtual teams
- participants will develop cultural awareness through communication, collaboration in virtual teams
- participants will increase the level of efficiency in cross-professional collaboration
- participants will further develop their knowledge in the medical field
- participants will increase their motivation in studying EMP

## PARTICIPANTS AND METHODS

Acknowledging the gap in developing communication skills through peer-interaction and collaborative learning in a virtual environment, we propose a conceptual approach involving VTs as a means to develop, support and maintain students' communication skills, deeper learning, critical skills and intercultural communication through online interaction and collaboration on problem-based tasks.

### Participants

Each virtual team will be formed through a selection of participants following 5 criteria:

1. Level of English as a Foreign Language:
2. Specialization (medical category)
3. Level of education / Educational background
4. Work experience
5. Level of knowledge and experience in computer-mediated environment

## Methods

Once the virtual teams are formed, participants will undergo an informal assessment of their initial communicative EMP level of competence.

Online interactive, communicative tasks such as oral presentations, group discussions, case studies organised progressively in terms of difficulty will be used in the stage of developing participants speaking and communication skills.

Each task will be accomplished with an official evaluation developed according to preliminary selected criteria. The evaluation will focus on both:

the communicative progress in EMP of each individual participant

the progress in collaboration of all participants working as a team

Final assessment of overall EMP competence will be performed after the most advanced communicative task.

Additionally, a qualitative survey will be conducted for evaluating the progress in critical thinking of each student.

Finally, a feedback survey and a survey evaluating the level of intercultural awareness of each one of the participants will be conducted.

## Analysis

Statistical analysis will be performed using the specialised statistical analysis software and adequate statistical procedures for data evaluation.

## RELEVANCE TO CEFR COMPANION OF 2018

In February 2018, the Council of Europe added new scales for developing English language competencies to the Common European Framework for Languages (CEFR). These include activities and strategies in online interaction (including the scales: online conversation and discussion and goal-oriented online transactions

and collaboration) and mediation (including mediating concepts and communication facilitating collaborative interaction with peers).

The scale of online conversation and discussion focuses on the development the ability of learners to communicate online and be involved in academic and professional discursive interaction. With the means of online interaction, learners develop their language competence starting from basic social communication through short online postings, greetings, messages and answering questions at the low levels (A1 – A2). Developing further their language competence through online interaction, interlocutors are able to engage in real-time group online exchanges at level B1. At higher levels upper-intermediate B2 and advanced C1, participants are able to take active participation in live online academic and professional discussions with several participants and to deal with problem-solving issues, misunderstandings and to apply critical evaluation in a diplomatic way. At C2 level, interlocutors are able to both express themselves clearly and participate actively in live online discussions and deal effectively with problematic situations and possible misunderstandings, such as those on cultural level. For this scale of online interaction, the CEFR companion suggests progression in the choice of virtual space. It is recommended that users be involved in full real-time online interactions using a virtual space such as an online “meeting room” after reaching B levels.

The scale of goal-oriented online transactions and collaboration focuses on developing online collaborative interactions organised around a particular goal where participants work towards accomplishing shared tasks. Low levels at A1 – A2 are characterised with the ability to perform basic information exchange by filling online forms or questionnaires. At B levels, participants engage in online communication with other contributors working on project-oriented tasks following instructions and taking a lead role in collaborative work from B2+. Higher level participants (C1 and C2) are able to take a coordinating role (evaluating proposals from team members and giving instructions) and lead a team of contributors working on a project online.

Mediation skills as proposed by the CEFR companion focuses on the role of language as a tool for creating encouraging learning environment for effective communication, collaboration and construction of new meaning in various types of contexts.

On the scale of facilitating collaborative interaction with peers, the learner ensures successful collaboration as he/she brings valuable contributions to the team working towards a specific common goal. The main objective is to facilitate team members and deal effectively with communication difficulties within the group. At low levels the learner communicates actively in basic shared tasks with the help of someone else. At level B1, the user is concerned with inviting other interlocutors to

express opinions and posing questions to contributors within the group. At B2 levels the learner is able to change direction in the discussion in order to facilitate goal achievement. At C1 level, the learner is able to lead the discussion diplomatically leading to a conclusion.

On the scale of mediation for collaborating to construct meaning, learners are concerned with developing ideas with active members of a team. Skills acquired in this mediation scale are collaboration, problem-solving, brainstorming, concept development and project work.

The current approach falls in complete agreement with the newly added competencies in the companion of the CEFR and is highly relevant to the current developments of introduced English language competence on both, academic and professional level for learners of English in the field of medicine.

Another important characteristic of our innovative approach is that it can be made available to participants willing to improve their English communication skills regardless of their location. In other words, with the means of technology, the approach of VTs overcomes the constraints of time and space. Additionally, VTs aid in reducing the effects of status inequalities and it helps increase participation and flexibility due to the combination of various experiences, expertise and knowledge. Last but not least, contributors in VTs gain international perspective through learning and enhanced level of diversity.

## CONCLUSIONS

The proposed conceptual approach will contribute to filling the gap in research on the role of VTs for the improvement of communication skills, critical thinking and intercultural communication in EMP. In addition, the proposed approach will provide the possibility of its application not only in the field of linguistics and language teaching, learning and assessment, but also in other non-linguistic subjects where effective communication and collaboration play a vital role.

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