Implementation of a Needs Analysis for the English for General and Academic Purposes Course Level I for Biology Students

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Monograph

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Abstract

This monograph showcases a multimethod qualitative research aimed at strengthening the processes of EAP material design. This paper analyses to what extent and in which ways the teaching materials in the English course promotes the development of academic English for Biology. The data-gathering process collected multiple sources (students, graduates, language professors and Biology professors) and methods (surveys, interviews, classroom observations). The analysis of the qualitative data involved processes of frequency analysis, coding and categorizing, and triangulation for validity and reliability of the results. The findings condense information on the importance of academic language proficiency, the description of students' subject-tasks, study skills and academic language usage; finally, suggestions for cooperation, collaboration, and team-teaching to engage the English course with disciplinary content are given. The study confirms the value that academic reading has on the academic and professional performance of students.

Keywords: *English for Specific Purposes, English for Academic Purposes, Needs Analysis, Biology, Pilot Program*

Resumen

Esta monografía presenta una investigación cualitativa con un enfoque multimetódico con el objetivo de fortalecer los procesos de diseño de material didáctico para el área de Inglés con Fines Académicos y Específicos. Esta investigación estudió hasta qué punto y en qué forma los materiales didácticos en los cursos de inglés abordan conocimientos disciplinares para enseñar inglés académico. El proceso de recolección de datos reunió varias fuentes (estudiantes, egresados, profesores de lengua y profesores de biología) y administró varios instrumentos (encuestas, entrevistas, registros de observación). El análisis de datos cualitativos tuvo en cuenta procesos de análisis de frecuencias, codificación y categorización de la información y empleó el método de triangulación para asegurar la validez y confiabilidad de los resultados. Los hallazgos sintetizan información relacionada con la importancia del dominio del lenguaje académico en español e inglés para el programa de Biología; la descripción de tareas propias de la carrera, las actividades académicas y el uso del lenguaje académico en inglés de los estudiantes de Biología en primer semestre; finalmente, se presentan algunas sugerencias que involucran cooperación, colaboración y cátedra compartida que podrían unir el curso de inglés con el área de Biología. Este estudio confirma el valor que esta comunidad le da a la lectura académica en inglés en el desempeño académico y profesional de este grupo de estudiantes.

Palabras clave: *Inglés con Fines Específicos, Inglés con Propósitos Académicos, Análisis de necesidades, Biología, Programa Piloto*

Preface

The present study summarizes the process and results of the design and implementation of a needs analysis (NA) carried out in 2017 Spring term at Universidad del Valle – Meléndez Campus. The NA described the types of needs of Biology students regarding English for Academic Purposes. The insights may guide the development of task-based teaching material that may work on those academic and language needs.

The monograph follows the parameters of several frameworks for needs analysis procedures – such as Brown's (2009) and the approaches of Needs Analysis (NA) by Dudley-Evans and St. John (2011), to name but a few. They highlight the role of NA in the construction of language curriculums, material design, and assessment; also, they emphasize that NA is a tool that should be applied before, during and after any language teaching program –general or specific.

Through qualitative data collection and analysis, the present research aims to support the current pedagogical practices in the Pilot Program providing information on students' academic environment and their motivations to use and learn English as a foreign language; this is, their necessities, lacks and wants for short and long-term language goals. This proposal aims to provide a wide angle that is not easily seen through informal data-gathering in language courses with multidisciplinary groups and which can help to adjust and improve the current development of teaching material for EAP-Biology.

This paper describes the three stages that summarize the design of the needs assessment procedure. Each stage has two steps which were carried out simultaneously, most of the time.

The first stage contains the identification of the research problem, which emerged from the classroom observations, and the establishment of the objectives of the NA. In the second stage,

there are steps three and four. On one side, there was the selection of the sources. On the other, there was the selection and design of the data-gathering methods. A fundamental aspect was the creation of a conceptual framework. The third stage holds the implementation of the data-collection methods and the data analysis methods. The qualitative data gathered demanded several methods for the analysis: these were frequency analysis and data condensation, coding and categories. At last, a discussion chapter presents findings, recommendations, and conclusions.

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CHAPTER 1. INTRODUCTION

The Pilot Program is the working title of the Proposal for Restructuring the Foreign Language Curriculums in Undergraduate Programs at Universidad del Valle (2015). This name, Pilot Program, conveys the idea that it is an ongoing proposal that still welcomes adjustments. It is a stage where observation and research are necessary to make recommendations to improve the language teaching and learning on our campus. Following this mindset, the present study was carried out during the Spring term, 2017 in one of the *Inglés con fines Generales y Académicos* courses from the Pilot Program which was suffering the transition period from the previous *Lectura de Textos Académicos en Inglés* courses.

To understand the 2015 proposal, it is useful to review its antecedents in order to grasp and idea of its scope, goals, innovations and limitations.

Though established in the sixties, English for Specific Purposes did not reach Latin-American countries until the 1970s. In Colombia, according to Diaz (2009), a seminar carried out in Paipa, Boyacá in 1977 confirm, at a national, scale the relevancy and impact of applying ESP in our context. In Diaz's monograph, there is an example of material design created at the time. He observed that this material –a book series whose focus was on form, vocabulary, discourse analysis, reading strategies, simplified texts and authentic texts– aimed to help students handle realistic study assignments. Examples of the content covered were Biology, Geography, and Social Sciences. (p. 10) All of it aimed to prepare students to face "technical English in textbooks, reports, and journals."

In 2003, professor de Escorcia provided a document with a summary of the experiences of the School of Language Sciences and the academic community at Universidad del Valle with

previous teaching curriculum proposals for foreign languages up until that year. In her recount of events, there were three main moments or stages that led to the transformation of the English courses. The first one was the adoption of ESP as an innovative teaching practice that made sense to the academic context. The second one starts with the introduction of a curricular restructure and all its implications for the development of the English courses. And, a decade later, the third stage appears with the introduction of a policy (*Acuerdo 009 of 2000*[1]) which, eventually, led to the structure of the *Lectura de Textos Académicos* courses as they are still known today. All of these stages become the antecedents of the Pilot program.

From the first stage, three points can be highlighted.

a) The School of Language Sciences worked on an initial proposal for teaching foreign languages (mainly English). The School adopted ESP as a way to engage students in learning English as a Foreign language based on the link between their academic and professional life.

b) the ESP courses at Universidad del Valle were designed to achieve specific needs according to the academic demands from each program. De Escorcia explained that, in previous years, the university had figure out that the priority of the English courses was to develop the reading skill to understand academic texts for each discipline. Hence, to suit the results of that first needs analysis, the courses were oriented mainly towards reading comprehension activities and the practice of reading strategies. Becoming what it is known as a skill-center ESP course.

c) From the beginning, stimulating students' autonomy when learning a foreign language is a keystone in the program. This document mentioned the use of a student-center pedagogy and the teaching of reading strategies as a way of achieving that autonomy.

[1] This document can be consulted in the following link http://secretariageneral.univalle.edu.co/consejo-superior/acuerdos/2000/Acuerdo-09.pdf (June, 2018)

A second stage would start when Universidad del Valle approved a new curriculum reform in the nineties. One of the measures allowed students to validate the foreign language requirement with language proficiency tests instead of attending English language courses. This policy had several consequences.

1) The birth of the concept of *idioma extracurricular* (extracurricular language). This means that students are free to choose when they enrolled in the courses and, not necessarily, in continuity.

2) the considerable decrease in demand for ESP courses

3) The dissimilarities in the population who attended the classes. Instead of having students from the same academic program; the ESP courses had students from multiple majors. The implication was the impossibility of teaching the specificity in the language or text typologies from a determined area of knowledge –that is, English for Specific Academic Purposes. Then, the ESP courses transition to an English for General Academic Purposes approach.

4) Some students had their graduation delayed because they missed the foreign language requirement. Also, there was a general lack of motivation to learn English among students.

In the year 2000, a new policy approved by the university would mark the start of a third stage. El *Acuerdo 009* demanded that each faculty and academic program promoted the importance of learning English in each major. Therefore, the subject teachers had the task of including content and activities using Academic English.

As a result, the increase in the demand for English courses encouraged the School of Language Sciences to reframe the language teaching curriculum proposal. Then, the program suffered a reevaluation of its needs, goals, methodology, and training strategies for the professors

in charge of the *Lectura de Textos Académicos* courses. Some characteristics of this proposal were:

The EAP courses included the development of the four skills aiming to help students to access to academic material, especially written texts. The great number of students (45) made complex the work in detail with all the skills; therefore, the focus on reading skills persisted. The courses had four levels, 5 hours per week. This subject had the equivalent of three credits.

Though de Escorcia describe the organization of the content of the four levels, I will include the description of only level I as a reference, given that the present study approach a course for level I as well. In this sense, de Escorcia's paper explains that in this early level, the courses focused on the development of reading strategies in order to help students approach authentic academic texts of an informative and educational nature.

The strategies included interactive ways of reading (such as skimming, scanning, intensive reading, critical reading) as well as strategies for vocabulary recognition (like cognates, word families, compound words, understanding the context, and use of the dictionary). There was also an emphasis on discourse analysis starting with the foundations; for instance, teaching students the identification of cohesion and coherence devices or the use of transition or linking words or the identification of the macro and microstructure of a text.

At the same time, the proposal incorporated the listening of academic material as a key component; the listening material would come from the recording of fragments of specialized texts. Naturally, with each course the level of specialization of the text typologies would be higher and the strategies to approach them, more refined.

Another aspect of that proposal was the exploration of alternatives that could support the language learning process outside the language classroom. In other words, to increase the opportunities for exposure and increase students' awareness.

The first idea described in the document was the establishment of a resource center where students from the different programs could consult academic and non-academic material, with authentic and simplified oral and written texts, aiming to improve their receptive skills.

The second idea offered suggestions involving the academic programs, and their subject teachers, in the creation of activities that could support their students' language learning process. In this sense, Professor De Escorcia explained that one way was that subject teachers could plan academic activities with content in English and encourage their students to consult study material in this language as well to stimulate the use of it, making it an active part of their majors.

Another way was to organize a projects between language professors and subject teachers from each academic program –That is to carry out projects in collaboration or team-teaching and the creation of resource banks with suggested readings for students in all areas of knowledge, for instance. All of this with the purpose of increase the exposure to the target language and increase students' opportunities to use Academic English outside the classroom.

All in all, this language teaching curriculum proposal from 2003 made evident a few of the limitations that the School of Language Sciences had at the time: the great number of students per class and their heterogeneity in terms of majors, the need of more project-initiatives in conjunction with the academic programs, the need to prepare more language teachers in EAP, the lack of authentic material of an informative nature that could be use with students; the groups of students from different academic program. Though professor De Escorcia did not mention it in

the document, it is possible that the heavy focus on academic content could have serve to stimulate in the students a more extrinsic rather than an intrinsic motivation for learning English.

1.1 Research Problem

One complex aspect in the ESP instruction at Universidad del Valle is the selection of teaching material. Materials that can help students acquire English skills to perform in personal as well as in academic domains.

Among the textbooks and classroom printed resources reviewed, a particularity is that teaching materials for beginners only cover one of these needs; either General English or Academic English.

When it comes to the development of General English skills for beginners, the variety of material and extracurricular activities suggested by the Pilot Program is fair. On the one hand, students count with two textbooks and two software products providing practice for the development of language skills and linguistic competence. On the other hand, students have access to the RedCAAL[2] center where not only they have access to books and magazines in several languages, computers and internet, but also they can request tutorships and participate in a varied offer of cultural activities and clubs –conversation, song and reading clubs and a cinema forum– promoting interaction in the target language. All of this, as part of a well-constructed ensemble to encourage students to practice the foreign language outside the classroom.

[2] "La Red CAAL es una red de espacios destinados al aprendizaje de lenguas extranjeras en modalidad autónoma, virtual y multimodal. Su función esencial es complementar el proceso de enseñanza/aprendizaje de lenguas extranjeras (…)." More information about them can be read in the link: http://humanidades.univalle.edu.co/noticias/item/109-red-de-centros-de-apoyo-al-aprendizaje-de-lenguas

Although, each of those activities may contribute to the development of Academic English at different degrees –depending on the students' levels–; most of the specialized textbooks found in the Red CAAL (at the time of this research) were published in the eighties and addressed students who already have a high proficiency level. This implies that, at the moment, students enrolled in the first and second level of *Inglés con Fines Generales y Académicos* and language teachers would not count with available entry-level material to consult regarding English for Biology or Science for beginners.

Language professors from the ESP section are encouraged to design their EAP teaching material. Classroom materials that show awareness of students' proficiency level and learning needs, content appealing to their disciplines, and the development of study skills proposed in the syllabus. Although the ESP section provides sample materials and manuals to teachers to work with students, the teachers interviewed reveal in their answers that there are not unified guidelines for the design of those entry-level materials utilized to introduce Academic English to students. Each teacher designs their materials following their strategies and criteria.

Listening to some EGAP professor sharing their teaching material development process for Biology groups, the recurrent steps were: first, professors draw on experiences, observations, and conversations with students to get ideas. Then, they look for material fitting the learning needs and communicative goals suggested by the syllabus. As it is read in the following passage,

> I know that some of the readings they've got are in English; I don't know exactly the topics but I ask them sometimes, for example, for the reading part. When we are reading, I ask them to bring some of the readings they have to read now (…) and they show me; so, based on those readings I make some exercises (like skimming, scanning, cognates, type of paragraph, type of texts, etc.). I don't impose the readings, instead they bring the readings for me, the ones that they use for other subjects. (Excerpt from professors' interview)

It could be inferred that there is no concrete source of information guiding professors in the research of more suitable content for this specific group of students so, in this case, the professor turns directly to students in order to figure out relevant and updated material for students.

Another aspect influencing the teaching material design at the university is the courses' heterogeneous population. Most courses consist of students from different undergraduate programs; that is why, a syllabus covering General English and General Academic Purposes —to work on common study skills to all university students— makes sense.

However, as it was learned during the observation stage and from the results of the students' survey, most of the surveyors from level I, II and III of the English courses from the Pilot Program belonged to the same academic program, Biology. Consequently, their discipline-specific study skills, background knowledge, interests, and motivations to learn the language were similar. This might allow the creation of discipline-specific lesson plans for Biology groups that could engage students in more active participation.

One example of this type of engagement can be read in the following excerpt:

> Y, en cambio, [con] los estudiantes de tercero de Biología, pues teníamos la unidad de medio ambiente. Entonces, todo era relacionado también con eso; a nosotros, nos cayó como 'anillo al dedo' porque son de Biología (…). "con ellos sí podía discutir mucho, además de que sabían del tema, [puesto] que estaba relacionado con sus asignaturas, también tenían el nivel para hablar. (Excerpt from professors' interview)

In this example, the content in this unit of the syllabus overlapped with these students' discipline knowledge and stimulated the interest and free discussion based on students' academic knowledge. This correspondence is the result of the work of the Pilot Program of creating a syllabus across all areas of knowledge. Nonetheless, it could be interesting to find out how profitable for Biology courses could be to have a more adjusted syllabus with more units referring to topics in relation to their major. So, figuring out the interests and needs of this generally homogeneous group of students suggests an opportunity to enrich and strengthen the content

and/or development of their English as a Foreign Language classes. In this case, requesting more field-related topics, content and academic skills closer to those frequently used in their Science field.

All in all, the implementation of a Needs Analysis for Biology students in their first year could provide these professors with updated knowledge and better tools to help them in the development of their classes.

1.2 Research Questions

In this sense, the inquiries will revolve around these questions:

- To what extent and in what ways do the materials of the *Inglés con Fines Generales y Académicos I* course contribute to the development of both, communicative competence in English as a Foreign Language and Academic English for Biology?
- What are the most required study skills and language skills from freshmen in Biology? Why?
- What are the subject-tasks in which Biology freshmen require the use of English?
- What are Biology and Language professors' views and expectations of Biology freshmen's performance using Academic English? In which aspects, do these perspectives converge?

1.3 Research Aim

1.3.1. Aim

To determine the extent and ways in which the materials of the *Inglés con Fines Generales y Académicos I* course contribute to the development of both,

communicative competence in English as a Foreign Language and Academic English for Biology.

1.3.2. Objectives

a) To identify study skills and language skills required from freshmen in Biology.

b) To identify subject-tasks in which Biology freshmen involve the use of English.

c) To identify Biology and Language professors' expectations regarding the use of Academic English by freshmen and to compare them.

1.4 Research Justification

The idea of learning about teaching material design came about after observing the course *Lectura de Textos Académicos II for Economy* (Fall 2016) during the final project for the English for Specific Purposes class.

In that skill-centered ESP course, students learned the basics of reading comprehension and reading strategies to overcome the language barrier and access academic information. However, the textbook and classroom exercises did not have a direct relation to their field of study. The selected material was "Reading of Academic texts for Engineering, Science and Technology, First level" (Cadavid, 2011). This textbook was designed for teaching to certain multidisciplinary groups, any of them close enough to Economy. Therefore, it was necessary that this manual was seen as a source of ideas to design teaching materials, but the lack of time of the language adjunct professors in the section made that task hard to complete. The inappropriate selection of material might represent a lost opportunity to draw students closer to their working world. The chance of learning from material exploiting, for instance, discipline vocabulary and text genres that are

prominent in their field captures students' short term interests, which is part of the core of ESP teaching.

As Widodo and Pusporini (2010) assert “material design or development is one of the ESP features in practice because teachers are required to design such materials, which best suit particular learners with particular needs in areas of interest within a particular instructional setting” (p. 147)

Later, all these inquiries on teaching material and discipline-specific academic skills were shifted towards the Pilot Program. This ongoing English teaching program aims to overcome the limitations in the skill-centered courses aforementioned. The Pilot Program becomes the long-awaited answer to the academic community in need of a study plan to achieve an English-Spanish bilingualism. These courses are equipped with an integrated-skill approach as well as Academic English and study skills components aiming to help our students to be more competitive in a globalized world. But, despite of the great advancements made by the Pilot Program towards that goal within its two first years, the lack of discipline-related academic material that can be properly adapted to introduce Academic English to beginner groups remains.

As a step forward to overcome this gap, this monograph focuses on the process and results of a Needs Analysis (NA) for the Biology undergraduate program. The interest in carrying out a NA comes from the conception of it as a vital stepping-stone in the constant improvement of language courses, materials, and assessment. As a pre-service teacher, the implementation of a Needs Analysis represents attuning the English as a Foreign Language class to learners’ academic reality by recognizing expectations, motivations and challenges common to this particular academic environment. The Pilot Program will benefit of ongoing researches that can strengthen

its capacity to be aware and adapt itself to the demands of each faculty and undergraduate programs they address.

The purpose of this monograph is to provide ESP professors who are working and will work with Biology students with practical knowledge of students' Academic English reality in context. Such knowledge may translate into ideas for classwork, suitable instructional material and, proposals for future collaborations with the Biology department promoting an integrated language learning process, as it is suggested in the *Propuesta de reestructuración del componente curricular de idiomas extranjeros en programas de pregrado*.

Although this is not a pioneer project connecting ESP courses with the Biology program in Universidad del Valle, it is the first one to do so since the implementation of the Pilot Program. This is an effort to collect and analyze information that can contribute to the solid growth of it. This Needs Analysis is a small-scale diagnosis to encourage the creation of discipline-specific materials supporting the current teaching practices.

CHAPTER 2. THEORETICAL FRAMEWORK

2.1 Literature Review

In the search for publications with a similar line of inquiry, more studies were found in foreign than in local contexts. At the first stage, the quest focused on investigations discussing the process of developing teaching materials for ESP. At a second stage, the attention shifted towards the Needs Analysis processes backing up the development of those materials, or a syllabus design.

Hence, the following are the studies that describe in detail their Needs Analysis process and share either similar objectives or target audiences with this monograph.

2.1.1 Local research background

At the local level, Martínez Caballero (2016) presented the results of his monograph called *Didactic Sequence Design for the Development of Academic Texts Reading with a Genre-And-Content-Based Approach for Life Sciences Undergraduate Programs of Universidad del Valle*.

The author conceived three stages. In the first stage, the application of a needs analysis with the purpose of characterizing the target population –mainly students from biology and medicine programs.

In the second stage, the designing phase, the collected information met the two conceptual frames –content and genre-based approach–. These theoretical concepts enhanced the nature of the *Lectura de Textos Académicos II* course; that is, a General Academic English course focused on the development of reading skills through the study of some specific text typologies.

In the third stage, the evaluation of the didactic sequence was done by a group of ESP professors specialized in the teaching area. They reviewed the material and answered a survey with their feedback.

A few important aspects of this study are:

The rhetorical functions are considered as a “structural analysis tool” for the identification of the “terminological and conceptual characteristics” of genres and contents distinctive to the field of Science. Then, the fragmentation of “discursive frames” guides students in the analysis of them. Lastly, there is a positive influence of the content and genre analysis in the construction of a skill-centered lesson plan; a process where an EAP teacher can have students reflecting about “how specific language is constructed and processed” (p. 129).

All in all, the author claims that his work may offer EAP professors a way to approach the scientific discourse that this particular group of students need to understand and master.

Martinez Caballero’s work is relevant to our research work given the coincidence of the elements studied. The common elements that will be revisiting in our study too are:

1) the setting where the study takes place;
2) the participants –ESP professors, some Biology freshmen, some professors from the Science field–;
3) the focus on understanding students' academic issues regarding the use of English in their major;
4) the implementation of a Needs Analysis considering sources such as interviews, surveys, curriculum documents and class observations;
5) the analysis of scientific textbooks and materials.

This study not only offers a big picture of the previous ESP courses for Science –turning it into a source of information– but also, it is a model for this investigation.

Given the changes proposed by the Pilot Program in the current English courses, studies -like Martinez Caballero's need to be updated.

2.1.2 National research background

At a national scale, when examining research conducted on Needs Analysis, all of the studies found aimed to design or improve an EFL or ESP syllabus – some studies contexts were high schools with a technological emphasis, undergraduate and postgraduate programs.

In 2009, López presented a study titled "An English Syllabus with Emphasis on Chemistry: A Proposal for 10th Graders of a Public School in Colombia." As the article explains, the author applied "theories on creative thinking and English for specific purposes" in her seven-step process to design this EFL syllabus for a high school in Bogotá. (p. 18)

Her students, teenagers between 14 and 16 years old, chose to enroll in a course of Analysis of Chemistry Samples given by the SENA [3] so, this research meant to improve the Language Learning process by complementing and reinforcing those studies. The teacher-researcher carried out a Needs Analysis first using three instruments: 1) Printed surveys 2) Audio-taped interviews to other English teacher in her high school and one Design teacher who studied in an English-speaking country as well as the SENA Chemistry teacher 3) Her teacher-researcher journal. The information gathered from her student's perceived needs and interests, her colleagues and, her journal were the sources used for the triangulation. Finally, her documentation on Chemistry and the SENA teacher guidance served her to plan this ELT syllabus proposal (Figure 1 displays an excerpt of her syllabus proposal).

This content-based syllabus involved EAP principles and a communicative approach to develop students' four language skills as well as her academic skills in English as a Foreign

[3] SENA is the acronym of *Servicio Nacional de Aprendizaje*, a Colombian public institution for technical, technological education as well as education for work.

language. On the decision on whether to have an emphasis on one skill over the others or not, the teacher balance the situation by following the educative institution's mission. In her words:

> (…) It could be convenient that our students acquire abilities in the English language to be used for getting information on the latest innovations, research, and creations in the chemistry field; and, at the same time, that students understand and do new things with that. It could also be possible that learners develop one language skill more than another, but our duties as teachers are to develop the English learning process that includes the four language skills. (p. 16)

Units 1-3: Preliminary measurements for trials and sample analysis (first semester).
Unit 4: Chemical analysis based on samples (second semester).

Unit	Topics	Vocabulary	Grammar & expressions	Listening, speaking & phonics	Reading & writing	Games, projects & experiments
1	Science and Chemistry Measurement Length, Mass, Volume, Density, Temperature Laboratory Manual.	Listing technical vocabulary Using context to understand words -Common glassware equipment -Associating words with images.	Greetings I'd love to So long Likewise It's a pleasure to meet you Verb to be Quantifiers There's/ There are WH – Questions I beg your pardon? Simple present tense Imperatives Present progressive Hold on a second May I help you How much is it?	-Getting to know each other -Find someone who… -Listening for specific information -Pronouncing paired consonants: WH/CH/PH/TH/SH. -Having short conversations describing objects and analyzing measurement characteristics -Listening & filling in a gapped dialogue -Five –ER sounds are not spelled the same: mother/first/nurse/doctor/earn -The secret scientist agent activity -Expressing routines in a laboratory -Role play: buying Common glassware & equipment -Four ER letters do not sound the same: Receive/Neighbor/Turkey/ They.	-Reading: What's this made of? -Applying skimming & scanning on a reading. -Reading & understanding comics -Readings about measurement -Identifying definitions -Definitions vs. example Ideas and examples -Classes of advertisement -Reading: Mercury risks -Safety and housekeeping rules.	-Making a class book using technical vocabulary -Design phonics flashcards -The word order game -Poster design with linear, square and cubit measurement capacity and weight. -The name game -Design a phonics flip-flap -Experiment: Some measurements of mass and volume -Tri – fold lab rules. -Advertisement creation.

Figure 1 English Language Teaching Syllabus with Emphasis on Chemistry for 10th Grade. Source: Profile 11, 2009. p. 25

Lopez research appealed to this monograph based on the Science component of the proposal (Chemistry content) but also, her Needs Analysis implementation and analysis of qualitative data gathered turned out useful as well. Also, it was worth to revise her final product: her content-based syllabus involves the development of the four skills and specific academic skills in a very competent way. Thus, the characteristics mentioned resembled the work observed in the Pilot Program classes with Biology students at Universidad del Valle.

2.1.3 International research background

At the international level, the publications chosen to guide this study came from Indonesia.

Saragih (2014) presents his article Designing ESP Materials for Nursing Students Based on Needs Analysis. This publication shares one of its objectives with this monograph, though the target group and the context are different. Set in Indonesia, this work explores "the learning needs of 50 nursing students" with the purpose of creating a teaching material proposal based on the results. Nonetheless, the research also concludes that "The data from the students' questionnaire and interview have illustrated a number of issues which need to be considered as they offer significant implications for introducing curricular change" (p. 68).

The article highlights in its theoretical background the relevance of a comprehensive Needs Analysis that inquires about seven dimensions proposed by Lowi (2009) (cited in Saragih, 2014): "Target situation Analysis, Present Situation Analysis, Deficiency Analysis, Strategy Analysis, Constraint Analysis, Pedagogic Need Analysis, and Subjective Need Analysis" (p. 65). Then, the author shows her methodology and procedure summarized as a two-step data collection phase: a) the implementation of 50 questionnaires containing the seven dimensions to nurses between 19-26 years old. b) Interview with five ESP Lecturers and two Professional Nurses working in English speaking countries.

This research follows a mixed-method research design with the purpose of both, exploring learning-centered materials from several perspectives and using the triangulation method for validity and reliability. Finally, the author asked for an expert evaluation to analyze the final design.

Though this research is in many ways very instructive to my research project, its importance relies mainly on three points: the conceptual framework related to the Needs Analysis; its

procedure and methodology; the clear analysis of the qualitative data and the presentation of the NA findings.

2.2. Concepts

After some reviews of specialized books and research papers, the link between English for Specific Purposes (ESP) and Needs Analysis (N.A.) became stronger and stronger. That is because, it is the solid awareness of needs what sets the purpose and goals in an ESP program so, the implementation of NA becomes the first step of a process of fulfilling expectations of stakeholders in each context. Therefore, a conceptual framework that unfolds the layers in this relationship will help to understand the scope and the tools available so far.

Given the recurrence, the concepts considered to be relevant for this study are: English for Specific Purposes (ESP), English for Academic Purposes (EAP), English for General Academic Purposes (EGAP) and English for Specific Academic Purposes (ESAP), Academic English (for Non-Native Speakers of English, —NNSE) and Needs Analysis.

2.2.1 English for Specific Purposes

English for Specific Purposes (ESP) is a field that emerges in the 1960s as a response to the commerce-driven world where people needed English to keep up with their job demands. Since then, it has extensively grown around the world; shreds of evidence are the numerous publications about the pedagogical practices and development of ESP courses. [Described in the works of Hutchinson and Waters (1989); Dudley-Evans and St. John (2011); Gonzalez Ramirez (2015)]. Then, it is only natural that a definition of ESP could be anything but fixed; on the contrary, it is constantly revised and updated by the multiple and overlapping research advancements.

Hutchinson and Waters provided one of the earlier definitions of ESP in their book *English for Specific Purposes: A Learning-centred Approach* (1989). There they suggested conceiving ESP as "an approach, not a product" (p. 16). At the time, the authors proposed to make a shift from a language-centered ESP, which emphasized register analysis and a skills and strategies approach, towards an ESP focused on students' learning processes. Therefore, they claimed that ESP is "(...) an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning" (p. 19). Besides this definition, there were three clarifications of what ESP was not (p. 18). As Dudley-Evans and St. Johns (2011) summarizes them: "they [Hutchinson and Waters] mean that ESP does not involve a particular kind of language, teaching material or methodology" (p. 2)

Hutchinson and Waters regarded ESP as a subdivision of ELT, as it understood in their "ELT tree illustration" (see Figure 2). The illustration works as an analogy revealing the connections between English Language Teaching (ELT) among the branches. ELT has one subdivision denominated English as a Foreign Language (EFL) which, at the same time, includes several subclasses, ESP is one of them. Beyond any shape that ELT may take, at the roots, Language and Communication are the core of Language Teaching.

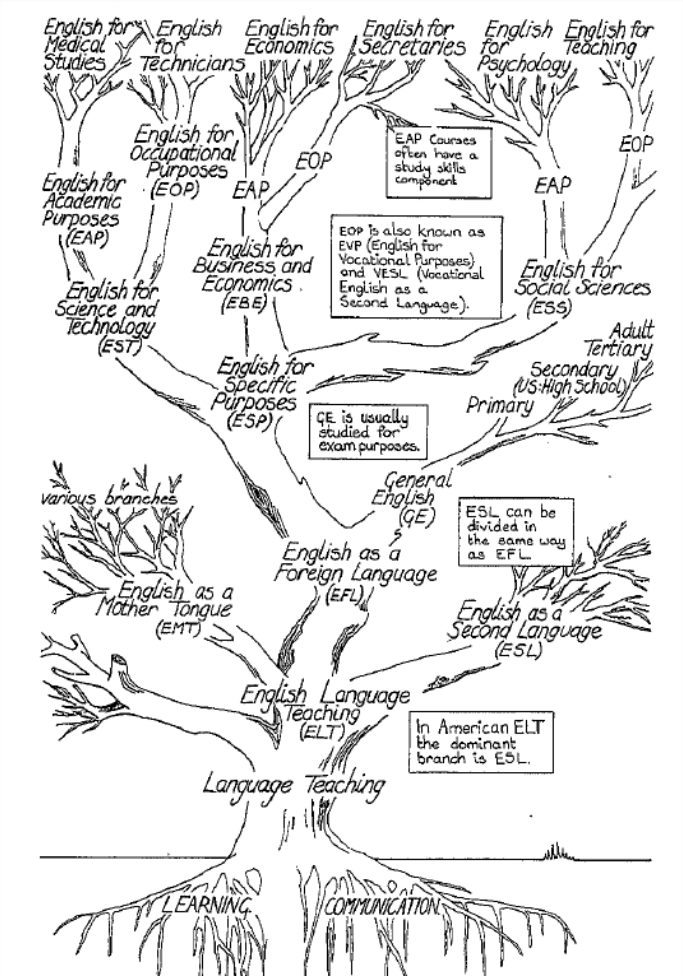

Figure 2 The tree of ELT.
Source: Taken from Hutchinson and Waters (1989) (p. 17)

About such divisions, Barnard and Zemach (2003) suggest that "ESP should not be regarded as a discrete division of ELT, but simply an area (with blurred boundaries) whose courses are usually more focused in their aims and make use of a narrower range of topics." A similar perspective shared by Dudley-Evans and St. Johns (2011) stated that "the use of classification trees creates a number of problems by failing to capture the fluid nature of the various types of ESP teaching and the degree of overlap between 'common core' EAP (…) and General English". Therefore, they suggested "the presentation of the whole of English Language Teaching on a *continuum* that runs from very clearly definable General English courses through to very specific ESP courses." (p.8) Figure 3 is the illustration of the continuum proposed.

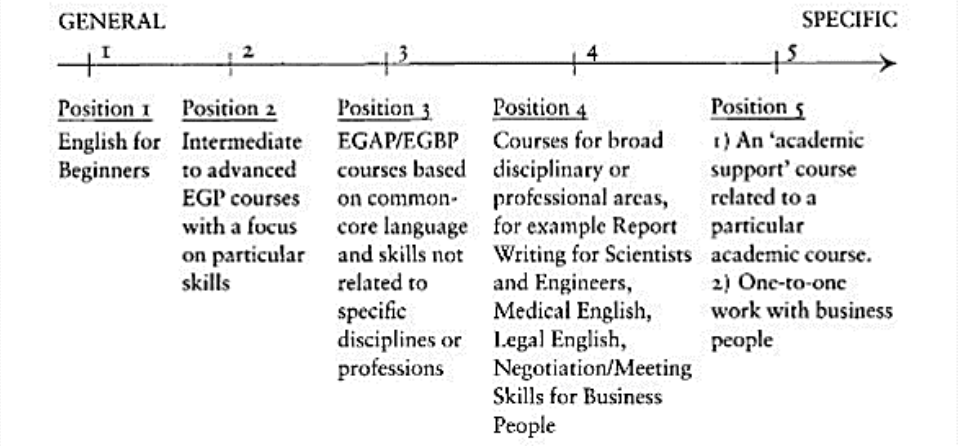

Figure 3 Continuum of ELT types.
Source: Dudley-Evans and St. John (2011, p. 8)

Nonetheless, it is important to discern some characteristic particular of this area of ELT. In the book *Developments in ESP: A multidisciplinary approach* (2011), Dudley-Evans and St. Johns proposed a definition of ESP using absolute and variable characteristics; these are reoccurring features and occasional ones.

As for the *Absolute* characteristics they said:

- ESP is designed to meet specific needs of the learner;
- ESP makes use of the underlying methodology and activities of the disciplines it serves; ESP is centred on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities. (p. 4)

While, for the *Variable* characteristics:

- ESP may be related to or designed for specific disciplines;
- ESP may use, in specific teaching situation, a different methodology from that of general English;
- ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be used for learners at secondary school level;
- ESP is generally designed for intermediate or advanced students. Most ESP courses assume basic knowledge of the language system, but it can be used with beginners. (p. 5)

Dudley-Evans and St. Johns differed for Hutchinson and Waters about the concept of methodology in ESP. In fact, their proposal claims that in ESP, the closer to a discipline the classes are, the more the methodology change for a GE course. In their words, ESP

> (...) makes use of a methodology that differs from that uses in General Purpose English teaching. By methodology, here we are referring to the nature of the interaction between the ESP teacher and the learners. In more general ESP classes, the interaction may be similar to that in a General Purpose English class; the more specific the ESP classes, however, the teacher sometimes becomes more like a language consultant enjoying equal status with the learner who have their own expertise in the subject matter (...) (p. 4)

In the research paper *Key Issues in English for Specific Purposes (ESP) curriculum development,* Gatehouse (2001) clarifies that the word "specific" in ESP refers to "the specificity of the purpose or aim of this teaching area, not the special registers or vocabulary entailed (The Meaning of the Word "Special" in ESP, para.3.)"(p. 384). On this, Dudley- Evans and St. John assert that "(...) the specified needs arising from needs analysis relate to activities that students need to carry out (rather than language) (…)" (p. 4)

The recent definitions have become more succinct as the time goes by. Barnard and Zemach (2015) believe that ESP is "an umbrella term that refers to the teaching of English to students who are learning the language for a particular work or study-related reason." (p. 306) For Johns and Price-Machado's (2008) conceptualization of ESP is "a movement based on the proposition that all language teaching should be tailored to the specific learning and language use needs of identified groups of students –and also sensitive to the sociocultural contexts in which these students will be using English."(p. 43). While, Smoak (2003) in her paper *What is English for specific purposes?* asserts that "ESP is English instruction based on actual and immediate needs of learners (…) ESP is need-based and task-oriented"(p.27) (as cited in González Ramirez, 2015, p.384).

For the purpose of the development of this research project, three conceptualizations will be considered. 1) Dudley-Evans and St. Johns' idea that ESP is part of a continuum. 2) Johns and Price-Machado's idea that ESP is a tailored language course sensitive to the context. And 3) Smoak's belief that ESP is a need-based and task-oriented course too.

2.2.2 English for Academic Purposes

As the ELT tree shows (Figure 2), ESP branches out towards many disciplines. These branches receive different names according to each academic who defines them. For example, according to Johns and Price-Machado (2001), "the main interests of ESP movement can be categorized in a number of ways" (p.43) therefore, ESP has many categories. So, in their article, they presented the following diagram showing those with the greatest importance at the time. (Figure 4). As it can be observed, EAP and EOP are the two main divisions.

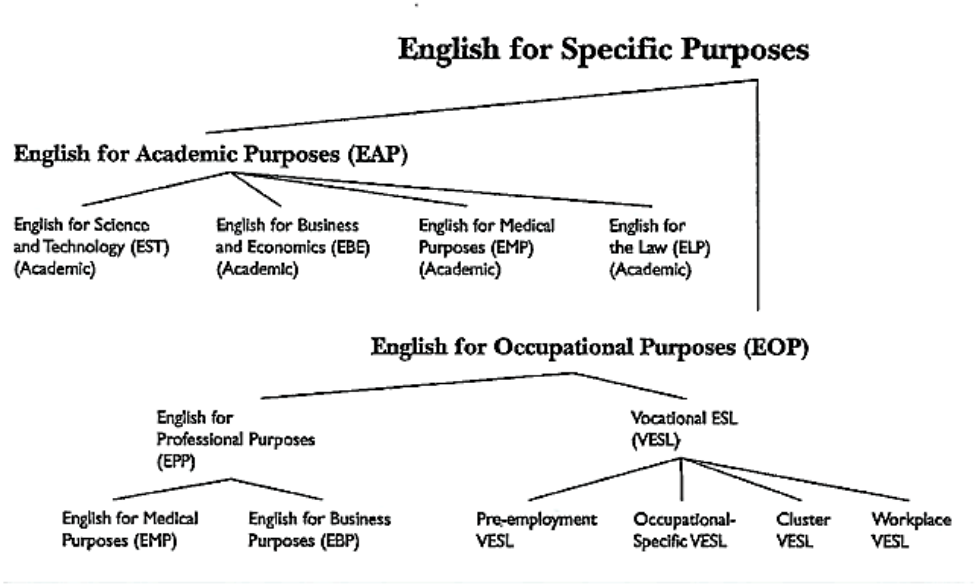

Figure 4 Classification of ESP Categories.
Source: Johns and Price-Machado (2001). (p. 44)

Instead of categories, Barnard and Zemach (2015) state that ESP has ***two main areas*** and proceed to defined them as it follows:

- "English for Occupational Purposes (EOP), concerned with enabling a learner to function in English in a particular job or profession.
- English for Academic Purposes (EAP), which provides learners with the appropriate language skills for pursuing a tertiary-level course taught in English, and /or presenting,

researching, and publishing in academic settings." (p. 307) It is this area in which this research project will focus on.

Dudley-Evans and St. Johns (2011) define English for Academic Purposes as "any English teaching that relates to a study purpose. Students whose first language is not English may need help with both the language of academic disciplines and the specific 'study skills' required of them during their academic course" (p. 34). These definitions conceive EAP as setting-bound and that besides the teaching of language skills, there is an awareness of a *specific language* and *study skills.* About these two aspects I will refer later.

More importantly, Charles (2013) offers a clearer view on the different learners attending an EAP course:

> (…) Although most often applied to university level contexts and non - native speakers of English (NNSE), the term [EAP] is very broad, covering, for example, both the requirements of native-speaker (NSE) secondary school students who have to read textbooks and write essays, as well as those of academics who need to give conference presentations and write research articles (RA). (p. 137)

Based on this portrayal, Charles states that, "English for Academic Purposes (EAP) is concerned with researching and teaching the English needed by those who use the language to perform academic tasks." This definition adds the word research as another key element of EAP. This author explains that the increase of research publications in English and the job opportunities have encouraged more research entailing a solid growth on this area of language teaching. On this regard, the author elaborates on the three research trends that have influenced the growth of EAP. These are: the uses of corpora, genre analysis and the social context perspective. Moreover, EAP benefits of the trend of merging these approaches to widen its scope.

According to the academic environment in which the current study took place, the definition by Dudley-Evans and St. Johns and Charles are going to be the keystone to interpret the context and the results of the needs analysis.

2.2.3 English for General Academic Purposes and English for Specific Academic Purposes

In EAP, there is one more distinction relevant to this research project. That is English for Specific Academic Purposes (ESAP) and English for General Academic Purposes (EGAP). They are not mutually exclusive, on the contrary EGAP and ESAP are like two levels that may overlap depending on the demands of the students and the institutions. Grosso modo, Dudley-Evans, and St. John differentiates them like this: "EGAP refers to the teaching of the skills and language that are common to all disciplines; ESAP refers to the teaching of the features that distinguish one discipline from others." (p. 41)

By skills, these authors make reference to study skills (also, study activities) like attending a lecture. To perform that activity, any student will need, at least, a good listening comprehension level and be able of taking notes. An EGAP class works on the development of the language skills frequently required to carry out a determine range of study activities common to any academic environment. While ESAP further develops those skills and language learned by facing students to discipline-related subject tasks. This fundamental transition is what enables students to respond to the requirements of their academic programs.

In words of these authors, as in EGAP as in ESAP classes, students are *educated* to develop language capacities and *trained* to face frequent academic or (future) professional tasks. (Widowson, (1987); Dudley Evans and St. John (2011).

Dudley-Evans and St. John present an interesting idea concerning my present research project: "the common-core EAP work makes more sense and is more relevant if it is supplemented by specific work." (p.42). Such proposal of synergy between the two forms of EAP opposes the perspective of focusing on EGAP in class and letting students learned about

ESAP through individual tasks. According to them, students will benefit from "a two-pronged attack on their needs and difficulties" (p. 42). (To read more on the challenges of applying ESAP in a EGAP course read Liyanage and John Birch's (2001) article *English for General Academic Purposes: Catering for Discipline Specific Needs*)

To achieve language class that interconnects with students' subject tasks, Dudley-Evans and St. John propose three stages. These are in order: (1) Cooperation, (2) Collaboration and, (3) Team-teaching. (p. 42)

In brief, the first stage, *Cooperation* starts with a language teacher that is enthusiastic about students' discipline. This educator is interested in how to integrate students' discipline content into the language course. Naturally, this teacher will enter the field of Needs Analysis by learning about Target Situation Analysis and Wants.

The second stage, *Collaboration*, involves two enthusiastic sides: the language teacher and the subject teacher. Outside the classroom, these two educators work together towards the same learning outcome but, their alignment still has some boundaries. (Dudley-Evans and St Johns explains the three types of collaboration, p. 44)

Finally, the last stage, *Team-teaching* describes a session prepared and run by both teachers at the same time. The sessions have two moments: Initially, the language lecturer will focus on teaching language through the understanding of the content while the subject teacher acts as an adviser on the concepts. Later, the roles turn around when the class shifts to learning the subject-specific content.

Although, due to the heterogeneity of the groups, the four levels offered by the Pilot Programs are focused on the development of EGAP, this research has set as objectives to analyze how a synergy of EGAP and ESAP could improve the EAP content for beginners in the Pilot

Program. By adopting this viewpoint, it is possible to assess how of achieving such interaction of the English course into the Biology program can benefit students' introduction to Academic English for Biology.

2.2.4 Academic Language

As it can be recalled, one aspect that Dudley-Evans and St. John mentioned is that a EAP course provide help with *specific language;* this expression could refer to the concept of Academic English.

In 1979, Cummins in his seminal paper *Cognitive/academic language proficiency, linguistic interdependence, the optimum age question and some other matters* coined the terms Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP). These terms propose two *dimensions* of the language proficiency in English Language Learners (ELLs).

On the one hand, Basic Interpersonal Communicative Skills refer to the language skills use for interaction in social contexts. Because of the informality and spontaneity of the settings where the interaction occurs, the language is neither very cognitively demanding or specialized. Also, because it is part of student's everyday interaction, students "usually develop [them] within six months to two years after arrival in the U.S." (Haynes, 2007).

On the other hand, Cognitive Academic Language Proficiency describes a cognitively higher level of language skills needed to participate in formal academic learning. This language is taught in the classroom and "includes listening, speaking, reading, and writing about subject area content material" (Cummins 2003, p.7 as cited by Bowers and Keisler, 2011).

Unlike BICS, developing or mastering CALP for Native English Speakers may take around five to seven years and, even a few more years for Non-Native English Speakers who lack strong

language literacy in their mother tongue (Haynes, 2007).

The incidence across languages is explained in Cummins' theory of a Common Underlying Proficiency (CUP) between two languages. CUP talks about how the academic language proficiency achieved in L1 facilitates the improvement of academic language proficiency in L2.

Nowadays, the concept of CALP is associated to Academic English or Academic Language, a more comprehensive term.

The characteristics of Academic Language are rooted in the context where it takes place and the style of the interactions expected in it. Consequently, to make sense of the particularities in Academic Language, it is useful to take a look at the elements that compose it. The WIDA consortium [4] conference (2012) (as cited in Gotlieb and Ernst-Slavit, 2014, p. 3) says that:

> "(...) Academic language operates within a sociocultural context that lends meaning to oral or written communication." Moreover, "(...) academic language learning encompasses the interaction between the student and the learning environment, including the topic or theme of the task or situation, the genre or text type, and the participants' identities. So, the by-product of the interaction of all these elements is the definition of Academic language as a *register* (Gotlieb and Ernst-Slavit, 2014, p.2)

In his article *Teacher practices and perspectives for developing academic language* (2007), Jeff Zwiers highlights the expansion that the conceptualization of Academic Language has come to the point of challenging the "early dichotomous thinking that language is either social or academic. (p. 96) In 2005, Zwiers defined Academic language as "a set of words and phrases" attaining three aims:

(1) "to describe content-area knowledge and procedures, (2) to express complex thinking processes and abstract concepts, and (3) to create cohesion and clarity in written and oral discourse." (p. 60). Since these aims are condensed descriptions, I complement them with some points made by other

[4] The WIDA Consortium is a non-profit cooperative group whose purpose is to develop standards and assessments that meet and exceed the goals of No Child Left Behind and promote educational equity for English language learners. WIDA was formerly known as World-Class Instructional Design and Assessment.

authors.

1) *to describe content-area knowledge and procedures*:

Academic language is a register embracing simultaneously general academic words common across all content areas and content-specific words that "pertain to specific subject areas" (like photosynthesis and hypothesize in science (...) (Short, Vogt, and Echavarría, 2011, p.3). The frequency with which some grammar structures and vocabulary appear in Academic Language is the focus of some register analysis studies. Some authors may argue that making visible such frequencies help learners to become familiar with "the specific linguistic features associated with academic disciplines, including discourse features, grammatical constructions, and vocabulary across different language domains or modalities (listening, speaking, reading, writing) and content areas (language arts, mathematics, science, (...)). (Short, Vogt, and Echavarría, 2011, p. 3). Acquiring this knowledge allows students to understand and participate in the academic communication.

2) *to express complex thinking processes and abstract concepts:*

Weideman and Van Dyk (2014) claim that the use of academic language is (…) imbued with cognitive as well as analytical processing.” That is, "require us to do things with language like explain, define, compare, contrast, classify, agree, disagree, illustrate, elaborate, make claims, see implications, infer, exemplify, anticipate, and conclude.” (p. iii) In this sense, Dutro and Moran (2003, as cited in Jeff Zwiers, 2007) say that academic language proficiency is "the ability to interpret and infer meaning from oral and written language, discern precise meaning and information from text, relate ideas and information, recognize the conventions of various genres, and enlist a variety of linguistic strategies on behalf of a wide range of communicative purposes. (p. 95)

3) *to create cohesion and clarity in written and oral discourse:*

As Gottlieb and Ernst-Slavit (2014) explain the fluency in academic language consist in understanding concepts and ideas and to communicate our understanding of them to others. (p.2)

All in all, to master academic language is to acquire the ability to understand and use academic discourse to meet the demands of the tertiary education. In this study, academic language will be seen from the perspective of the development of higher cognitive skills that the use of linguistic competence implies.

2.2.5 Needs Analysis

Many authors suggest that Needs Analysis is a fundamental element in Language Teaching. This is because Needs Analysis is a tool to help language teachers meet students and institutions' learning goals and adjust their pedagogical practices. To use it, it is important to become familiar with the adaptability of its procedure and the array of research methods and sources available. However, for an overview of its historical evolution, I would suggest reading Hutchinson and Waters (1989) and Dudley-Evans and St. Johns (2011).

The concept of Needs

To start, let us define the core term on its own: analysis and needs. On the one hand, the Merriam-Webster dictionary defines analysis as "a detailed examination of anything complex in order to understand its nature or to determine its essential features (…)". On the other hand, a number of classifications are currently available to define needs. Each definition is a by-product of a research approach in Needs Analysis (NA).

One of the earlier and most influential definitions are Target and Learning needs by Hutchinson and Waters (1989). *Target needs* are "what the learner needs to do in the target

situation" while *Learning needs* are "what the learner needs to do in order to learn" (p.54 - 55). Both definitions are student-centered but the concept of learning needs reflects on the importance of a metacognitive process.

Furthermore, *Target needs* contains three subcategories. These are: (a) *necessities* (b) *lacks* and (c)*wants.*

(a) *Necessities* are the result of the "demands of the target situation." This entails "what the learner has to know in order to function effectively" in a specific environment, at a determined moment (p. 55). In words of Nation and Macalister (2010), necessities are *"the target tasks"* (p. 27)

(b) *Lacks* means the gap between the students' current proficiency in terms of language skills, cultural competence, etc. when compared to the expected proficiency (p. 56).

(c) *Wants* is learners' perception or awareness of their necessities (p. 56). Represent what they will judge as useful (Nation and Macalister, 2010, p. 29). Their opinion could diverge with other participants or stakeholders -like teachers, course designers, etc.- (Hutchinson and Waters, p. 56) Thus, the importance of listening to their expectations.

In 2011, Dudley Evans and St. John associate a number of needs classifications showing the similarities and differences among them:

- Objective and Perceived needs are facts according to outsiders (in this context, fact means "what is known and can be verified")
- Subjective and Felt needs are opinions from insiders. These opinions correspond to cognitive and affective factors.
- Product-oriented needs result from the goal or target situation while,
- Process-oriented needs derived from the learning situation.
- Lacks derive from the analysis of what learners already know and do not know yet (p. 123)

To conclude their revision, these authors show how the classifications fit into four research focus in Needs Analysis.

- Target Situation Analysis (TSA) includes objective, perceived and product-oriented needs;
- Learning Situation Analysis (LSA) includes subjective, felt and process-oriented needs;
- Present Situation Analysis (PSA) "estimates strengths and weaknesses in language, skills, learning experiences."
- Finally, Means Analysis evaluates the environment of the language course. Instead of describing needs, it considers two factors: the classroom culture and, the management infrastructure and culture. (p. 124)

One more classification of needs is the dichotomy between **immediate needs** and **delayed needs**. Harding (2007) (cited by Özyel *et al*., 2018, p. 269) proposes several questions to figure out the learning situation before designing a course; one of them is: "(…) Is [the course] meeting immediate needs (learners are working and studying in parallel) or delayed needs (students are pre experienced and will be working on the specialism sometime in the future)?". The balance between these two types of need is center for the analysis of the results of this needs analysis project. Nonetheless, the eclectic position adopted for the present study will be explained in the methodology chapter (research design and procedure, p. 52)

What is Needs Analysis?

Overall, Needs Analysis, also known as Needs Assessment (NA), is a process of data collection and analysis; a research tool used in any language program at different stages whose results provide ideas for adjustments. In this sense, the following definitions will expand with various elements and viewpoints this initial conceptualization.

Dudley-Evans and St. John provides a precise definition: NA is the "process of establishing the what and the how of a course" (p. 121). In contrast, Graves (2007) elaborates in her conceptualization: NA is "a systematic and ongoing process of gathering information about students' needs and preferences, interpreting the information, and then making course decisions

based on the interpretation in order to meet the needs." (p. 98) At a small degree, both definitions coincide in two points: first, they indicate a procedure with several phases; and second, they imply the influence of the results on the content and methodology of a program.

Nation and Macalister (2010) highlights that NA is the part of the curriculum design process that "makes sure that the course will contain relevant and useful things to learn." To figure that information out, they pinpoint that "it is about asking the right questions and finding the answers in the most effective way" (p. 24). On this aspect, Johns and Price Machado say NA is a " practitioners attempt to determine, as closely as possible, what students will need to do ¬and how they will need it– in English language contexts or with English Language literacies".

Finally, Graves explains that one of NA purposes is to institute "learning as a dialogue between the teacher and the learners and, among the learners."(p. 98) In other words, a Needs assessment reevaluates the power dynamics between students and teachers. It empowers students to partake in their learning process. She summarizes, "Needs assessment can be as much as about reconciling different views as about finding what the needs are" (p. 100). This study aligns with Graves' perspective.

All in all, NA can be: a type of research and/or assessment (Nation and Macalister, 2010); or, an approach to be aware of target and learning needs (Hutchinson and Waters, 1989); or, a systematic collection of data (Brown, 1995 as cited in Saragih, 2014, p. 61); or, an ongoing activity/process (Graves, 2007). But, in any way, it will look for a balance of content and goals that satisfy all the participants of a language learning process.

How and when is NA implemented?

According to Long (2005), "there is more than one way to conduct an NA, (…) just as there is more than one way to teach a language." (p. 4) A Needs Analysis is the outcome of a

combination of several variables: objectives, environment, participants, methods, etc. Here, I present three models for NA procedures that will work as a framework to conduct this research.

Each contemplated a different number of stages for the implementation. As a need analyst, I studied several of these schemes in order to decide whether to adopt or to adapt one. All in harmony with the demands of my research and its context. The following models converge in certain stages; then, those may be interpreted as essential for the design of an NA procedure which facilitate the adaptation process of a model, if need it.

To start, the three NA models to review are (a) Graves' model called "the process of Needs Assessment"; (b) an updated version of Brown's (2009) framework by Mohammadi and Mousavi (2013); (c) Dudley Evans and St. John reunion of all the approaches to NA.

(a) Graves (2007) proposes "the process of Needs Assessment". This, she says, "involves a set of decisions, actions, and reflections, that are cyclical in nature:" (p.100) As it is seen in Figure 5 from her perspective, this *ongoing process* has "(…) three time frames for gathering information; pre-course, initial and ongoing. (p. 110)

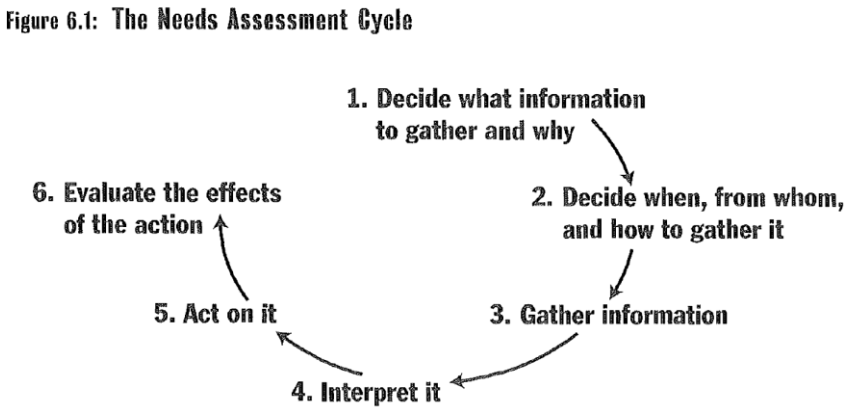

Figure 5 The Needs Assessment Cycle.
Source: Graves (2007, p. 100)

On a side note, some authors agree that NA is a non-linear, ongoing process meant to be used at several stages during the development of language learning courses, (Dudley Evans and

St. John (2011); Graves (2007), as it is seen in the Dudley Evans and St. John's Figure 6 below. Nonetheless, they point out that depending on the moment of application there is a similarity between the ongoing NA with the formative evaluation; Brown (1989) (as cited in Dudley-Evans and St. John, p.121) remarks that the difference between them is the focus the teacher gives them.

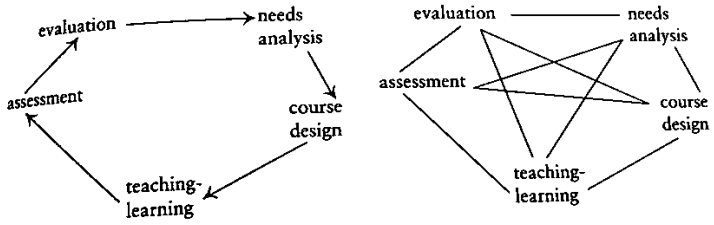

Figure 6 Left: Stages in the ESP Process: Theory. Right: Stages in the ESP process: reality. Source: Dudley-Evans and St. John (2011) (p. 125)

(b) In the paper *Analyzing Needs Analysis in ESP: A (re) modeling*, Mohammadi and Mousavi (2013) ***adapted*** from Nation and Macalister (2010) the idea that an NA model can be reused with different groups of students taking the same course and ***adopted*** the stages and steps from the framework by Brown (2009). Figure 7 (left) shows their reinterpretation and illustration and (right) Brown's (2009) ten steps complementing it.

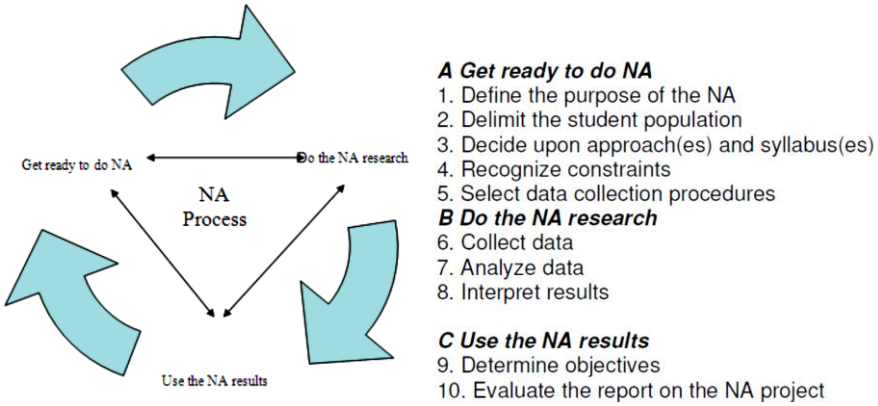

Figure 7 Left: A framework for doing NA. Right: Steps to implement a Needs Analysis. **Source:** Mohammadi and Mousavi (2013, p. 1015)

(c) Then, Dudley Evans and St. John (2011) show a diagram that contains the influence of all the approaches of Needs Analysis research. Figure 8 shows it.

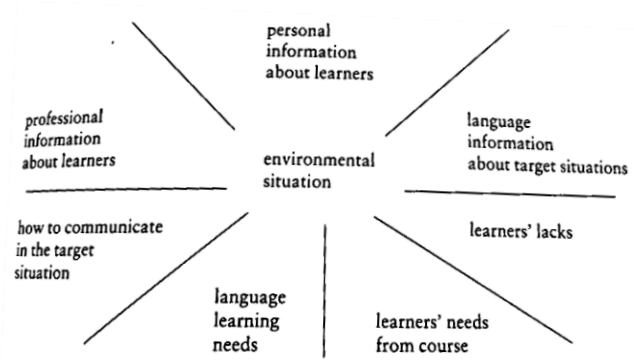

Figure 8 What needs analysis establishes.
Source**:** Dudley Evans and St. John (2011, p.125)

Based on such framework, a need analyst can identify the type of information needed and focus its research towards those aspects, remembering to avoid excessive information. These authors clarify the meaning of each aspect as it follows:

A. Professional information about the learners: the tasks and activities learners are/will be using English for – *target situation analysis* and *objective needs.*
B. Personal information about the learners: factors which may affect the way they learn such as previous learning experiences, cultural information, reasons for attending the course and expectations of it, attitude to English – *wants, means, subjective needs*
C. English language information about the learners: what their current skills and language use are – *present situation analysis*–which allow us to assess (D)
D. The learners' lack: the gap between (C) and (A) –*lacks*
E. Language learning information: effective ways of learning the skills and language in (D) –*learning needs*
F. Professional communication information about (A): knowledge of how language and skills are used in the target situation – *linguistic analysis, discourse analysis, genre analysis*
G. What is wanted from the course
H. Information about the environment in which the course will be run –*means analysis* (p. 125)

Lastly, an example of adaptation: Nakamura (2003) shares a scheme of NA based on the goals of a NA. Nakamura presents a simple NA procedure in his paper the *3-step Needs Analysis*

for an ESP Syllabus: A Proposal to Japanese University English Language Courses (see Figure 9); in it, this author shows the NA research purposes, methods and the analysis of the data. An extra step added was the practical application of the data analysis.

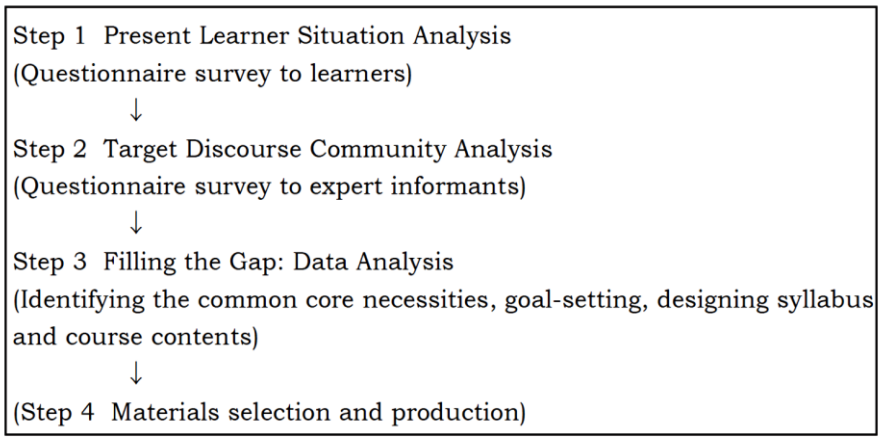

Figure 9 Scheme for Needs Analysis
Source: 3-step Needs Analysis for an ESP Syllabus. Nakamura (2003, p.139)

The present study, will take into account the several of the aspects mentioned by these models. Namely, from Brown's a number of steps from the preparation and the implementation stage and from Dudley-Evans and St. John some of the aspects from the association of the different approaches in NA.

Sources, methods, triangulation and interpretation.

Long (2005) claims that language teachers and applied linguists should be aware with the "wide array of sources and methods available" and their combinations for an effective NA (p. 2). (For more sets of data-gathering methods and possible applications see Long, 2005, p. 31-32; Graves, 2007; Nation and Macalister, 2010). Part of this knowledge includes discerning whether a method is inductive or deductive. Inductive methods "involve use of expert intuitions, participant and nonparticipant observation, and unstructured interviews, from which categories of needs are derived" and, the deductive methods "include use of devices and instruments" (Berwick, 1989 as

cited in Long, 2005, p. 31). Given the research question of the present study, I will focus mostly on inductive methods to gather information, perspectives and opinions.

For this study, the suggested list by Dudley Evans and St. John on the main methods for data-collection and main sources will be used as reference.

On the one hand, the list of the main methods for data-gathering goes as follows: Questionnaires; analysis of authentic spoken and written texts; discussions; structured interviews; observations; assessments. (p. 132).

On the other hand, the following is the list with the main sources used during the implementation of a Needs Analysis. These are: the learners; people working or studying in the field; ex-students; documents relevant to the field; clients; employers; colleagues; ESP research in the field (p. 132)

Triangulation

Given the qualitative nature of this study, I will implement the triangulation method to (a) understand the viewpoints gathered and to (b) work on validity and reliability.

Triangulation is a traditional technique used when working with qualitative data. It aims to increase the credibility of the results through a process of comparison of two or more sets and sources of data. Any source, method, theory, etc. are susceptible to the comparison. Also, it accepts multiple data-collection procedures. (Long, 2005, p.28) There are many ways to use triangulation, among them: triangulation by sources, methods and sources x methods. (Other types of triangulation can be read in Saldaña, Miles and Huberman, 2013)

In this study, I will apply a triangulation by sources and methods because I am going to compare the result of several sources with three methods (the results of professors' interview, students' questionnaires and part of a document analysis).

The rationale behind this is (1) to identify discrepancies and similarities in the viewpoints surrounding the language teaching-learning process of Biology students and, (2) to provide dependability of the findings. (Read more examples of the use of triangulation in Long 2005, p.29)

CHAPTER 3. METHODOLOGY

3.1. Data Collection

3.1.1 Research Setting

This study took place at Universidad del Valle (Campus Meléndez). This state-supported higher education institution is one of the most important in the Colombian Southwest. This university offers education at three levels: technological, undergraduate and postgraduate. All of them distributed in 299 academic programs including 71 master and medical specialties, and 15 doctorates only in Cali. Also, it counts with six research centers, three research institutes, and 239 research groups. (El País, 2015).

The students participating in this study belonged to the first semester of Biology; an academic program founded in 1973. The teaching staff consists of twenty-six tenured lecturers; almost seventy percent of them hold a Ph. D degree[5]. Among its facilities, the Biology program counts with teaching and research laboratories in Zoology, Botanics, Entomology, Genetics, Microbiology, and Marine Biology; specialized collections (as an Herbarium, Museums of Zoology, Marine Biology, and Entomology) along with other spaces for students' formation.

Students get their Bachelor degree in Biology after completing 179 credits in all courses, which include a minimum of four levels of English (8 credits). Before the Pilot Program began, English courses were skill-centered ESP courses called *Lectura de Textos Académicos en Inglés*.

Concerning English, there are two requirements for enrolling in this academic program: first, students' score in the national test Saber pro 11 and, second, the results of a placement test. The latter permits the classification of students in one of the English levels in the Pilot Program.

[5] Information found in the digital brochure with the academic program for Biology. Available in the link http://biologia.univalle.edu.co/docs/pregrado/brochureLarge.pdf

The Pilot Program is the current working title of the *Propuesta de reestructuración del componente curricular de idiomas extranjeros en programas de pregrado* (Proposal for Restructuring the Foreign Language Curriculums in Undergraduate Programs)[6] (2015). This proposal is an ongoing program working with students from most academic programs in the university since 2016. It is a plan aligned with current goals of the University's Resolution 027 (2012) and the Colombian Government standards agreed in the *Plan de Desarrollo 2016 – 2025* concerning foreign language teaching and learning.

According to the Pilot Program's proposal (2015), this program aims to strengthen the curriculums through the implementation of strategies following principles of Second Language Acquisition:

- un enfoque de habilidades integradas que desarrolle competencias comunicativas orales y escritas en la LE y competencias interculturales,
- un desarrollo gradual de habilidades de comunicación académica paralelo a la evolución en el programa de formación específico,
- una mayor exposición y contacto con la LE a lo largo del tiempo que dura el programa de estudios,
- una interacción auténtica frecuente en la LE con hablantes nativos y no nativos,
- y una cesión gradual y orientada de la responsabilidad del proceso de aprendizaje de la lengua al estudiante (p. 9)

This study focuses on the second bullet point from the previous list: the development of [English] language skills parallel to the specific academic formation.

The Pilot program language approach privileges the development of the communicative competences –proposed by Canale and Swain in the eighties and updated by The Common European Framework of Reference (CEFR, Council of Europe, 2001) (p. 9). From this perspective, the development of the communicative competence parallel involves three sub-competencies: the linguistic competence, the sociocultural competence, and the pragmatic

[6] Author's own translation

competence. The Pilot Program promotes a higher exposure to target languages through activities encouraging interaction as in a class, with classmates and professors, as outside of it, with other native and non-native speaker in the cultural spaces arranged for such immersion.

The Pilot Program proposal suggests "partir del desarrollo de habilidades comunicativas generales básicas para avanzar progresivamente en el desarrollo de habilidades comunicativas académicas." This is planned in three stages. The first and second stage help students become English independent users; that is, to acquire a pre-intermediate English level or B1 according to the CEFR. The last stage guides students to achieve a B2 level. This third part of the cycle is optional. Figure 10 displays these stages below.

Nivel	*Créditos*	*Enfoque/Énfasis*	*Programas Académicos*	*No. Est.*
Primer momento: cursos obligatorios (a partir del III semestre de carrera)				
I	2	Inglés con fines generales y con fines académicos generales Habilidades integradas; énfasis en lengua oral	Mixto – todos los programas	25
II	2	Inglés con fines generales y con fines académicos Habilidades integradas; énfasis en lengua oral	Mixto – todos los programas	25
Segundo momento: cursos obligatorios (a partir del V semestre de carrera)				
III	2	Inglés con fines académicos y generales Habilidades integradas; énfasis en lengua escrita	Programas académicos específicos o agrupados por Facultad	25
IV	2	Inglés con fines académicos y generales Habilidades integradas; énfasis en lengua escrita	Programas académicos específicos o agrupados por Facultad	25
Tercer momento: cursos electivos (a partir de VII semestre)				
Electiva I	2	Academic Reading and Writing	Programas académicos específicos debido a la especialidad.	15
Electiva II	2	Oral Academic Skills	Programas académicos específicos debido a la especialidad.	15

Figure 10 Nueva estructura curricular del área de inglés.
Source: Propuesta de reestructuración del componente curricular de idiomas extranjeros en programas de pregrado (2015: 14)

The program adopts some of the concepts and terminology by Jordan (2005) (as cited in the document with the proposal, 2015, p. 10) to describe the progression of the program in these three stages. As suggested in Figure 10, at the beginning of the program, classes have a stronger component of *English with social purposes* and EGAP, and the development of ESAP starts at the end of the cycle; once students have achieved a B1 English proficiency level. As it says:

> Los enfoques de inglés general con propósitos sociales e Inglés con Fines Académicos Generales corresponden a los niveles I, II, III y IV. El enfoque de Inglés con Fines Académicos Específicos se trabajaría en los dos últimos niveles y sería en asignaturas electivas. (p. 11)

This structure is justified by the studies on development of BICS and CALP in ELLs (Cummins, 2008 as cited in the document with the proposal, 2015) (p. 12). Another aspect to consider in Figure 10 is that, although, the program works on the integrated development of the four language skills, level I and II make a stronger emphasis on the development of oral skills (listening and speaking) while level III and IV emphasize on reading and writing skills.

The courses conceive a student-centered pedagogy where students are aware and, gradually, are guided to take control of their learning process. Especially, due to an awareness of their current academic demands and (future) professional needs (p. 12); suggesting an instrumental motivation to learn a second or third language at the university.

Besides, the Pilot Program contemplates the possibility for collaboration with academic programs and faculties to complement, reinforce and support the English courses. But, they remark that strategies and actions need to be mainly run by them (p. 15). In that sense, the document proposes a few strategies as examples. These are: (a) *Trabajo independiente dirigido apoyado en TIC*; (b) *Proyecto de telecolaboración*; (c) *the proliferation of Red de Centros de Apoyo al Aprendizaje de Lenguas (REDCAAL)* (Since the beginning of the Pilot Program, they

provide cultural activities and access to learning material at the CREE building, room 2020); and, (d) *Cátedra colaborativa en L2 (Team-teaching).*

The last strategy, team-teaching, is suggested to be carried out between a senior Foreign Language student —as a monitor— and, a subject teacher who masters the target language (p. 17)

The Pilot Program proposal highlights that the success of the program in our university context depends as well on the support of subject teachers. "Es también importante y clave que los profesores de las distintas disciplinas, en general, se comprometan a apoyar el uso de las lenguas extranjeras a lo largo de la carrera y asuman los compromisos que les corresponden como parte de la formación profesional de sus estudiantes" (p. 18).

In terms of human resources, the academic coordination of the Pilot Program is under the direction of the Department of Foreign Languages and the Coordination Area of Language Services. Specifically, Professors Carmen Faustino and Luis Benavidez guide and assess the pre-service students doing their practicum projects on the plan. At the moment, the Pilot Program English Teaching staff consists of sixteen professors teaching English for General Academic Purposes (EGAP) (only 6 of them are tenured professors), one professor for Portuguese, one professor for German and two for French. Additionally, there are twelve senior students from the Foreign language academic program working as assistants in charge of the tutorships and clubs for different languages —such as English, French, German, and Portuguese— as part of their practicum projects. As well as, five native-speaker as language assistants for English, French, German, Portuguese, and Chinese-Mandarin (yearly, the number of assistants fluctuates)

The Pilot Program arranges the use of different spaces around the campus for classes. In the case of the Biology freshmen, they attended classes in the Engineer School Building (331),

classroom 2008. This classroom was equipped with a projector, a sound system connected to speakers, a CPU, and a whiteboard. Besides, they could access the IT room from the Language School building (315) if needed.

The group studied consisted of 13 students (the attendance range from 13 to 17) and a language teacher —with several years of experience teaching to Biology programs. The intensity of the program conceives 64 teaching hours and 96 hours of independent work for each level. That is, 1.5 hours of independent work for 1 hour of class[7]. In Figure 11, there is a total of 640 hours to achieve an intermediate level of English; the two optional subjects emphasizing on ESAP would sum a total of 960 hours. From Monday to Thursday, Biology students in this study had two-hourly classes (from 7 to 9 a.m.) during sixteen weeks. For the independent work, students could attend a number of the activities organized by the RedCAAL. They had their participation registered in a small notebook known as the passport. In case students' schedules did not match with any activity along the semester, they would practice their skills using either of the recommended software programs (Dexway and Clarity)[8]. As it is seen in Figure 11, students are expected to achieve a A2.1 level by the end of the first English course.

Nivel	*No. horas TP[1]*	*No. horas TI [2]*	*Total horas*	*No. créditos*	*Nivel de ingreso*	*Nivel de salida*
Nivelatorio[3]	*80*	*80*	*160*	-	*A o -A*	
Nivel I	64	96	160	2	A1	A2.1
Nivel II	64	96	160	2		A2.2
Nivel III	64	96	160	2	A2	B1.1
Nivel IV	64	96	160	2		B1.2
Total horas	*256 hs*	*384 hs*	**640 hs**	**8**	**B1**	
Electiva I	64	96	160	2	B1	B2.1
Electiva II	64	96	160	2		B2.2
Total general	*384 hs*	*576 hs*	**960 hs**	**12**	**B2**	

[1] 1 hora de trabajo presencial corresponde a 1.5 horas de trabajo independiente del estudiante (1x1,5).
[2] Trabajo independiente (semi-dirigido) a través de un software, con apoyo de tutor virtual, seguimiento y evaluación del docente y el trabajo cultural en los Centros de Apoyo.
[3]Curso de nivelación para quienes no tengan el nivel A1 a su ingreso a la Universidad.

Figure 11 Niveles de lengua, Intensidad horaria, créditos y niveles de suficiencia. Source: Propuesta de reestructuración del componente curricular de idiomas extranjeros en programas de pregrado (2015, p. 14)

[7] According to one ESP language professor consulted, as of 2018, there were changes to the 2015 proposal consulted during the realization of this work. One of them was that instead of the 1.5 hours of independent work per each teaching hour, there will be 1 hour.
[8] Both for General English

3.1.2 Research design and procedure

This needs analysis research is set under the ethnographic research methodology. This is concluded based on the ensemble of features that describe for the NA procedure; such as the participant and non-participant observations and the triangulation of research methods using multiple sources and methods. As Dressen-Hammouda (2013) points out in her paper "Ethnographic approaches in ESP":

> Triangulation is one important distinctive feature that sets ethnographic research apart from qualitative methods in general, as it "requires the researcher to approach an issue, topic or event in a variety of ways in order to validate the findings" (Johns and Makalela 2011: 202). Other important distinctive features of ethnographic research, (…) include sustained engagement over time, participant observation and critical reflection about the role of the researcher (Harklau 2011, Lillis 2008, Starfield 2010) (p. 3)

This research started in Spring term 2017 (February - June) and it continued throughout the Fall term (August - December) of the same year. The qualitative data were collected and analyzed under the subjects of Introduction to Practicum (*Introducción a la Práctica Docente*) and *Trabajo de Grado* I and II. This is how this research study develops in six steps: (1) Identification of the research problem, (2) Establishing the objectives of the NA, (3) Selection of the participants and sources, (4) Selection and design of the data-gathering methods and instruments, (5) Implementation of the data-collection methods, (6) Data analysis stage and triangulation by source x method which led to the final result.

For stage two, the construction of a *conceptual framework*[9] presented the correlation among participants and the environments; this step facilitates an overview of the needs on which the study could focus (See Figure 12). Consequently, the research will focus on only five types

[9] Saldaña, Miles and Huberman (2003) suggest to the researches of qualitative data to create a Conceptual Framework, this *map* allows the researcher to be selective in terms of variables and relationships therefore, it facilitates the decision of choosing what information should be collected and analyzed. Conceptual frameworks contain "key factors, variables or constructs and the presumed relationship among them." (p.37)

of approaches in NA (Dudley Evans and St. John, 2011). These are *Professional information about the learners* (A), *Personal information about learners* (B); *English language information about the learners (*C); *Learners' lacks* (D), and *Information about the environment of the course (What is wanted from the course)* (H). The areas with gray labels represent the limitations of this study.

A second conceptual framework help in the selection of the participants. The establishment of relations between factors and people that influence the design of the English courses at the university. Figure 13 shows a range of connections that may enrich the English course environment. There are two sides on each side of the Language course presenting the English teachers and the students from Biology. Both influence the construction of the class. It is the expertise of the Language professor that help him/her to connect content from both areas; for example, making decisions on the teaching material. But also, it could benefit from the expertise of the subject teachers influencing the students and their academic needs to nourish the syllabus.

In this sense, the participants chosen were English professors in charge of Biology programs, Biology students attending English level 1, Biology professors in charge of teaching first semester, and the possibility to review content from different syllabi. Nonetheless, the opinion of Biology graduates was also chosen to contrast students' academic needs and to have their expertise in the professional field.

<table>
<tr><td rowspan="7">ACADEMIC NEEDS</td><td colspan="4">ENVIRONMENTAL NEEDS</td><td rowspan="7">ACADEMIC NEEDS</td></tr>
<tr><td>In some Biology classes</td><td colspan="2">Means analysis (H) What is wanted from the course</td><td>In the English language course</td></tr>
<tr><td>Target Situation Analysis (A)
· What does the Biology professor expects/wants from learners?
· Objective, tasks and activities
· Product oriented needs
· Perceived needs</td><td colspan="2">Personal information (B)
· Motivation
· Wants
· Means
· Subjective needs
LEARNER</td><td>Target Situation Analysis (A) (H)
· What does the Language professor expects/wants from learners?
· Objective, tasks and activities
· Product oriented needs
· Perceived needs</td></tr>
<tr><td>Present Situation Analysis (C)
· Strengths
· Lacks/Weaknesses (D)
· Learning experience
· Skill</td><td>Strategy or learning analysis
· Subjective and process oriented needs</td></tr>
<tr><td>Register analysis</td><td colspan="2">Discourse analysis</td><td>Genre analysis</td></tr>
<tr><td colspan="4">LANGUAGE NEEDS</td></tr>
</table>

Figure 12 Interdependency between language and environmental needs.
Conceptual framework adapted from the model presented by Mayr (2015, p. 102)

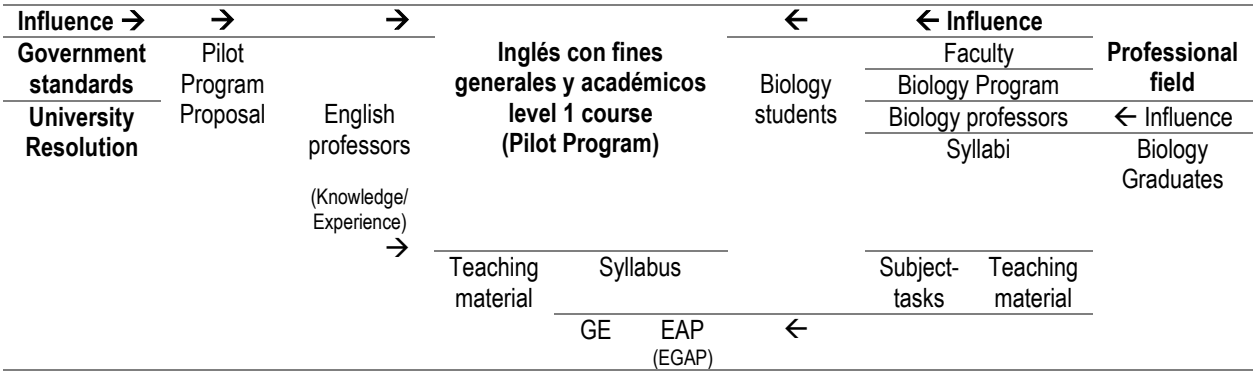

Figure 13 Interrelation of factors in the *Inglés con Fines Generales y Académicos 1* course for Biology Source: own elaboration

3.1.3 Methods, participants and sources

The questions pursued required a qualitative design, subsequently this influenced the selection and design of the instruments. The methods for data-collection used were: surveys, interviews, classroom observations and document analysis. These methods cover the different stakeholders in the Pilot Program. Although this multimethod approach aimed to gather mostly qualitative data with open questions, it still has some quantitative information.

The instruments shared similar questions to elicit responses that could be contrasted or complemented. Table 1 shows the first correlation among types of needs, methods, and sources.

Table 1 Methods and sources to consult during the NA data-collection stage
Source: own elaboration

Need aspect	Method	Source
Personal information about learners	• Surveys • Interviews	• Biology Students • Biology professors (experts in the field) • ESP professors for Biology
English language information about the learners		
Professional information about the learners		• Biology Graduates (experts in the field) • Biology Professors • Syllabi first semester Biology and syllabus English course level 1
Information about the environment of the course	• Classroom observation	• Pilot Program Documents; classroom printed material • English course level 1 • Biology Students
Learners' lacks	• Data analysis	

The participants were: Thirty-two students from the first-semester studying at Universidad del Valle (Meléndez campus); six professors from both the academic program of Biology and the School of Language Sciences (two males and five females). And forty-one Biologists graduated from the same university.

The language in the surveys and interviews was Spanish. The purpose was avoiding possible misunderstandings and allowing participants to elaborate on their answers. The

following literals (A, B, C and D) will discuss the details about the participants and other sources mentioned in Table 1, the structure of the methods and, the application process.

A) Surveys

a) Biology students' surveys

Towards the end of the Spring term 2017, two groups of first-semester students from the Biology program answer a survey. There were twenty-five close-ended questions and ten, open-ended.

Due to the involvement in the practicum project, the observed group took the questionnaire first; therefore, they received the name of Group A. On May 9th, 2017, this group of thirteen students filled out an online survey in the IT classroom of the Language building (315).

On June 6th, 2017, Group B, the second group, answered a printed questionnaire with three more items. There were nineteen participants. In both occasions, the researcher explained the objectives of the survey to the students; they participated voluntarily. The researcher was next to them to answer any doubt.

The students involved in the study were thirty-two (32) from the academic program of Biology first semester. The age range varied; aging from 16 to 30 years old. However, the majority of them were between 17 - 22 years old. Of the 32 learners, 59,3% were male, and 40,6% were female. All of them belonged to the *Inglés con fines Generales y Académicos I* course; addressed to students placed in level A1 (according to the Common European Framework.)

The survey searched for perceived needs; especially, those providing details on the use of English in their major. The open-ended questions offer qualitative information. These were related to a) the use of teaching materials in class b) their learning process, c) the importance and use of English in their daily lives. The idea was to let students elaborate on their academic

context as well as to understand their motivations and the circumstances leading their learning process.

Table 2 encloses the structure of the survey. In it, the correlation between the type of need and the inquiries about is explicit. The questionnaire has three sections: the first one asks for personal information about the learner; the following one collects data on English language information about the learner; and, the final one looks for information about the environment of the language course.

Table 2 Structure of the questionnaire addressed to Biology students.
Source: Own elaboration.

Type of Needs	Information required in the questionnaire
Personal information about the learner (B) Socio-demography	Id plan – Semester – Age – Gender – Socio economic status –Working status
Personal information about the learner (B) (Wants, needs and subjective needs)	- Previous education English language - Experiences in an English speaking country - Use of English outside the classroom for personal purposes - Current difficulties to learn English
	- Motivation to learn English - Selection of the most useful language skills according to their major
	Perceptions on the language course: activities and teaching materials – Questions on the preferred materials to use in the language classroom in relation to their major – Activities that could improve the language skill selected as a priority in their major – Dependability on the L1 to learn L2 in this stage – Suggestions for the course
English language information about the learner (C) (Present situation analysis)	- Student perception of his own language proficiency per language skill -auto evaluation

b) Graduates' survey

Biology program graduates filled out an online survey from May 3rd to July 25th, 2017. This survey had a total of twenty-nine items; twelve of them were open-ended questions. The contact with the graduates was via social network. There were a total of 41 surveyors.

The survey gathers graduates' perceptions and experiences as learners and users of English, in both domains the academic and the professional, especially, the relevance and use of English in

their working environments. This report will present answers regarding the development of their English language skills and the activities where they use English on a frequent basis. These group of participants acted as consulted experts in the field.

Table 3 presents the structure of the survey for Biologist graduated from Universidad del Valle. Besides the previous parts, the structure of the second questionnaire has one more section: this is Professional information about the learner.

Table 3 Structure of the questionnaire addressed to Biologists.
Source: own elaboration

Type of Needs	Information required in the questionnaire
Personal information about the learner (B) Socio-demography	- Age - Genre -Graduation date - Working / Academic status
English language information about the learner (C) (Present situation analysis)	- Graduate perception of his own language proficiency per language skill (auto evaluation) - Formal education concerning English
Professional information about the learner (A) (Target situation analysis and objectives needs)	- Most demanded English Language skill for their work and academic performance - Information on the academic material relevant to their academic or work performance - Questions referring to the use of English in the development of academic tasks for Biology - Pertinence of English in his current working life - Activities at work demanding the use of English - Opportunities to work abroad
Information about the environment of the language course (H) (Means analysis)	- Information in relation to the English courses taken in the university - Questions on the interdependence of English and their subject tasks. - Question on the teaching materials used in English language courses at the time and the pertinence of those in their learning process. - Information on the academic material consulted in their academic environment
Personal information about the learner (B) (Wants, needs and subjective needs)	- Based on their learning experiences, opinions and suggestions for the current English courses - Motivation to learn English

B) Interviews

Two groups of professors granted to be interviewed. The first interviewees were three Biology professors. They were also researchers; therefore, part of the experts consulted. They fulfilled the criteria of teaching, or have taught, first semester students in this university.

The second group consisted of three professors from the School of Language Sciences. They completed two criteria: (1) be part of the Pilot Program (2) at the moment of the interview,

teach English to Biology students. In fact, two of them taught first semester students, and one, third semester learners. Each professor answered individually, however, due to problems with one of the professors' schedule, the questions were sent over e-mail. Table 4 contains information with the technical details of the interviews.

Table 4 Professors' interview technical details

	Participant	Date	Duration	Mode
Biology Department Professors	Professor A	May 26th, 2017	43 min.	Face-to-face
	Professor B	June 5th, 2017 2:00 pm	40 min. approx.	Face-to-face
	Professor C	June 5th, 2017 11:00 am	30 min. approx.	Face-to-face
School of Language Sciences professors	Professor D EAP lev. 1	May 10th, 2017	-	E-mail
	Professor E EAP lev. 1	June 1st, 2017	40 min.	Face-to-face
	Professor F EAP lev. 3	June 7th, 2017 10:30 am	35 min.	Face-to-face

The interview was semi-structured. In this sense, there were two sets of questions: fundamental and optional; the latter were added, elaborated, or removed depending on the information gathered from the conversations. In total, the items for Biology professors' questionnaires range from 14 to 21while EAP professors, from 22 to 37. The types of questions used were: preguntas descriptivas de corto alcance, preguntas de experiencia, preguntas amistosas, preguntas de opinión, preguntas de conocimiento[10].

These interviews explore the perspective of their educators on students' academic needs regarding English and strength and weaknesses in their performance. Naturally, this involved the perceptions, expectations, and needs surrounding the English courses students take.

[10] Taken from López G., Salamanca M., Faustino,C. (2013). Manual de Investigación en el aula. Instrumentos para la recolección de datos en investigación. Chapter La entrevista. This material was used as part of the Seminario de investigación en el aula I course, Licenciatura en Lenguas Extranjeras. Universidad del Valle.

On the one hand, in the case of Biology professors, an objective was to grasp their viewpoints around English as professionals as well as professors. More precisely a) to have a glance at their perceptions and expectations concerning students' English learning processes; b) to know their experiences about practical uses of English during students' first year; c) to explore whether they include English content or tasks in their classes, if so, why and how they do it, and d) to know their suggestions on teaching material developing EAP.

Table 5 presents the structure of the semi-structured interview with the Biology professors.

Table 5 Interview to Biology professors (synthesis)

Type of Needs	Information required in the questionnaire
English language information about the learner (C) (Present situation analysis)	- Perception of the strengths and weaknesses in language performance of students - Awareness of the students' language proficiency (based on results of placement test)
Professional information about the learner (A) (Target situation analysis and objectives needs)	- Use of English in their professional life as professors and biologists - Activities in which a student may use English in our context - Priority in the development of language skills in this level - Type of academic material used for teaching purposes with freshmen
Information about the environment of the course (H) (Means analysis)	- Importance of teaching academic English through academic material from first semester - Suggestions and opinion for the language courses for first year students - Awareness of teaching materials used in Pilot Program (opinions and suggestion on it) - Opportunities of collaboration or cooperation with the School of Language Sciences or language professors

On the other hand, the interviews with EAP professors aimed to learn about their pedagogical practices. The interviews explored a) their perceptions of students' performances; b) their needs regarding teaching material and how they deal with it; c) their experiences teaching EAP to biology students in the Pilot Program and students' academic needs; and, d) how they manage the alignment of disciplinary content and EAP. Table 6 presents the order of the topics in the semi-structured interview with Language professors assigned to teach English to Biology courses.

Table 6 Interview to Language professors (synthesis)

Type of Needs	Information required in the questionnaire
English language information about the learner (C) (Present situation analysis)	- Perception of the strengths and weaknesses in language performance of students
Professional information about the learner (A) (Target situation analysis and objectives needs)	- Most used authentic, discipline-related teaching material (text typologies and formats) - Academic disciplinary content that could be covered in this level
Information about the environment of the course (H) (Means analysis)	- Integration / Articulation of Biology content with the language course - Summary of some of the language course content - Description of the teaching material available: advantages, disadvantages and use - Process of Teaching material design

C) Syllabi and teaching material

According to the curricula consulted (2017), in the first semester, Biology students are enrolled in seven subjects: Introduction to Chemistry (3 credits), Chemistry Lab (1), Mathematics IB (4), Introduction to Biology (3), Biology Lab (2), English for General and Academic Purposes (3) and an elective non-professional course (Spanish) (1).

This study gathered information to identify demands from both academic contexts. On the one hand, from the English for General and Academic Purposes I syllabus, classroom materials, and classroom observations. (More details on the observations later in the section). On the other hand, the syllabus from both Introduction to Biology and Biology Lab's as well as some teaching material (two Laboratory guides and two laboratory reports). These two subjects have the characteristic of being taught in parallel. One provides the theoretical concepts of Biology while the other one, based on the theory, provides a space for discussion and practice in the laboratory. These syllabi and the classroom material fulfilled two criteria: (a) the content reviews all the sub-fields in Biology (b) it gives a glance at how first semester students learn the scientific method.

D) Classroom observations

There was a total of seven classroom observations during the two semesters of 2017. In the Spring term, the researcher carried out four non-participant observations which were

transcribed and analyzed formally as part of the course *Introducción a la Práctica Docente* (Introduction to Teaching Practicum).

Table 7 below, shows a brief technical datasheet of the classroom observation records. It displays the time and date, the topics, the number of students. Except for three students, all belonged to the Biology program. Those students agreed to the Biology content proposed by the teacher.

Table 7 Classroom observations records (English course level 1) Spring term 2017

Observation N°	Date:	Time:	# Students	Lesson's Topic(s)
1	09. 03. 2017	7:20 – 8:50 am (1hr 30 min)	13	Routines. Oral and written exercises on students' life. Reading strategies, and vocabulary (Academic skills)
2	30.03.2017	7:20 - 8:50 am (1hr 25 min)	17	Presentation project: My Daily Routine (1st part)
3	23.03.2017	7:25 - 8:49 am (1hr 25 min)	12	Presentation project: My Daily Routine (2nd part)
4	06.04.2017	7:00 - 8:55 am (1 hr. 16 min)	11	Time expressions, exercises, daily routines listening activities, academic skills review, and vocabulary

The second set of observations were kept in a journal without formal transcription and analysis. Their purpose was to become familiar with the group of students enrolled in the English course level 2. Therefore, they took place weeks prior to the Practicum Project activities. And, they went from non-participant to participant observations. Table 8 below, shows a second brief technical datasheet.

Table 8 Classroom observations records (English course level 2) Fall term 2017

Observation N°	Date:	Time:	# Students	Lesson's Topic(s)
1	31. 08. 2017	7:20 – 8:50 am (1hr 30 min)	10	Review Unit 0 (last semester content) Exercises for oral skill development, revision of past tense with a reading about Darwin's diaries.
2	05.09.2017	7:38- 8:50 am (1hr 10 min)	12	Continuation of the work on Darwin's diaries focus on oral practice. Exercises of General English reviewing past tense.
3	07.09.2017	7:15 -8:49 am (1hr 35 min)	14	Continuation of the work on Darwin's diaries focusing on reading comprehension and vocabulary. Developing reading skills and strategies. Submission of written exercise in pairs.

If necessary, the first set of observations will complement the data from the document analysis.

3.2. Data Analysis

In general, the results from each method require a different technique for the analysis. The raw data from the surveys contemplated quantitative and qualitative questions. The qualitative information used frequency analysis, a technique taken from Basic Descriptive Statistics. As a result, several frequency tables with percentages were constructed. The quantitative information used bar graphs and pie charts. However, these were not considered for this report. Other qualitative analysis, like the observation records use a predetermined format and questions.

The interviews were audio-recorded and complemented with a few field notes; this raw data was transcribed. The verbal and written data derived underwent several procedures: first, data condensation; second, coding and pattern coding; and third, categorization (Miles, Huberman and Saldaña, 2013). After the association of similar answers, a number of themes and patterns appeared. Below, Table 9 displays a list of the eight categories found throughout the six interviews. In the display, each category has a description and color code. These categories helped to identify the convergence points in the topics discussed. A few categories were discarded for this report; only excerpts related to the five aspects of the Needs Analysis were chosen because they offer a panoramic view of the English course and students from the participants. (Kazar and Mede, 2014. p. 2529).

Table 9 Categories (qualitative analysis from interviews)

Type of Need	Category	Description
English language information about the learner (C) (Present situation analysis)	Students' target needs N	Academic language needs, study skills and language skills most beneficial for the development of his/her subject-tasks
	Students' strenghts (SS)	Attitudes/aptitudes that help students achieve their language learning goals
	Students' lacks (SL)	Students' weaknesses/ lacks stopping them from achieving their language learning goals
Professional information about the learner (A)	Strenghts of the English course (SE)	Characteristics of the language course helping to the achievement of students' target needs
	Lacks of the English course (LE)	Suggestions to improve the language course, especially in terms of the usage of academic material
Information about the environment of the course (H) (Means analysis)	Collaboration between the English course and the Biology program (C)	Ways in which the language course includes discipline related material or instruction to work the academic needs of students; also, how Biology integrates content in English. Suggestions about articulation between both fields.
	Pedagogical practices (PP)	Description of professor's experiences of teaching practices regarding EAP. Also, teaching practice Biology professors' regarding English
	Teaching material (ME)	Experiences on teaching material for EAP Biology (including material development and application) Perceptions on current materials.

The criteria to compare the three syllabi (Inglés con Fines Generales y Académicos I, Biología General and, Laboratorio de Biología General) and the complementary classwork material were the following:

a) The identification the cognitive-linguistic skills in English Language tasks and in Subject-tasks (Jorba, Gómez & Prat, 2000, p. 29-72) These are: to describe, to define, to summarize, to explain, to justify, to argue, to demonstrate. In the implication of these in any task, the use of Academic Language could be better understood.

Jorba (2000: 32) defines the cognitive linguistic skills as the cognitive abilities in close relation with (oral and written) text typologies (Figure 14). These abilities are mediators facilitating the access to specific academic content. (See Figure 15)

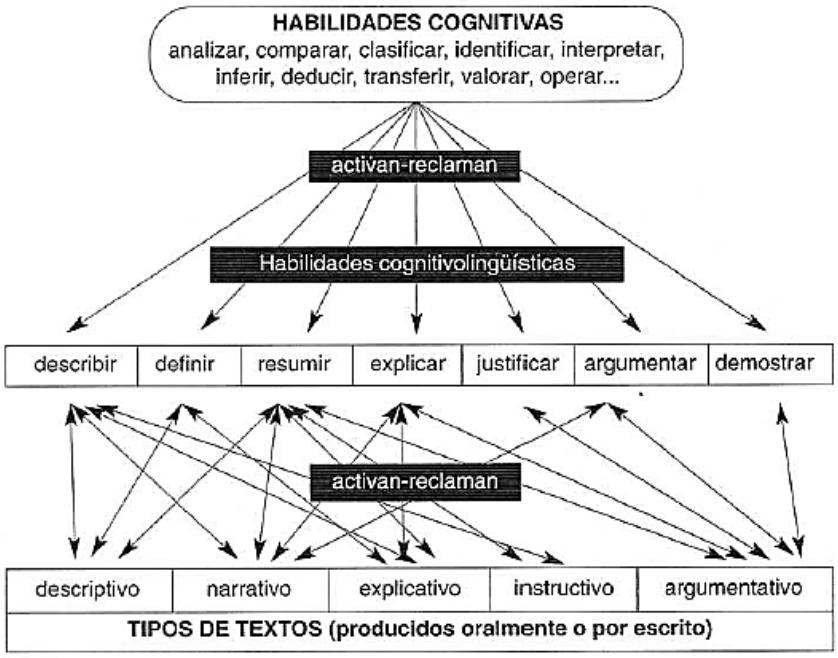

Figure 14 Relación entre habilidades cognitivas y tipología textual
Source: Jorba, 2010. p. 32

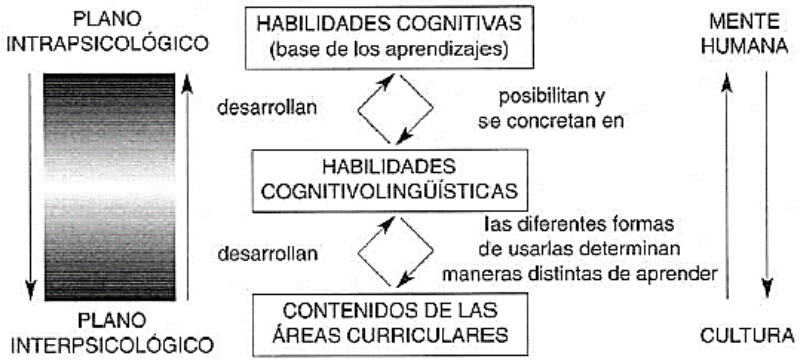

Figure 15 Visión sociocultural de la enseñanza-aprendizaje
Source: Jorba, 2010. p. 32

b) Traces of articulation, this is, English content (and language skills) presented or required in the Biology syllabi (and classroom materials) as well as Biology content (or specific study skills taken from Biology classes) in the English syllabus. By

identifying this, it becomes evident the extent and ways in which each program promotes the development of EAP.

The four classroom observations followed the three-column format including: (1) Time, (2) Description of the activities and, (3) Interpretation and analysis. The interpretation and analysis focused on different elements of the classroom dynamic suggested during the course of *Introducción a la Práctica Docente*. These were: (a) *El y la estudiante como hacedor* (b) *las actividades de la clase y el manejo del error* (c) *el estudiante como ser cultural* (d) *la atención a los estudiantes.*

It is important to reiterate that during the process of data reduction many of the questions and answers collected from all methods but specially from surveys and interviews were discarded. The section of findings corresponds to the data analyzed after the reduction.

CHAPTER 4. FINDINGS

The following section presents the findings from the analysis of the collected data during the implementation of the Needs Analysis (NA) in the 2017 Spring term. The results are presented in four parts according to method: 1) surveys, 2) interviews, 3) classroom observations and, 4) document analysis. The findings are presented in the following way: first, the results grouped according to needs. And then, a matrix with the triangulation of the results with key points from each perspective.

4.1 Surveys

4.1.1 Students description of needs

a) Personal information about the learner (B): Socio demographics

The thirteen students in Group A were partly teenagers and partly young adults. Their age gap ranges from 16 years old to 30 years old. The youngest students represent the 15.4% of the population while the oldest are only 7.7%. However, the majority lie either in their 17 years old (5 students, 38,5%) and their 20 years old (3 students, 23.1%), 22 years old and 26 years old (1 and 1 students respectively, the 7.7% each).

In the case of Group B, comprising nineteen students, the age gap is smaller. The youngest participants are 17 years old (5 people, 27%) while the oldest participant is 25 years old (1 person, 5%). The second majority is 18 years old (26%), followed by 19 years old (3 people, 16%); 20 years old (2 people,11%) 23 and 24 years old (1 and 1 students respectively).

In both groups, there is a difference in the population genre of the participants. Most of the Biology students are men. However, the genre gap is not very big.

In Group A, only 23.1% (3) of people worked and study. On the contrary, Group B 89% (17) of the students revealed to do both.

Most of the surveyors claimed they have learned English in school and/or high school. In group A, 69,2% while group B was 52% who answer positively to this option.

b) English language information about the learner (C): Students' perceptions on their skills performance

In general, it is safe to say that most students claimed to feel confident in their reading skills, given that, among the four options –very good, good, weak and very weak- the majority remain in the first two.

However, in terms of speaking and listening –which correspond to the emphasis adopted for this first English level– they feel insecure yet. According to their answers, 46.1% of students in Group A claimed to feel that their speaking and listening skill are at a good level –that is 6 out of 13 students– while the other 46.1%, say these skills were weak; 7.6% admitted to have both skills at a very weak level. (See Table 15)

Table 10 Language skills students' have more confidence in. Group A

Language skills students' have more confidence in								
Group A	Speaking		Listening		Writing		Reading	
	Votes	%	Votes	%	Votes	%	Votes	%
Very good	0	0	0	0	1	7.6	1	7.6
Good	6	46,1	6	46	9	69,2	7	53,3
Weak	6	46,1	6	46	3	23	5	38,4
Very Weak	1	7,6	1	7,6	0	0	0	0
Total	13	100						

On the other hand, Group B claimed to feel slightly more comfortable with listening than with speaking. For listening, 42%, that is 8 people out of 19, said that in the scale they felt they had a good level; 21% said they felt their level was weak; another 21% said they had a very weak level and only 10,5% (2 people) stated confidently to have a very good listening skill level. Only 1 person –the last 5.2%– did not mark any answer. For speaking proficiency, 36,8% graded

themselves in the scale as having a good level. While 31.5 %, which represents 6 students, claimed that they had a weak level of proficiency. 15,7% stated very good speaking level, which equals 3 people. 2 out of 19 (10,5%) felt they were in a very weak speaking level. And, once more 1 person did not mark any answer (5.2%). (See Table 16)

Table 11 Language skills students' have more confidence in. Group B

	Language skills students' have more confidence in							
Group B	Speaking		Listening		Writing		Reading	
	Votes	%	Votes	%	Votes	%	Votes	%
Very good	3	15,7	2	10,5	2	10,5	7	36,8
Good	7	36,8	8	42	7	36,8	4	21
Weak	6	31,5	4	21	6	31,5	4	21
Very Weak	2	10,5	4	21	2	10,5	4	21
Unknown	1	5,2	1	5,2	2	10,5	0	0
Total	19	100						

In general, if votes of both groups are combined, the language skill in which students feel have a very good level is reading, while the language skill which they have least confidence in is listening. (See Table 17)

Table 12 Language skills in which students' have more confidence in. Both groups

	Language skills students' have more confidence in							
Both groups	Speaking		Listening		Writing		Reading	
	Votes	%	Votes	%	Votes	%	Votes	%
Very good	3	9,3	2	6,2	3	9,3	8	25
Good	13	40,6	14	43,7	16	50	11	34,3
Weak	2	37,5	10	31,2	9	28,1	9	28,1
Very Weak	3	9,3	5	15,6	2	6,2	4	12,5
Unknown	1	3,1	1	3,1	2	6,2	0	0
Total	32	100						

c) *Professional information about the learners: the tasks and activities learners are/will be using English for*

The results to the question: **Do you use English in your daily life activities?** are not resolving. In Group A, 53.8% of the students said that they did not use it – that is 7 out of 13 students. While

46,2% said that they did. In Group B, 56% answered Yes to the same question. And 44% of the students said No –that is 8 students out of 19 who did not have any practical use for the English language outside the classroom.

Among those who use English outside the classroom (combining both groups, there is a total of 17 students), the activities involving English were classified in two categories: Academic activities and Entertainment. Table 10 and 11 show the results per group. Though, in Group A, the answers have a tendency towards the Academic activities, in Group B there is a stronger inclination towards Entertainment activities.

Table 13 English outside the classroom. Group A.

Activities in which biology students use English outside the classroom		**Group A**	
		Frequency	**%**
Academic activities	Lectura (undetermined) Textos académicos)	5	50
	Estudio	2	20
Entertainment	Escuchar música, ver videos, juegos	3	30
		Total: 10	100

Table 14 English outside the classroom. Group B.

Activities in which biology students use English outside the classroom		**Group B**	
		Frequency	**%**
Academic activities	Leer textos académicos, estudiar	3	21,4
Entertainment	Música, Juegos de video, series, libros, películas	11	78.5
		Total: 14	100

To find the motivation behind learning the target language, the question: **Why do you study English?** had six options, from which they could select several. Table 12 shows the top three reasons selected per group. In both cases, the most important reason has to do with their future working performance; in contrast, Table 13 displays the least important reason which involves personal purposes. These choices state an instrumental motivation to learn the language.

Table 15 Motivation. Top three reasons to learn English.

Motivation	Frequency per group			
	Gr. A	**%**	**Gr. B**	**%**
Porque lo usaré en mi vida laboral	11	34,3	14	35,8
Porque quiero viajar y estudiar en el exterior	11	34,3	12	30,7
Porque necesito entender, compartir y publicar información acerca de mi carrera	10	31,2	13	33,3
	Total: 32 votes	100	Total:39 votes	100

Table 16 Motivation. Last three reasons to learn English**.**

Motivation	Frequency per group			
	Gr. A	**%**	**Gr. B**	**%**
Porque quiero interactuar con extranjeros	8	34,7	8	28,5
Porque es un requisito de la universidad	8	34,7	10	35,7
Porque necesito entender, compartir y publicar información sobre intereses personales (música, videojuegos...)	7	30,4	10	35,7
	Total: 23 votes	100	Total: 28 votes	100

To the question: **Which do you consider are the two most used/useful communicative skills in your major?** out of the four language skills, for both groups, it is shown that reading holds an important place while listening remains as the last skill needed. Table 14 has the percentage of the most voted skills in each group. Students put writing as the main productive skill and reading as the main receptive skill most useful in Biology. Though, they still show interest in speaking, listening is in both groups the last skill in priority. (For this question two votes were required resulting in multiple combinations; the votes per skill were counted individually)

Table 17 Language skills that are most practical in Biology

Language skills that are most practical in this major									
Group A (13 students)	Votes	**%**	**Group B** (19 students)	Votes	**%**			**Votes**	**%**
Reading	8	29,6	Writing	11	39		Reading	17	31
Speaking	7	26	Reading	9	32	**Both Groups**	Speaking	13	23,6
Writing	7	26	Speaking	6	21,4		Writing	18	32,7
Listening	5	18,5	Listening	2	7		Listening	7	12,7
Total	27	100	**Total**	28	100			55	100

d) What is wanted from the course

Group A answered an extra question: **Which of the communicative skills would you like to improve?** Here, the oral skills emerge as the most needed. The first choice was listening with a 76,9% (10 votes); then, speaking 69.2% (9 votes); writing 30.8% (4 votes); lastly, reading 15,4% (2 votes).

Following this trend, both groups voted for having more activities related to these two oral skills. In group A's case, most of the votes (12) went for having more speaking activities; while the second most voted choice (9) was to do more listening exercises. In group B the votes were similar: 11 votes for speaking exercises and 10, for listening.

This could be complemented with the opinions of some students who remarked they wish to work with more audiovisual material -such as talks, seminars, movies, videos either related to science or any other topic in general. It is important to add that this kind of material it is already used in class as it was observed in Group A during my practicum project. Also, both groups showed preference for group work (7 votes in group A, 4 votes in group B).

When asked about what kind of materials related to their major they considered a relevant to work in English class, both groups chose scientific articles as their first choice. Group A, 92,3% (12 votes out of 13) while Group B, 84% (16 out of 19 votes). In both groups, this choice was followed by news related to Biology (group A, 61.5% of the votes, 8 votes; group B 63%, 12 votes out of 19); and by book chapters (group A 46.2%,6 votes out of 13; group B 57,8%, 11 votes out of 19).

At last, students in group A and B admit the practicality of working with material in digital and printed format. Some opinions talked about the advantages of portability, economy and

ecology of the digital material; other argue on the advantages of printed material recalling the easiness for “reading and highlighting” as well as the avoidance of distractions when studying.

4.1.2 Graduates’ description of needs

a) 1. Personal information about the learner (B): Socio-demography

53,7% of the participants are men and 46,3%, women. The participant age gap ranges from 22 years old to 68 years old; though, the bigger age group was 37 years old. Regarding their current occupation, 39% of the surveyors only work; the 24,4% only study; the 19,5% do both; and the 17,1% is currently unemployed.

a) 2. Personal information about the learner (B) (Wants, needs and subjective needs)

The top four reasons to learn English among the participants are: in first place, *para acceder a más oportunidades laborales* (to have more job opportunities); in second place, *gusto personal* (personal interest); in third place, *para estudiar en el extranjero* (to study overseas); and, in fourth place, *para viajar* (for travelling).

b) English language information about the learner (C) (Present situation analysis)

The scale used for students was also presented for the auto evaluation of the graduates. There were four options to describe the level of development of their language skills in English: (1) very good, (2) good, (3) weak and, (4) very weak.

Most of the surveyors believe that their receptive skills (listening and reading) are in a very good level; while, their productive skills (writing and speaking) are described as good for most of them. However, between these two there is more confidence in writing than speaking. (See Table 18)

Table 18 Language skill perception in Graduates

Language skill perception in Graduates								
	Speaking		Listening		Writing		Reading	
	Votes	%	Votes	%	Votes	%	Votes	%
Very good	11	26,8	17	41,4	11	26,8	21	51,2
Good	13	31,7	10	24,3	19	46,3	18	44
Weak	12	29,2	11	26,8	7	17	2	4,8
Very Weak	5	12,1	3	7,3	2	4,8	0	0
Total	41	100						

c) Professional information about the learner (A) (the tasks and activities learners are / will be using English for)

As a result, to the question: **In what situations do you use English in your job?** The answers revolved around functions, language skills and postgraduate studies. About speaking, there were two frequent terms found: *Comunicar* and *Conversar;* both terms would involve as speaking as listening since they indicate interaction; nonetheless, they were classified in the category of speaking. Table 19 organizes all answers from the most commonly written to the least. This indicates that the most common use of English in their jobs is related to reading, followed by writing and then interacting (speaking and listening).

Table 19 In what situations do you use English in your job?

In what situations do you use English in your job?			
Categories	**Answers**	**Frequency**	**%**
1. Reading	Lectura de textos científicos; artículos académicos	27	22.5
	Material especializado; lectura de textos; comprender textos; leer; consultar publicaciones	32	26.6
2. Writing	Escritura de artículos (académicos)	10	8.3
	Escribir correos electrónicos	8	6.6
	Escribir por WhatsApp	1	0.8
	Escribir cartas	2	1.6
	Escribir en diferentes actividades [no determinadas]	1	0.8
	Comunicación escrita con investigadores en el exterior	1	0.8
3. Speaking	Comunicarme con pares/biólogos	5	4.1
	Comunicarme/participar en congresos internacionales/reuniones académicas	4	3.3
	Comunicación en el trabajo: comunicación en general/vivo, estudio y trabajo en inglés/mi trabajo actual /algunos aspectos laborales/pulir servicios de traducción antes de ser enviados a publicación/	5	4.1
	Vida cotidiana: viajes (2) /comprar un tiquete de avión, tren o bus/ pedir comida/ pedir un taxi	5	4.1
	Comunicarse con extranjeros, en un país extranjero: Comunicarme en otro país y resolver / Conversar con personas de otros países cuya lengua materna no es el español/conversar con otras personas	4	3.3
4. Listening	Acceso a *media* en inglés	1	0.8
	Escuchar videos de la carrera	1	0.8
	Entretenimiento: Escuchar música, videos, audios, noticias/ entender películas y series	2	1.6
	Acceso a media en inglés	1	0.8
	Escuchar videos de la carrera	1	0.8
5.Postgraduate Studies	Aplicación/asistencia a cursos (en línea y presencial)	3	2.5
	Asistencia a: seminarios (1), congresos (3) internacionales/eventos y reuniones internacionales (2)	6	5
		Total: 120	100

To the question if they still consult academic literature in English, the answer was positive. The reasons to consult academic materials are displayed in Table 20:

Table 20 Reason to consult academic material as professionals

Reason to consult academic material as professionals		
Answers	**Frequency**	**%**
Leer para actualizarse/ Conocer metodologías	11	28,2
Investigar	9	23
Trabajo	6	15,3
Redactar artículos y proyectos	6	15,3
Formación posgrado (maestría y doctorado)	4	10,2
Entretenimiento	3	7,6
Total	39	100

d) What is wanted from the course

Given that, acquiring any language proficiency is a lifetime learning process, the survey asks about the moment where this process started for graduates. Only a 27 % claimed to learned English during their life as a university student. This group of graduates attended to the *Lectura de textos*

académicos courses at the university. Therefore, they suggested that those courses were in need of more teaching material focused on speaking, most specifically in conversations; a type of material that can open spaces to practice dialogues (14 times mentioned); also, they recommended to include scientific articles from specialized magazines (3 times); to teach writing, more specifically scientific writing (3 times); even, international test drills (1); finally, they suggested to include more audiovisual material (4).

About the multiple-choice question: **What was the type of study material consulted during your major?** the most voted answers were: in first place, *artículos de revista* (magazine articles) 97.5% (39 votes); followed by a 70% of votes highlighting *capítulos de libros* (book chapters); in third place, *video tutoriales* (video tutorials) with a 45% of the votes.

In the following question, the participants agreed that the *Lectura de textos académicos* courses integrated Biology content through the use of authentic material proposed by the English teachers in charge. Those texts were related either with Biology or the science-field in general. The frequent words used by the participants were: *textos científicos/ artículos relacionados con la Biología* (7 times).

The reason to look for academic material in English was described as aiming to widen the knowledge on topics seen in their major. –Frequent words seen: *aprender* (3 times) *consultar* (2), *afianzar/estudio/complementar/formación* (once each) –. On the other hand, another common answer was to do class activities, homework and monographs. Some of the common expressions found were: *realizar trabajos; consultar la bibliografía revisada/actualizada* (2)*; para realizar informes de laboratorio y discusiones* (11) and *el trabajo de grado.*

4.2 Interviews

4.2.1 Professors' description of needs

a) English language information about the learner (C) (current skills)

Biology professors highlight common issues observed among freshmen and senior students. One of the difficulties is students' lack of confidence: "ellos tienen dificultades para expresarse; alcanzando la confianza que necesitan (…) siempre tienen el temor de que lo están haciendo mal".

Also, in terms of abilities they believe that their students' proficiency level is uneven and generally low. One professor says that this is why the program has raised the requirement for the English component in the *Saber 11* test, to admit students who already have good basic language skills.

About writing, two professors pointed out: "a ellos no se les dificulta leer, se les dificulta escribir y expresarse … se nota cuando se les pone a escribir" porque "cometen muchos plagios" [meaning that students do not know how to paraphrase properly or cite and reference the bibliography in English]". (…) "los estudiantes de la universidad, no saben escribir un correo electrónico en español, mucho menos en inglés; ellos escriben como si estuvieran hablando".

About listening, it is described as a: "deficiencia que arrastran hasta los últimos semestres de la carrera y hay mucha información científica en conferencias y/o entrevistas." Therefore, they claimed that they do not use any audiovisual material in English or ask them to present anything because they are aware of their students' low proficiency level. Other professor said that senior students are already used to read well but: "(…) no tratamos de escribir nada (…) y a no escuchar…estamos familiarizados con una palabra y no con la pronunciación… Entonces, desde un principio se debería tratar de que la gente también escuche. Después de leer y escuchar ahora sí tratar de escribir, que es clave."

The Language professors have observed other difficulties while working with first and third semester students. In the case of first semester, difficulties are related with their study habits and the oral production and interaction. Some of the comments were:

- "Producción oral – timidez, falta de las estructuras gramaticales principalmente"
- "La falta de estrategias de aprendizaje de una lengua extranjera. Falta del hábito del trabajo independiente regular para avanzar hacia el aprendizaje autónomo"
- Mostly, when students come here the reading is generally good, they understand the readings, in general terms, but (…) students haven't developed their oral ability; they are not familiar yet with interacting in English with other people or in front of others, for some of them, it is the first time doing it. Also, they haven't developed study skills, or study habits.

In the case of third semester students, one of the professors said that her group had a good level in terms of speaking because most of them studied English before enrolling in the university; nonetheless,

> (…) la profesora ha detectado que los estudiantes a veces no logran detectar sus propias debilidades relacionadas con problemas de vocabulario, de léxico, organización en las oraciones–auto monitoreo–. (…) "la dificultad está en writing, tienen dificultades porque no tienen la formación para saber cómo escribir un párrafo"

But this is an aspect she worked with them during that semester. A problem with a few students' attitude also affected the outcome:

> Realmente, los que sacaron mala nota fueron porque no asistieron a clase y, debido a eso, no supieron cómo hacer, por ejemplo, la oral presentation que tenían que hacer, no siguieron los pasos, no siguieron los guidelines, y, tampoco, siguieron los pasos para escribir un motivation letter, que era el writing part del examen. Entonces los que faltaron fue más la inasistencia, la falta de esfuerzo y de responsabilidad. (…) no les gustaba madrugar; (…) llegaban a las 8 am. La clase es de 7 a 9, martes y jueves. Ya, a lo último, cómo se empiezan a cruzar muchos trabajos, proyectos, exámenes y todo, pues dejaron de asistir, sin que diga que la asistencia fue mala

According to the EAP professors, one strength of first year students is their disposition to learn. In general terms, students have a dynamic and enthusiastic approach to their learning process of the language. Besides, the attendance and the commitment with the classes is good. According to one of the professors in charge of one the two first semester groups, they have: "Motivación hacia el inglés; asistencia a las clases presenciales; cumplimiento con el trabajo independiente que

se les exige y se controla; mejoría en la producción oral en clase en las actividades." To complement this the professor in charge of freshmen said that: "they are very active, dynamic, enthusiastic, they want to learn, in general terms. (…) Mostly, when students come here the reading is generally good, they understand the readings in general terms."

b) Professional information about the learner (A) (Target Situation Analysis and objectives needs)

On a hypothetical "order of importance" of language skill during the first year in this major, professors from the Biology program discussed in terms of practicality. Some agreed that at the top positions would be the receptive skills and, at the bottom, the productive skills. As it is seen in Table 21, only one professor disagrees on that order.

Table 21 Practical language skills for Biology first semester

Order of practical language skills for Biology first semester		
Profesor A	**Profesor B**	**Profesor C**
1.Hablar	1. Leer	1. Leer
2. Escribir	2. Escuchar	2. Escuchar
3. Escuchar	3.Escribir	3. Hablar
4. Leer	4. Hablar	4. Escribir

On the reading skills, some comments were:

- "Lo más frecuente en Biología es que usted encuentre bibliografía en inglés, por tanto, lo primario es aprender a leer".
- Todas las habilidades son importantes. Pero lo primero es que ellos tengan acceso a la información, no tanto que sean generadores de un discurso, sino que accedan a la información que está en la red … ellos necesitan leer muy bien; escuchar también y ésta es una deficiencia que arrastran hasta los últimos semestres de la carrera y hay mucha información científica en conferencias y/o entrevistas. (…) Y a los estudiantes no siempre se les da todo en una clase, se les mandan lecturas complementarias y, la mayor parte de estas lecturas …vienen en inglés, algunas en español, pero desde primer semestre tienen que tener algún conocimiento (…)
- "Por ahora, que se informen, conozcan conceptos y los describan. Que partan del material en inglés y al final [de la carrera] sean capaces de exponer".

Based on the Biology professors' comments and answers, the productive skills -speaking and writing- gain more practical use towards the end of their major; when interaction with other scientists is expected. According to their experience as professionals: "No basta con aprender a leer un artículo, hay que interactuar. (…) Someone added that: "normalmente, tú quieres interactuar con otros investigadores del mundo." In particular, in foreign contexts, "(…) si tú vas a participar en un curso en el extranjero, o aspiras a irte a hacer un posgrado." In their experience, English has been useful for: "escribir artículos científicos, hacer presentaciones académicas, discutir ideas con pares académicos… y, en general, para actividades de la vida cotidiana."

A language professor interviewed added that students use English: "[En la] comprensión de lectura y auditiva de textos académicos; [En la] producción oral en sustentación de monografías de grado para doble titulación; [para la] escritura básica para informes".

Some of the comments regarding the teaching material used by Biology professor were*:*

> A los estudiantes "se les entregan artículos académicos (…) ya hay una cantidad de revistas que contienen lo que tienen que aprender; que contienen lo más actualizado (…) ciertos temas van apoyados con artículos científicos de primera línea, nada de que esto es más sencillo (…)" "hay un porcentaje de estudiantes que no les gusta [el material auténtico en inglés]"; "(…) esto representa que estos estudiantes aún no comprenden la necesidad tan grande de éste saber para el futuro de sus carreras.

Through teaching experience, Pilot Program professors are aware of the preference for reading in this field. Regarding this, a language profesor commented:

> la lectura académica es muy importante para ellos. (…) En su disciplina, por exigencia del plan de estudio; [hay] lecturas en inglés asignadas, desde el primer semestre [para la] comprensión de lectura. (…) [ellos deben leer] en este nivel principalmente para informarse.

Pilot Program professors implement ways to integrate academic content to their classes through strategies. One of them selects one-page-long scientific articles according to students' proficiency level to work on reading strategies. This material covers aspects from the linguistic

aspect and the academic skills proposed in the syllabus for this level. Similarly, another professor stated that:

> I know that some of the readings they've got are in English; I don't know exactly the topics but I ask them sometimes, for example, for the reading part. When we are reading, I ask them to bring some of the readings they have to read now (…) and they show me; so, based on those readings I make some the exercises (like skimming, scanning, cognates, type of paragraph, type of texts, etc.). I don't impose the readings, instead they bring the readings for me, the ones that they use for other subjects.

One of the interviewees, the professor in charge of a third semester group said:

> Yo lo que hago es buscar dentro de los textos. Por ejemplo, ¿qué les llevaba para la lectura? En ocasiones, hablaba con ellos y les preguntaba cuáles eran los temas que ellos ven en la carrera, en otras asignaturas. Entonces, partiendo de esas ideas que ellos me daban, yo buscaba textos relacionados (…) ni muy básico, ni tampoco muy avanzado, (…) que tuvieran un corte académico.

However, one of the Language professors, who is in charge of third level English course, made a general comment on the use of academic texts at an early L2 learning stage saying:

> (…) Yo no he puesto, en ningún momento, un artículo científico en nivel 1 y en nivel 2 -porque incluso son estudiantes con nivel A0-; ¿cómo voy a darle un texto tan avanzado a un estudiante que realmente no puede comprenderlo? Y, que, probablemente, se le va volver una pesadilla.

One opinion from their counterparts in the Biology academic program, regarding dealing with complex academic content (topics) at an early stage in the major was:

> Ahí es donde radica un giro en mi manera de pensar, yo no creo que, a un estudiante, porque está en primer y segundo semestre, debe dársele cierta información con menos complejidad. Yo pienso que hay que atacar al estudiante con temas de alta complejidad desde el principio porque, en realidad, todos estamos expuestos a información de alta complejidad todo el tiempo; toca lidiar con ella de una u otra manera. Yo no creo en que haya una progresión ni nada de eso".

Also, another professor from Biology said:

> la motivación de los estudiantes para aprender el inglés viene de la necesidad. De darles situaciones "sin salida" en la que deban utilizar el inglés y defenderse solos. "(…) el problema principal es la actitud porque aquellos estudiantes que tienen dificultad, ellos tienen muchos miedos de enfrentar un texto; para ellos es "una tragedia" a la que no se enfrentan. Muchos buscan una versión en español; entonces, hay que exigirles la inmersión, no el atajo. Aunque sepan inglés, aquí deben aprender el lenguaje científico, es decir, aprender los términos técnicos" por lo tanto, "(…) yo prefiero retarlos: Les pregunto:

> ¿entienden el resumen? Y de ahí partimos, si no lo entienden entonces revisamos el documento."

This way of thinking is based mostly in their own experience; both of these professors shared that they were either taught like this or that they had to self-teach themselves in order to achieve their English proficiency. A Biology interviewee said referring mostly to sophomore students:

> Lo que premio [de hacer los resúmenes] es que hagan el esfuerzo, porque si no lo intentan nunca van a lograrlo". (…) "Esto viene de mi escuela en los Estados Unidos (…) lo que estoy diciendo aplica porque fue lo que vi y experimenté para los estudiantes de pregrado en un contexto diferente; porque no les podemos enseñar a los estudiantes nuestros de una manera diferente; [los estudiantes de la Universidad del Valle] tienen que ser competitivos con ellos.

c) What is wanted from the course

Professors from the Biology academic program, suggested some ideas to engage language courses with subject courses. In terms of content, a professor recommended

> Desde el punto de vista de lo que se tiene en el pensum de Biología (…) sería recomendarle literatura sobre la célula; pensando en los cambios que vienen y en los siguientes semestres, (…) Pienso que tendrían, por ejemplo, Biología de plantas (Botánica); luego, para el periodo siguiente, que tenga que ver sobre Zoología; luego, temas relacionado con Ecología y temas relacionados al final con Genética, Sistemática (sistemas de clasificación de plantas y animales) y Evolución.

In this sense, another professor commented:

> Lo que podrían hacer es articularse con nosotros; nosotros les vamos dejando unas tareas y esas bien habrían podido revisarlas en el curso de inglés ¿Por qué no? Si se nos diera esa oportunidad de intervenir, les podríamos mostrar el temario para revisar en el curso I y II (primer y segundo semestre de Biología) y yo estoy segura que todos los profesores estaríamos interesados en ellos superen esa barrera.

One last idea was: "Me parece es que la Escuela no le saca provecho a muchos profesores que hablamos inglés para formar un club de conversación semanal".

These professors in the English Pilot Program are aware of the need of this articulation between the two programs. They strive two achieve it, though it is still lacking as two of the professors interviewed explained:

> No tuve la oportunidad de hablar con los profesores [de Biología] que, a decir verdad, es lo ideal, lo que uno debe hacer, comunicarse con los profesores de otras asignaturas para saber cuáles son los temas abordados; pero, más o menos a mitad de semestre, que hicimos la evaluación intermedia, ellos me decían que habían aprendido varios términos que habíamos visto en las lecturas y que se acomodaban, o que estaban viendo en las otras áreas. Entonces, hubo cierta correspondencia. Me imagino que no del 100%, porque para eso debí haber hablado con los profesores, pero sí hubo de cierta forma un acercamiento.

Another professor said:

> Every linguistic content deals with the subject of their field. For example, if we talk about biographies, we talk about biologists; if we talk about routines, we talk about what is a typical day in a biologist's life?... all the content is connected to Biology. I know that some of the reading they got are in English, I don't know exactly the topics but I ask them sometimes, for example for the reading part. (…) [The topics] depends on the group but, there are some generic themes like genetics, global warming…

A third professor says:

> Yo incluyo lecturas y videos académicos de biología y también los géneros académicos apropiados y relacionados con el nivel 01 y sus contenidos. Ej: biografías de científicos del área; diarios o bitácora de biólogos; textos descriptivos de sustancias y organismos vivos.

Language professors agreed in the lack of field related material available. As it is claimed in some of the comments; one of them says: "Hay material elaborado por profesores de la Sección del Piloto; pero muchos de los materiales son propios, míos. Biology texts for biology students, there are none." Other comment continues:

> We don't have the material for Biology (…) because what we have is too general, so we have to look for the material, like readings and, I ask them: "why do you see here? and they show me some copies and, for instance, for this copy (professor shows some printed material) I tried to match the topic. (…)

A similar idea says that there are:

> Talleres elaborados por los profesores; principalmente para inglés general. Hasta donde tengo conocimiento, los otros profesores sólo enfocan en el inglés general. Yo incluyo material de internet (principalmente videos) y textos tomados de la enciclopedia británica y de libros de textos de biología.

A professor's experience on the dynamic with sophomores from Biology working with content related to Biology:

> Y, en cambio, [con] los estudiantes de tercero de Biología, pues teníamos la unidad de medio ambiente. Entonces, todo era relacionado también con eso; a nosotros, nos cayó como 'anillo al dedo' porque son de Biología (…). "con ellos sí podía discutir mucho, además de que sabían del tema, [puesto] que estaba relacionado con sus asignaturas, también tenían el nivel para hablar.

During the interviews language professors shared their preferences concerning teaching materials. Each teaching material design process follow the syllabus, objectives and teaching style.

> The process I follow to design material depends on the topic, on the level. [the professor showed me several examples of activities, games and materials adapted by him.]; "Yo incluyo material de biología. Yo busco textos y videos de temática sencilla pero significativa de biología para el estudiante"; "También recurro mucho a videos de NatGeo, llevo fotografías de NatGeo, para listening exploro Elllo, ESLab (porque ofrece varios niveles) y hay muchos temas por eso me gusta.

These group of educators also share some examples of their use of technology in class:

> (…) también diseño una versión para el estudiante, quito todas las partes que son solo para el profesor y dejo las partes que son para el estudiante, las preguntas también (…) En digital y/o papel, o vamos al IT room, usamos Kahoot, es una herramienta que tiene propósito pedagógico y captura 100% la atención." And continues, "A mí me gusta mucho utilizar material digital, lo que pasa es que ya para el manejo, la manipulación de ese material se requiere internet y la IT room y no siempre está disponible; el internet no es 100% confiable, como siempre tengo mis temores, pues yo siempre llevo mi guía, y también tener en la pantalla, en el video beam todo el mundo leyendo de ahí (…)

However, printed material still is very practical for students according to teachers' observations:

> Creo que muchas cosas, entre ellos la lectura todavía se trabaja mejor sobre papel (…); [digital and printed formats,]… complement each other. We have videos, audios, and we need the paper to support… if they had a reading comprehension, they check … students like videos but now, we have to use paper…"; "[About color] I think is important but most of the copies that I have are [in black and white], (…) for example, in the first part we had to work in describing the picture so I made some color copies with different people and project them, so I had both options [printed and digital]. So, it depends, sometimes is necessary.

Regarding the sources Language professors use to gather authentic material or teaching material varies, as they explained: "Internet, enciclopedias, revistas de divulgación científica, libros de inglés general (…)" This professor uses "Capítulos de libros – fragmentos, no más de

media página; videos descriptivos (entrevistas, noticieros, reportajes, etc.) …" and reflects about the different types of printed or audiovisual material saying*:* "All of them are profitable; the students show more interest in the scientific articles." Another professor employs "Internet, not a specific source. Depends on the activity. For example, they did an activity where they had to go to the library or they had to look for a text in Biology and they had to expose about the text, they had to make a recording about the text. Then, they had to switch audios, to listen and report what they listened to (…)"

As part of the interview, Biology professors share some recommendations when selecting authentic material and topics that could be useful when working with first year students.

- Saber de dónde vienen los artículos o el material, qué tan actualizados están es algo que les llama mucho la atención a los estudiantes. Ellos prefieren lo más actual, aunque no tengan el nivel necesario y un texto más viejito les ayudaría más;
- Ustedes no tienen que buscar los artículos, los estudiantes los pueden traer: lo que ustedes pueden hacer es tener el ejercicio (…); a mí me gusta el tema de la evolución, la biogeografía, la genética… me parece que podrían abordar ese tipo de temas.
- For this professor, an articulation including reviewing syllabuses and shared tasks would be the ideal step however, "Si eso no se da, yo les sugiero que se vayan a artículos de revistas como Scientific American pues es una revista que publica artículos de buen nivel científico con intención divulgativa. Para la escucha I Biology una serie de conferencias de Biología celular con especialistas. Los libros de Essential Cell Biology que traen una serie de películas cortas.

4.3 Syllabi and teaching material analysis

Description of syllabi and classroom material from the English course and the Biology program

The course and content description in Table 22 helps to understand part of the academic realities as in the Language course as in the Biology courses. Also, it is made to visualize to what extent the English course contents or activities could align to the academic language and content from Biology. Another element is to see what extent and how the Biology program encourages the use of academic English in their courses. After some key points are lay out from each

syllabus, a form of comparison will be done to find converging points between Biology and English Language learning process in a tertiary education environment. These points are:

a) The degree of articulation in content related either in English or in Biology programs.
b) Identification of study skills (academic activities) and *cognitive-linguistic abilities*
c) Identify if there is any study skill in their major demanding the use of any language skill in English.

There is a possibility of giving a glance to the differences in pedagogical practices in Table 23, and point them out, but this study does not intent to center on them. This is because the objective is 1) to find ways to encourage *language and subject course engagement* and 2) to bring Language professors closer to recurrent academic content of their students; by accessing to their programs and practices Language professors can lead new ideas for meaningful learning.

Table 22 Description of the courses' syllabi and content

	Description of the syllabi course and content		
	Biología general	**Laboratorio de Biología general**	**Inglés con fines Generales y Académicos I**
Course description	Theoretical course. There is a total of 9 professors. In rotation established by the topic in each unit. Intensity: Tuesday and Friday, 3 hours.4	Practical course 1 professor 1 teaching-assistant Intensity: Thursday, 4 hours.	Theoretical-practical course 1 professor Intensity: Tuesday and Thursday, 2 hours.
		"Curso práctico y complementario al trabajo de la conceptualización teórica de Biología general. (…) El estudiante en grupo debe realizar un trabajo orientado para la observación y ejecución de procesos, a partir de los cuales obtiene información para realizar análisis y general conclusiones."	"(…) se centra en el desarrollo de competencias comunicativas básicas relacionadas con la información personal, descripción de hábitos, proyectos personales y profesionales y descripción de problemas locales. La asignatura está diseñada para estudiantes con nivel A1 y busca desarrollar competencias para alcanzar el nivel A2.1 según MCER y la enseñanza de lenguas (Consejo de Europa, 2002)"
Objectives	1.Dar a comprender los conceptos básicos de la Biología como ciencia, sus métodos de trabajo y la importancia que ha adquirido en los últimos años, como elemento fundamental para el desarrollo humano 2. Dar las bases de los principales conceptos sobre teoría celular, genética, microbiología, evolución y ecología. 3.Iniciar al conocimiento de la estructura y funcionamiento de la vida, relacionando lo principales elementos constitutivos de los seres vivos, incluyendo al hombre, con los procesos que mantienen la vida en el planeta Tierra 4. Motivar la consciencia de los principales problemas ambientales del mundo, de Colombia y de nuestra ciudad.	"(…) busca darle al estudiante la demostración, investigación y discusión de los aspectos y conceptos tratados en la teoría bajo la metodología de aprender haciendo. (…)"	General: Desarrollar competencias básicas en lengua extranjera con énfasis en expresión oral y comprensión auditiva para fines comunicativos generales y académicos. Específicos: 1.Comunicarse en situaciones relacionadas con experiencias personales, familiares, académicas y profesionales en un nivel básico de la lengua. (…) 3. Llevar a cabo tareas (*tasks*) sencillas, a través de la lengua, sobre asuntos personales, familiares, académicos y profesionales en un nivel básico de lengua (...)

Content	Semana 1, Unidad 1: La Biología la ciencia de la vida Semana 2, Unidad 2: El concepto de la vida Semana 3, Unidad 3: La unidad estructural de la vida: moléculas, organelas y la célula Semana 4, Unidad 4: Continuación temas unidad 3 y Procesos de transformación de energía Semana 5, Unidad 5: Reproducción y desarrollo (…) (16 weeks)	Semana 1, Unidad 1: Inducción a las prácticas de laboratorio; Bioseguridad y atención de riesgos en la práctica de la Biología Semana 2, Unidad 2: Taller N°1: La Biología como Ciencia (discusión en mesa redonda, a partir de lecturas y la teoría) Semana 3, Unidad 3: Práctica N° 1: Instrumentación para la investigación en Biología (Guía de laboratorio) Práctica N° 2: Células procariotas y eucariotas I: sus adaptaciones (Guía de laboratorio) Semana 4, Unidad 4: Práctica N° 3: Células procariotas y eucariotas II: sus adaptaciones, difusión y ósmosis (Guía de laboratorio) Semana 5, Unidad 5 Práctica N° 4: Relación entre fotosíntesis y la respiración (Guía de laboratorio) Práctica N° 5: División celular Mitosis (Guía de laboratorio) (16 weeks)	**8 semanas, Unidad 1** **Task: Un dia en la vida de un estudiante de Univalle** Funciones comunicativas (…) Describir hábitos / rutinas personales y académicos Producción oral Intercambiar información sobre un área de estudio Comprensión auditiva Identificar el tema y la situación de habla de documentos orales cortos Comprensión de lectura Introducción a las estrategias de lectura Toma de apuntes durante la lectura (Cognados, palabras claves, palabras de referencia, elementos de cohesión, marcadores discursivos) Producción escrita Producir textos cortos con oración temática sobre la rutina diaria (…) Aspectos ortográficos **7 semanas, Unidad 2** **Task: You should know them too** Funciones comunicativas (…) Dar información sobre la vida y trayectoria académica de personas reconocidas (…) Producción oral Presentar a una persona científica destacada Comprensión auditiva Comprender la descripción de una persona Tomar apuntes durante la escucha Comprensión de lectura Identificar ideas principales de un texto La estructura del párrafo Identificar tipologías textuales (básico) Producción escrita Escribir la biografía corta de un científico del pasado Describir a una persona
	Se tomó el contenido de las primeras cinco semanas en Biología ya que coincidían con el material de clase recogido		"Los contenidos de Inglés con Fines Académicos y Específicos generales serán trabajados en todas las unidades a lo largo del periodo académico." (15 weeks) Aquí se tomaron solo algunos de los contenidos que pueden referirse a Biología o actividades, habilidades académicas.
Material de consulta	Mader, S.S. 2007. Biología. 9ed. McGraw Hill 945p. Audersik,, T y Audersirk G2002 Biología La vida en la tierra (6ed) Prentice Hall 947p. Bernstein, R y Bernstein, S. 1998. Biología. Macgraw-Hill. 729p. Curtis H. Y Barnes N.S. 1997. Invitación a la Biología. Editorial Médica Panamericana. 862 p. Starr, C & R Taggart. 2004 Biologia: La unidad y diversidad de la vida. Thompson 933p. Villee C. A 1996Biología. Macgraw-Hill. 944 p.		(Besides to software and websites for language skills practice) -TED Ideas worth spreading -Scientific American journal

Note: The three syllabi were in Spanish therefore, the content presented here kept the original language

Table 23 Classroom teaching materials description

Classroom materials description (part I)	
	Description of the Content
Lab guides	Laboratorio N° 4 Relación entre la fotosíntesis y la respiración
	Introduction: Summary of the theory need it for the experiment. It contains math formulas, tables, and graphs
	Instructional objectives: what the students will be able to do at the end of
	Materials (some provided by the group of students)
	Procedure: 1. Explanation of the experiment. 2. Step-by-step explanation (*montaje del experimento*) 3. Question pointing out the aspects to observe, describe, analyze, investigate y explain (9 questions). 4. A visual organizer for the data collected.

	Discussion: Set of questions guiding the reflection on the circumstances of the experiment (variables and physical conditions, and the consequences in the alteration of any). Students are encouraged to make inferences. The answers are collected in the lab reports a week later.
	Bibliography: Harvard style; sources consulted are in Spanish. In the bibliography section for Laboratorio N° 5 La división celular: Mitosis, there are more suggestions of link webs, book titles and a graphic in English. The titles of this reading suggestions was "vistazo a la red" (with reading to widen knowledge on Cell Biology) and the figure "Asimile las diferencias entre mitosis y meiosis y practique su inglés". Next to it, there is a similar image in Spanish.
	Homework: Tabla guía para llevar a cabo la réplica del ejercicio de laboratorio en casa. There is a graphic organizer to draw each phase of the mitosis according to the microscope
Lab report	Identificación de etapas de división celular en el meristemo apical de la raíz de la cebolla (Title, names and headings)
	Abstract and keywords in Spanish and English
	Introduction: Revision of the key concepts considering some of the bibliography suggested in the lab guide
	Objectives: Elaboration of the instructional objective from the lab guide, in terms of cognitive skills.
	Procedure: Refers to the steps in the experiment. Only described again if there was an anomaly in the process
	Results: Present the results from the lab guide.
	Discussion: Presents the answers from the questions asked in the lab guide; it avoids the question-answer format
	Bibliography: Harvard style
Listening activity	Video Workshop: What is the difference between reptiles and amphibians? Heading
	Activity 1: Instructions for the first, global listening
	Activity 2: Listening for details. Note-taking exercise. Graphic organizer with key words from the listening to help the listening comprehension. Students should identify in what consists the three differences between reptiles and amphibians according to the video and complete the chart. (aspects to compare: skin, claws, eggs)
	Activity 3: A fill-in-the-blank question to close the topic: ask student to try their vocabulary and give examples for reptiles and amphibians: _____are reptiles; _____ are amphibians.
Guidelines	Unit task: "You should know who they are". Heading and introduction
	Procedure: Step-by-step guide with the requirements, stages and recommendations to complete the unit task. There are twelve steps in total There is a timetable at the end with the important deadlines (Presentation assignment, Tutoring, Presentations)

Classroom materials description (part II) Analysis

	Biology lab		**English for General and Academic Purposes**	
	Lab guides	**Lab report**	**Listening activity**	**Guidelines for the unit task**
Articulation	There is academic content in English to complement the information on a topic. There are direct invitations to read in English to practice.	In one of the reports, there were two abstracts: one in Spanish and one in English –probably a translation.	The topic of the video is a description of a living beings by its main traits. It is a visual aid to understand terminology. It goes well with the language proficiency level. There was a supporting previous reading on the topic of the video which help students to be more familiarize with it. (source: classroom observation)	The task offers opportunities to talk about their major and their preferences. The format in which the guidelines are presented may simulate the way the instructions are given in the lab guide, for instance.
Cognitive-linguistic skills	To Describe, To Define To Explain, To Infer To Demonstrate, To Argue Cognitive: To identify components, to interpret relationship	To Describe, To Define, To Summarize, To Demonstrate, To Explain, To Argue Cognitive: to identify, to interpret, to classify, to operate	To Describe, To Summarize Cognitive: To identify, to infer, to interpret.	To Describe, To Summarize, To Argue Cognitive: To value (evaluate), to identify.
Subject-task (Study skill)	Observation and note-taking to prepare a report. Search for academic reading to justify the events observed. Interpretation and following of instructions. Interpretation of graphs	To write a lab report To write an abstract for a lab report. To do a concept revision Bibliography search Use of system of reference (Harvard style)	Note-taking	Oral presentation. Bibliography search Writing a medium-length text to support the oral presentation

4.4 Triangulation of *sources x methods*

The aim, the objectives and the parameters

Based on considerations derived from classroom observations, this study looked for considerations to develop EAP teaching material for the Inglés con Propósitos Generales y Académicos I course.

The main research question pondered on the extent and ways in which the syllabus and, particularly, the materials from the Inglés con Propósitos Generales y Académicos I develop communicative competence in English as a Foreign Language as well as specific academic language and study skills in Biology. Thus, it was necessary to establish some parameters of reference to recognize the length of the contribution in those areas. To do so, this study compared four strands

a) The Pilot Program stands on the development of communicative competence and EAP content for level I.

b) The *Inglés con Propósitos Generales y Académicos I* syllabus and classroom material.

c) The subject-tasks that require the use of academic English in Biology classes.

d) The participants' suggestions for the improvement of the current EAP teaching materials.

Literals *a* and *b* refer to the goals and the suggested content proposed by the Language program for the development of L2. Literal *c* refers to the teaching practices in Biology classes to encourage the use of L2 for academic purposes. Literal *d* condenses recommendations from those who have experiences with the EAP-Biology teaching material –from students, graduates, and professors– with the description of samples of current materials.

Through the contrast of these standpoints that come from the NA, the expectation is to portrait the current panorama of how the teaching materials support the development of the communicative competence and academic English. Then, figure out its strengths and weaknesses.

The objectives serve to find information about pedagogical practices in Biology first semester. A glance at the use of academic language in Spanish and English and frequent study skills in this major; in general, recognize the subject-tasks demanding the use of English. In this way, find out whether the current materials were helping students with those tasks, if so, how. These complementary questions were:

- What are the most required study skills and language skills from freshmen in Biology? Why?
- What are the subject-tasks in which Biology freshmen require the use of English?
- What are Biology and Language professors' views and expectations of Biology freshmen's performance using Academic English? In which aspects, do these perspectives agree? (This question is complemented with students' perception on their language skills) (Eventually, educators' opinions cover the teaching material design).

As a result, a triangulation of information was created to display the condensation of data analyzed surrounding each question of the research and each source consulted. (See Table 24).

Table 24 *Summary of results retrieved from multiple sources and methods.*
Adapted from Mayr (2015) (p. 120)

Students	Graduates	Language professor	Biology professor	Syllabus English	Syllabus Biology
Findings on ways in which the teaching material contributes to the development of communicative competence and Academic English for Biology					
Suggestions Teaching material: a. Audiovisual b. Group work c. Scientific articles, news, book chapters d. Digital and printed Formats	Suggestions Teaching material: a. Focused on interaction b. Scientific articles from magazines c. Scientific writing d. International test drills e. Audiovisual	Teaching material: There is a lack of up-to-date EAP material for Biology for this course available Videos Audios Readings	Suggestions Teaching material Use recent academic material even if it is challenging Precise sources of academic articles Ask students for their current academic material Other suggestions: For cooperation: In terms of content (literature about the cell, Botanic, Zoology, Ecology, (later) Genetic, Systematic, Evolution, Biogeography) Use content from specialized magazine Conferences and books on Cell Biology For collaboration Creation of a collaborative teaching session with disciplinary content (work material in previous accordance) For team-teaching An academic conversation club with Biology professors	Teaching material collected Articulation Worksheets: -Short-length videos with content related to living beings and their characteristics - Use of a format simulating some of the features of discipline related documents - Writing summaries/short paragraphs -Use of students' articles to design language activities or ask students for the topics from their major (Complementary source classroom observations) -Short-length articles describing biological processes -Exploration of discipline related vocabulary found in authentic materials	Teaching material collected Articulation Laboratory guides have Academic content in English (Web links and illustrations with biological processes) Comments to encourage students to practice their English skills by consulting the material suggested A laboratory report including an abstract and keywords in both Spanish and English
Findings on target tasks (study skills)					
Study skills using English 1. Academic Reading 2. To study	Study skill most commented 1. Consulting academic material to widen knowledge (readings or videos)	Activities in which Biology students use L2 Academic reading	Study skill 1. Reading academic articles in L1 and L2	Study skills Oral presentations Consultation of sources Basic English Writing Note-taking of audiovisual material	Study skills Reading comprehension (skimming and scanning) of academic texts Interpretation of graphs (In Spanish) Note-taking after detailed observation, follow instructions
Findings on target tasks (subject tasks)					
	Subject tasks in English as undergraduate: Consulting 1. Specialized magazine articles 2. Book chapters 3. Video tutorials Most common activities at work involving English 1. Reading scientific texts, academic articles 2.Writing academic and personal content				Subject-tasks in English Review academic texts (Implicitly) Familiarize with scientific terminology and text typologies. Familiarize with (scientific) academic writing by writing/translating an abstract for a laboratory report Subject-tasks (Spanish) Description of phenomena Interpretation of graphs and tables

	3.Interacting with colleagues or regular people 4. Listening for entertainment 5. Attending academic events and studies				Lab reports writing Summary writing Bibliography search and referencing
Findings on target tasks (language skills)					
Weakest language skill 1. Listening 2. Reading 3. Speaking 4. Writing Language skill most wanted to improve 1. Listening 2. Speaking 3. Writing 4. Reading Most beneficial Language skill for professional development 1. Reading 2. Writing 3. Speaking 4. Listening	Weakest Language skill 1.Speaking 2.Listening 3.Writing	Strengths Learning disposition Good attendance and commitment Responsibility with independent work Good reading skills Weaknesses Shyness Not used to interact in English Lack study habits and study skills Learning strategies Autonomous learning Eventually, irregular attendance Poor performance in oral skills	Weaknesses Students' lack of confidence Fear to approach an academic text in L2 Lack of effort to learn L2 Strength Generally good reading comprehension in L2 Weaknesses Perception of generally low language skills proficiency (Poor listening skills; difficulties with pronunciation). Poor writing in L1 Most beneficial Language skill for professional development (not unanimous) 1. Receptive skills (mostly reading) 2. Productive skills Most common activities as professionals - Writing academic articles - Oral presentations - Interacting with colleagues in academic environments - Daily ordinary life tasks	Language skills development Four skills (an emphasis on oral skills –speaking and listening	

The interpretation

Vertically, the matrix (Table 24) synthetizes key points on the opinions regarding each topic per source –these were students, graduates, professors, syllabi which included classroom materials. Horizontally, this triangulation matrix has key words referring to the aim and objectives.

In the rest of the sections of the matrix, the findings are organized following the concepts of target needs and learning needs –as these were reviewed in the theoretical framework; but

also, target-tasks and pedagogical tasks. These last two concepts, Long (1985) (as cited in Robinson 2011, p. 8) distinguishes them as follows:

> (…) "target tasks"—what learners are expected to do on exit from instructional programs (identified via a needs analysis)—and "pedagogical tasks"—the tasks teachers and students work on in classrooms, which can be gradually increased in complexity so as to approximate target task demands.

In accordance with the task-based teaching methodology guiding the *Inglés con Fines Generales y Académicos I* course, this paper also studied some target-tasks in Biology. In reference to the academic environment, the term adopted was subject-tasks, instead. In the following paragraphs, the insights regarding them are discussed. (Part II, III and IV. p. 103 - 105)

4.5 Discussion

Part I: Findings on ways in which the teaching material contributes to the development of both, communicative competences in EFL and Academic English for Biology

The first fringe of the matrix presents evidence taken from the EAP teaching material used by Group A, the observations, the syllabi and the comments from educators. The interpretation will go from left to right discussing the suggestions to improve the teaching material and then, comparing them with the key points in the actual samples of classroom materials.

For the development of the specific academic language in English, students and graduates suggested the use of more audiovisual material, the use of scientific articles from magazines and book chapters. Biology graduates indicated that students would benefit more from working on scientific writing and focusing on the development of oral interaction. Biology educators remarked that in case of using scientific articles, these should be recent and showcasing the source; for them, one option is to ask students for their current subject material.

In contrast, the column *English syllabus* presents language activities that deal with some of these target needs. This indicates an improvement in the Pilot program versus the previous language program.

For developing listening and reading comprehension as well as introducing students to the Academic English for Biology, the professor from Group A had weekly lesson sequences of EAP-Biology. These classes had activities using short-length videos and readings with topics from Biology. The syllabus and the classroom observations show coherence in helping students to develop reading skills through some reading strategies. For writing, the exercise proposed –a text supporting the oral presentation about a scientific/ biologist– is more inclined to develop English for social purposes than Academic English. Also, for oral interaction, some language professors use subject materials from students to plan lessons with content-based activities.

As it was presented previously, language teachers design their own EAP classroom material, and some of them declare that there is a need of material available to consult to introduce Academic English to beginners. Besides material, one aspect against the development of Academic English is the length of the sessions that can be dedicated to the learning of it. Given that English for social purposes has the main focus in this stage, EAP sessions are reduced.

According to these first section of findings, subject teachers and, consequently, students advocate for the use of authentic materials that demand higher cognitive-linguistic levels than the material commonly used for A1 levels. Language educators seemed aware of those demands, yet the classroom observations and the classroom material samples show an interest to establish stronger foundations on the language before working on academic texts (like scientific articles) Language professors use discipline-related material to develop: first, the language skills, and

second, the linguistic sub-competence expected for this level; in the latter, we could fit the growth of basic scientific vocabulary as an introduction to Academic English. In this sense, it explains that the selection of topics differs from the content taught in Biology first semester, considering that language teachers select simpler authentic texts based on several conditions such as, the level of difficulty of the text (written or oral) and the linguistic structure students are reviewing, for instance.

Nonetheless, students seem to be exposed to authentic Academic English because of the complementary studying material suggested in their major, it would be interesting to discuss: what coping strategies students use to carry out the subject-tasks indicated in the Biology columns? One insider, a graduate, commented that she used to divide the pages of book chapters in English with her classmates and, before class, share what they learned. Another insider, a freshman from Group A, commented that it was not complicated to deal with some readings because he already had good reading skills; though, he contemplated that, perhaps, it was difficult for his classmates with poorer skill performance.

Students' exposure seems the result of the academic program of Biology to introduce English content to support the language learning proposal at the time. As it was stated in the introduction of this research, academic programs did this following the *Acuerdo 009*. Empirically, they seem to work on the linguistic and sociocultural sub-competences by having students deal with an authentic academic material. It seems that they aim to teach students specific academic language in Spanish and English at the same time. This approach may prompt different reactions and attitudes among students regarding English (in reference to the Krashen's Affective Filter hypothesis); one of them could be the instrumental motivation to learn that they pointed out in the surveys. However, their effort to present a practical use for English in relation

to their discipline, since the beginning of their major, it seems to imprint a sense of commitment to learn the language in their students. However, it is worth to learn, in future studies, the effects of this methodology on students' attitudes toward learning English.

Given that, the current way Biology professors are introducing content in English to their students was more adjusted to the previous language proposal from 2003, there are some suggested activities appearing in the matrix under the label of *cooperation*, *collaboration*, and *team-teaching* (Dudley-Evans and St. John, 2011) to improve the lack of teaching material to introduce Academic English for Biology to beginners

For cooperation, the recommended content formed a list of Biology sub-fields. In general terms, the list corresponds to the seminars in the Introduction to Biology syllabus. Nonetheless, two professors announced changes to the curriculum in the near future; so, Cell Biology is going to be the main sub-field to work with first semester students starting from 2018. Also, as recommended sources for material, like *Scientific American* magazine that publishes articles with the purpose of informing.

For collaboration, as one language professor admitted, they think that some lessons or readings could be planned in conjunction. For a team-teaching stage, an idea was the constitution of a conversation club involving Biology professors.

All in all, the pieces of evidence presented show that the teaching materials contribute to the development of both the communicative competence and Academic English for Biology by approaching two sub-competencies: the linguistic competence (with the development of the lexical competence and reinforcement of grammatical structures) and the pragmatic competence (with simpler texts typologies like documentary clips/interviews, short specialized magazine articles and the use of random students' academic readings or topics).

However, the sociocultural sub competence (concerned with the usage of registers according to settings) is not fully embraced; given that, in the case of EAP-Biology would include the development of specific academic language in English. In this stage, this sub competence is more a by-product of the development of the other two.

The suggestions from students, graduates and professor on the use of authentic academic material (specially for reading comprehension) with beginners may bring some discussion on whether they should be regarded as either *immediate* needs or *delayed* needs in the language course. In this needs analysis, it is possible to perceive that the suggestions are, in part, the result of measures applied to support the *Lectura de Textos Académicos* courses that still persist. Therefore, the Pilot Program courses, which embodies the new restructure of the language teaching programs, could open the dialogue with the academic programs in order to share new teaching strategies that reinforce the learning of Academic English outside the class but in a way more adjusted to the new pedagogical proposal. From this perspective, the stages to achieve a language-course and specific-disciplines engagement proposed by Dudley-Evans and St. John become useful for the harmonization of pedagogical practices to familiarize students with Academic English.

Understanding Part II, III and IV of the triangulation matrix

The implicit inquiry of this research project had the objective of figuring out a way to introduce ESAP in a class for students with an A1 language proficiency level. As an alternative to complement the teaching material, the identification of subject-tasks in the first-semester Biology might encourage the creation of pedagogical tasks for the EAP-Biology instruction.

These subject-tasks are subdivided into three sections that will be expanded in the following paragraphs. First, frequent study skills involving the use of English; second, examples of subjects tasks in Spanish and English; and third, perceptions on language skills -in terms of the most used or beneficial, academically and professionally, in a short and long-term.

Part II: Findings on study skills demanding English (academic activities)

It is reiterative the expression *academic reading in English* along and across the matrix. The reason for this may be that, from students to graduates to professors, academic reading is an ongoing activity that improves their performance as professionals.

The reason for reading varies: for graduates, the access to readings (and videos) reinforces, broadens and updates their knowledge on methodologies; also, it used to be a tool to complete their homework, reports, and to write their monographs. For students reading in English is for studying, that could imply a revision of concepts. This part coincides with the observation in the lab guides and an excerpt from the professors' interviews.

Since the Pilot Program promotes the integrated development of the four skills, the general study skills in the language course encourage the use of each of them. An example is the unit-task reviewed. It required consultation of sources, notetaking, writing of summaries, the creation of visual aids to prepare for one subject-task: an oral presentation. It is interesting that, in the Language course, note taking is a study skill used for the listening comprehension activities. However, in the Biology course, note taking is used for keeping records of observed changes in experiments; later, those note fields are the basis for descriptions and analysis.

Part III: Findings on subject-tasks

This segment used graduates' experiences and classroom material from the Biology lab course. As undergraduate students, graduates only mentioned the reading of complementary academic

texts as a subject-task requiring English. This could have implied the use of reading strategies as study skills.

As biologists, the target-tasks demanding English are, besides reading, writing academic and personal content, interacting in academic and personal domains with colleagues; and, attending post-graduate studies duties. In the teaching material reviewed, the few subject-task involving English were:

- Interpretation of an illustration with a process (to learn terminology related to meiosis and mitosis).
- Reading publications on meiosis and mitosis (to identify text typologies; consultation of information and to learn the specific academic language in English)
- Writing an abstract for a laboratory report.

During the process of writing the abstract, there is a possibility that students wrote it in Spanish and then, translate it. If that is the case, translation is a pedagogical tool that could be seen as a study skill as well.

Part IV: Findings on language skills

As for language skills, the matrix mostly focuses on learner's lacks based on participants' perceptions contrasted. From the six professors' perspective, students' weaknesses are more related to attitudes than aptitudes (Affective Filter hypothesis). Although both groups of educators believe that students usually present a good proficiency level for reading, students perceive reading as their second weakest language skill after listening. Once more, receptive skills appear as the most challenging in students' eyes. Interestingly, some professors in Biology consider them as the most beneficial in the long term.

Students' suggestion of working with authentic academic texts as well as using more audiovisual material can be a reflection of that desire for improving those skills, that may limit their academic performance at the moment.

Nonetheless, as experts in the field, graduates and professors are aware of the current importance of productive skills -speaking, and writing- for biologists. For example, when they propose *a focus on interaction* or mention among common activities *attending events* and *presenting published research*; this is, speaking and listening, that gain more importance, but based on the type of situation exemplified, oral interaction may appear more as a *delayed* need.

CHAPTER 5. CONCLUSIONS

The aim of this research study was to determine the extent and ways in which the classroom materials of the *Inglés con Fines Generales y Académicos I* course for Biology contributed to the development of both, communicative competence in EFL and Academic English for Biology.

In order to do so, this study engaged in the development of a needs analysis that focused on gathering several perspectives on the use of teaching material for EAP- Biology.

The results show that the EAP teaching materials in the *Inglés con Fines Generales y Académicos I* course for Biology contribute to the development of Academic English for Biology in a way that contrasts with the expectations of the major in Biology.

This means that, despite the course observed worked on the development of Academic English specifically for Biology, as well as developing linguistic and pragmatic competences, in accordance to an A1 level, the suggestions from students, graduates and Biology professors were the use of cognitively-higher authentic academic texts, which goes beyond students' current language proficiency level.

The study confirms the value that academic reading has on students' academic life and future professional performance. Nonetheless, it is suggested that, though *reading academic texts* appears as an *immediate need*, this may be the result of a pedagogical strategy from the academic program to reinforce the language learning process in a way that suited the previous language teaching proposal, embodied in the former *Lectura de Textos Académicos* courses. Therefore, this pedagogical practice from the Biology program may no longer support the Pilot Program proposal as needed.

In this sense, it is recommended, for the improvement of Academic English in Biology, to establish ways to engage the language courses to the specific disciplines through the stages of

cooperation, collaboration and team-teaching, given that, according to the interviews, Biology teachers seem to be willing to participate in collaborative projects for the development of teaching materials and activities.

Other findings of the Needs Analysis propose the description of some students' subject-tasks, study skills and academic language usage. This was based on the observation that, at a beginner level with young adults, it is challenging to propose the use of authentic academic articles to work in class, when language skills and communicative competence may be underdeveloped. Hence, given that the *Inglés con Fines Generales y Académicos I* course uses the task-based teaching and learning methodology, this body of work suggests exploring the adaptation of subject-tasks that could work in a language course for beginners. An analysis of subject tasks could generate pedagogical tasks that not only improve language skills but also meet study skills and specific academic language, inherently.

The limitations of the study lay on the sole perspective of the constraints of time and the lack of researcher ability to analyze the original amount of data collected led to discarding information that, which in a second researcher's opinion, could have had a different ending.

Besides of working in pairs, another recommendation for similar works would be to select different qualitative data collection methods –like a focus group session with language professors and subject-professors – or a more mixed-methods research approach to corroborate (or elaborate) on the perspectives presented in this qualitative study.

This body of work can be useful not only to understand students' academic reality and the academic needs deriving from it; but also, to encourage the creation of tasks and projects helping students to adjust to those realities. I hope this monograph may serve as a source of consultation for similar procedures in the future.

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LIST OF APPENDICES

UNIVERSIDAD DEL VALLE
ESCUELA DE CIENCIAS DEL LENGUAJE
LICENCIATURA LENGUAS EXTRANJERAS INGLÉS-FRANCÉS

SEMINARIO PRACTICA DOCENTE I
FEBRERO-JUNIO 2017

ENCUESTA PARA ESTUDIANTES DEL PLAN PILOTO

Esta encuesta busca conocer la percepción y las necesidades de los estudiantes con relación a los cursos de Inglés del Plan Piloto de Biología de primer y tercer semestre en relación con el aprendizaje de inglés como lengua extranjera,
La información de esta encuesta será utilizada con propósitos académicos y es absolutamente confidencial.

Código del Plan _____ Semestre _____ Edad: _____ Sexo: M___ F___ Estrato socioeconómico: ____

1. **¿Usted trabaja y estudia?**
   - ☐ Sí ☐ No
2. **¿Ha presentado algún examen de nivel de dominio en el idioma inglés?**
   - ☐ Sí ☐ No
3. **¿Ha vivido en un país de habla inglesa?**
   - ☐ Sí ☐ No
4. **Si la respuesta es afirmativa, ¿Dónde? _____ ¿Por cuánto tiempo? _____**
5. **Durante su estadía, ¿a qué actividad se dedicó?**
   - ☐ Trabajar ☐ Estudiar ☐ Otra, ¿cuál? _____
6. **¿Ha estudiado usted inglés con anterioridad?**
   - ☐ Sí ☐ No
7. **Si la respuesta es afirmativa, ¿Dónde?**
   - ☐ Solo en el colegio
   - ☐ Instituto privado
   - ☐ Clases particulares
   - ☐ Por mi cuenta (autodidacta)
   - ☐ Otra_____
8. **¿Por cuánto tiempo?**
   - ☐ Toda la primaria y el bachillerato
   - ☐ Solo el bachillerato
   - ☐ En un instituto privado de 1 a 3 meses
   - ☐ En un instituto privado, de 3 meses en adelante
9. **¿Ha presentado algún examen oficial para certificar su nivel de inglés? (como el TOELF, IELTS, etc.)**
   - ☐ Sí ☐ No
10. **¿Cómo percibe usted su nivel de inglés actual? Marque con una X.**

	Alto	Medio	Regular	Bajo
Habla				
Escucha				
Escritura				
Lectura				

11. **¿Utiliza usted el inglés en sus actividades diarias?**
    - ☐ Sí ☐ No
12. **¿Cuáles? _____**
13. **Seleccione la(s) razón(es) por las que estudia inglés**
    - ☐ Porque necesito entender, compartir y publicar información acerca de mi carrera.
    - ☐ Porque necesito entender, compartir y publicar información sobre mis intereses personales. (películas, música, videojuegos, lecturas, etc.)
    - ☐ Porque lo usaré en mi vida laboral.
    - ☐ Porque quiero viajar y estudiar en el exterior.
    - ☐ Porque quiero interactuar con personas extranjeras.
    - ☐ Porque es un requisito de la Universidad.
    - ☐ Otra razón: _____
14. **De acuerdo a su carrera, ¿cuál considera usted que es la habilidad más importante? Seleccione 2**
    - ☐ Habla _____ ☐ Escucha ____
    - ☐ Lectura ____ ☐ Escritura _____
15. **¿Con qué propósito? _____**
16. **¿Qué tipo de actividades le gustaría ver desarrolladas en clase para mejorar dicha habilidad?**
    - ☐ Ejercicios de gramática
    - ☐ Ejercicios de escritura (como redacción de opinión, ensayos, etc.)
    - ☐ Ejercicios de escucha (como ver videos, escuchar música, etc.)
    - ☐ Ejercicios de habla (como discusiones en clase, conversaciones improvisadas y practicadas, exposiciones, lectura en voz alta, etc.)
    - ☐ Ejercicios de lectura académica y material especializado.
    - ☐ Ejercicios de lectura de entretenimiento
    - ☐ Proyectos grupales
    - ☐ Trabajos individuales
17. **¿Cuál cree usted que sería un obstáculo en el aprendizaje del inglés? Marque una X en cada situación.**

Situación	De acuerdo	Parcialmente de acuerdo	En desacuerdo
La falta de tiempo			
La falta de motivación			
La falta de oportunidades para practicar el inglés fuera de la clase			
La dificultad para memorizar el vocabulario y /o el uso de las estructuras del inglés.			
Dificultades con el método de enseñanza de la clase			
Otra situación, ¿cuál?			

_____

18. **Marque con una x la respuesta que considere conveniente ¿Qué tan necesario es el uso del español en estas clases de inglés con fines generales y académicos?**

☐ Esencial ☐ Un poco necesario ☐ Innecesario

19. **Si pudiera hacer algún cambio en el curso, ¿en qué ámbito sería? (Marca una opción y justifica.)**

En el contenido	Justifique su elección brevemente.
En la metodología de enseñanza	_____
En el material de aprendizaje	
Otro, ¿cuál? _____	
Ninguno.	

20. **En general, ¿cómo calificaría los materiales que usa el profesor(a) para el aprendizaje del inglés?**

☐ Muy útiles (pase a la pregunta 26) ☐ Algo útiles (pase a la pregunta 25) ☐ Completamente inútiles (pase a la pregunta 25)

21. **Marque con una X en cada opción y justifique brevemente SOLO aquellas con las que esté de acuerdo. El material didáctico (libros de texto, fotocopias, talleres, etc.) utilizado actualmente en este curso para la enseñanza es:**

	De acuerdo	Parcialmente de acuerdo	En desacuerdo
Poco interesante y desactualizado			
Inapropiado e insuficiente para mis necesidades académicas			
Irrelevante para mis necesidades comunicativas personales			
Demasiado difícil en su contenido y explicaciones.			

22. **¿Hay algún material utilizado en clase que le gustaría resaltar por su utilidad durante su proceso de aprendizaje?**
☐ Sí ☐ No
23. **¿Cuál? ¿Porqué?**

_____
_____

24. **¿Qué tipo de textos o materiales relacionados con su carrera considera pertinentes para trabajar en este curso? (Marca dos opciones)**
- ☐ Artículos de revistas y periódicos especializadas (digitales e impresos)
- ☐ Capítulos de libros
- ☐ Noticias
- ☐ Blogs
- ☐ Entrevistas
- ☐ Otro, ¿cuál? _____

25. **Además de los anteriores, ¿con qué otro tipo de material le gustaría aprender?**

_____
_____

26. **¿Prefiere usted que el material didáctico para el aprendizaje del inglés tenga un formato digital o impreso?**

☐ Digital (pase a la pregunta 31 y 32) ☐ Impreso (pase a la pregunta 33) ☐ Ambos (pase a la pregunta 34)

27. **Si su respuesta fue "digital" nombre brevemente la razón principal**

_____
_____

28. **¿Qué tipo de material digital le gustaría ver?**
- ☐ Videos (entrevistas, noticieros, reportajes, etc.)
- ☐ Audios (entrevistas, reportajes, programas radiales, podcast, etc.)
- ☐ Blogs
- ☐ Otro, ¿cuál? _____

29. **Si su respuesta fue "impreso", mencione brevemente la razón principal.**

_____

30. **Si su respuesta fue "ambos", mencione brevemente la razón principal.**

_____

1. **¿Tiene alguna sugerencia para mejorar el curso de inglés? (Algún comentario sobre aspectos que no fueron mencionados en la encuesta que le gustaría que sean tenidos en cuenta; ¿Qué le gustaría que se trabajara más en clase? ¿Algo que considere que deba mejorar el programa? ¿Temáticas que deba abordar? etc.)**_____

_____ **¡Gracias por su participación!**

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LICENCIATURA LENGUAS EXTRANJERAS INGLÉS-FRANCÉS
INTRODUCCIÓN A LA PRÁCTICA DOCENTE
FEBRERO-JUNIO 2017

ENTREVISTA EGRESADOS

Esta entrevista busca conocer las necesidades, percepciones y expectativas de directivas académicas y profesores de inglés del Plan Piloto que están actualmente a cargo de los estudiantes de **I y III semestre de Biología.**
La información de esta encuesta será utilizada con propósitos académicos y es absolutamente confidencial.

NOMBRE:	**SEXO: M__ F___**
EDAD:	**OCUPACIÓN:**
AÑO DE GRADUACIÓN:	

1. ¿Cuál considera que es su nivel de inglés actual?

	Alto	Medio	Regular	Bajo
Habla				
Escucha				
Escritura				
Lectura				

2. ¿Dónde aprendió inglés? ¿Fue antes, durante o después de la universidad?
   _____
3. ¿Por cuánto tiempo?
   _____
4. ¿Con qué propósito?
   _____
5. ¿Es necesario en inglés en el desempeño de su profesión?
   Sí__ No___
   ¿Porqué?_____
   _____
   ¿Para qué lo utiliza?
   _____
   _____
6. ¿Ha tenido oportunidad de trabajar o estudiar en el exterior? Sí_ No_ ¿Qué lugar?
   _____
7. ¿Cuántos cursos de inglés tomó en la universidad? _____
8. ¿Recuerda el nombre de estos cursos? _____
9. ¿En qué semestres? _____
10. ¿Cuál fue el enfoque de estos cursos?
    _____
    _____
11. ¿Estos cursos fueron útiles en su formación durante y después de la carrera? Sí_ No_ ¿Por qué?

_____
_____
_____

12. ¿Cómo se integraba el inglés en el contenido de las materias en la carrera?

_____
_____
_____

13. ¿Consultaba usted material en inglés durante su formación? Sí__ No___ ¿Por qué?

_____

14. ¿Actualmente consulta algún tipo de material en inglés? ¿Con que fin?
15. _____
16. Con respecto al material que utilizaban en las clases de inglés en la universidad ¿En qué consistían?

- ☐ Artículos relacionados con Biología
- ☐ Artículos relacionados con ciencias en general
- ☐ Artículos de revistas
- ☐ Investigaciones
- ☐ Noticias
- ☐ Artículos de opinión
- ☐ Videos
- ☐ Audios
- ☐ Otro, ¿cuál? _____

¿Qué tipo de material didáctico le hubiera gustado que implementaran en los cursos de inglés que recibió?

_____
_____

¿Qué habilidad comunicativa ha encontrado más útil en su desempeño profesional? ¿Por qué?

Habla _____
Escucha _____
Escritura _____
Lectura _____

17. ¿Recuerda usted qué tipos de actividades realizaban?
    - ☐ Ejercicios de gramática
    - ☐ Ejercicios de escritura
    - ☐ Ejercicios de lectura
    - ☐ Ejercicios individuales
    - ☐ Talleres en grupo
    - ☐ Exposiciones sobre un tema propio de la carrera o de ciencia en general
    - ☐ Otro, ¿cuál? _____
18. Señale ¿cuál(es) de los anteriores le fue más provechoso para su aprendizaje? ¿Por qué?

_____
_____

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ENTREVISTA PROFESORES Y PROFESORAS DEL PLAN PILOTO

Esta entrevista busca conocer las necesidades, percepciones y expectativas de directivas académicas y profesores de inglés del Plan Piloto que están actualmente a cargo de los estudiantes de **I y III semestre de Biología.**
La información de esta encuesta será utilizada con propósitos académicos y es absolutamente confidencial.

SEMESTRE I: _____ **SEMESTRE III:** _____

PERFIL DEL DOCENTE

_____
_____
_____
_____

CONTEXTO

1. ¿Cuáles ha percibido usted que son las debilidades (o las limitaciones) de los estudiantes de Biología hasta ahora con respecto al inglés?

   _____
   _____
   _____
   _____

2. ¿Cuáles son las fortalezas de los estudiantes hasta ahora con respecto al inglés?

   _____
   _____
   _____
   _____

CONTENIDO

3. ¿Cómo se articulan las áreas propias de la carrera con el curso inglés para los estudiantes de Biología?

   _____
   _____
   _____

4. ¿Cómo es el contenido en inglés el estudiante se enfrenta durante los primeros semestres?

   _____
   _____

5. ¿Qué tipo de conocimiento académico (lexical, semántica, pragmático) característico de Biología de primer año se debería cubrir en las clases de inglés que reciben los estudiantes?

   _____
   _____
   _____

6. ¿Existe algún vocabulario específico sobre Biología en inglés el cual los estudiantes de primer año deberían estar familiarizados al finalizar el primer año?

MATERIALES DIDÁCTICOS

7. ¿Con qué material didáctico cuenta el curso de inglés de Biología en el momento (libros de texto, guías, talleres, elaborados por los profesores de área, etc.)? ¿Qué enfoque(s) tiene este material?

8. ¿Ha tenido usted la oportunidad de diseñar material para este curso? ¿Cuál es el proceso que usted sigue para diseñarlo?

9. ¿Qué aspectos se tuvieron en cuenta para el diseño de estos materiales el propio y los propuestos por el Plan Piloto (metodologías y temáticas)?

10. ¿Considera usted que el material que se utiliza cubre las necesidades de los estudiantes de Biología de primer año? Si, No ¿Por qué? ¿cómo se determina esto?

11. ¿Qué aspectos tiene en cuenta para el diseño de su material? (desarrollo de competencias lingüísticas, comunicativas, interculturales; tipologías textuales, estrategias retóricas, estructuras gramaticales especificas... ejercicios para practicar estructuras gramaticales, lecturas...) ¿cómo prioriza estos estos elementos?

12. ¿Qué fuentes consulta para encontrar material didáctico?

13. ¿Cómo articula su contenido de clase y materiales con las herramientas tecnológicas (TIC)?

14. ¿En qué formato se les presenta el material de estudio en inglés a los estudiantes de I y II semestre usado en la carrera? (guías. libros, páginas web, artículos, entrevistas, conferencias…,)

_____
_____
_____

15. ¿En qué áreas?

_____
_____
_____

16. ¿Con qué fin (para informarse, para estudiar, para exponer, para sustentar…)?

_____
_____
_____

17. ¿Qué tipo de textos o materiales relacionados con la carrera considera pertinentes o más provechosos para trabajar en los cursos de inglés en relación con la carrera? (Marque dos opciones)

- ☐ Artículos de revistas y periódicos especializadas (digitales e impresos)
- ☐ Capítulos de libros
- ☐ Artículos científicos
- ☐ Noticias
- ☐ Blogs especializados
- ☐ Entrevistas
- ☐ Videos (entrevistas, noticieros, reportajes, etc.)
- ☐ Audios (entrevistas, reportajes, programas radiales, podcast, etc.)
- ☐ Otro, ¿cuál? _____

18. ¿Prefiere usted que el material didáctico para el aprendizaje del inglés tenga un formato digital o impreso?

- ☐ Digital
- ☐ Impreso
- ☐ Ambos)
- ☐ Indiferente

19. Por favor explique la elección anterior

_____
_____
_____

20. ¿Qué grado de importancia tiene el color en las imágenes y gráficos en el material de estudio para Biología? En una escala de 1 a 4 (1 es lo menos relevante)

21. ¿Cuándo considera usted que un material de enseñanza es exitoso? (en la reacción del estudiante, en el éxito de las actividades de clase, en la cantidad de material que cubre)

_____
_____
_____

22. Al tener en cuenta el desarrollo de las habilidades ¿Cómo es la organización que usted le da a los materiales de enseñanza que utiliza?

_____
_____
_____

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ENTREVISTA PROFESORES DEPARTAMENTO DE BIOLOGÍA

Esta entrevista busca conocer las necesidades, percepciones y expectativas de directivas académicas y profesores del programa de Biología sobre los cursos de inglés del Plan Piloto que cursan actualmente los **estudiantes de primer y tercer semestre.**
La información de esta encuesta será utilizada con propósitos académicos y es absolutamente confidencial.

1. En su vida laboral, ¿cuándo y con qué propósito ha utilizado el inglés?
   _____
   _____
   _____
2. ¿Por qué los estudiantes tienen la necesidad de material de estudio en inglés desde el primer semestre?
   _____
   _____
   _____
3. ¿Cuáles son las habilidades comunicativas en inglés que serían las más importantes a desarrollar por los estudiantes durante su primer año?
   Ordénelas de 1 a 4 (1 para la más importante)
   Hablar _____ Escribir _____ Leer _____ Escuchar_____
   ¿Por qué?
   _____
   _____
   _____
4. ¿En los primeros semestres, qué habilidades comunicativas en inglés tienen mayor prioridad en la carrera?
   _____
   _____
5. **¿Tienen información sobre el nivel de dominio de inglés de sus estudiantes? Por ejemplo, ¿la Escuela de Ciencias del Lenguaje comparte el examen clasificatorio que aplica?
   _____
   _____
   _____
6. ¿Cuáles ha percibido usted que son las limitaciones o las debilidades de los estudiantes hasta ahora en la carrera con respecto al inglés?
   _____
   _____
   _____

CONTENIDO

7. Reconociendo que en la Escuela de Ciencias del Lenguaje (ECL) no son expertos en el conocimiento específico en Biología ¿qué tipo de temáticas (o materiales) sobre Biología de primer año considera usted recomendables para abordar en la clase de inglés para enseñar a los estudiantes de I y II semestre? Si no es una temática, podría ser también algún tipo de documentos que los estudiantes necesiten saber elaborar
   _____
   _____
   _____

8. ¿Qué ideas sugiere para mejorar el programa de inglés de los estudiantes de I y II semestre?

_____

_____

_____

MATERIALES DIDÁCTICOS

9. ¿Cuáles son los materiales de estudio utilizados por los estudiantes de primer y tercer semestre?

- ☐ Artículos de revistas y periódicos especializadas (digitales e impresos)
- ☐ Capítulos de libros
- ☐ Artículos científicos
- ☐ Noticias
- ☐ Blogs especializados
- ☐ Entrevistas
- ☐ Videos (entrevistas, noticieros, reportajes, etc.)
- ☐ Audios (entrevistas, reportajes, programas radiales, podcast, etc.)
- ☐ Otro, ¿cuál? _____

¿Con qué fin? (para informarse, para sustentar, para exponer…)

_____

De lo anterior, ¿qué tipo de textos o materiales deben ser abordados en los cursos de inglés?

_____

_____

10. ¿Conoce los materiales de enseñanza de inglés utilizados en el Plan Piloto?

☐ Sí ☐ No

11. ¿Alguna vez ha tenido la oportunidad de reunirse con los profesores de la ECL para planear los cursos?

☐ Sí ☐ No ☐ Algunas Veces

12. ¿Difieren los materiales que se utilizan en el Plan Piloto de los que ustedes utilizan en los primeros semestres? ¿En qué aspectos?

_____

_____

13. ¿Cómo manejan el material de enseñanza en la carrera? ¿Porqué?

☐ Digital ☐ Ambos)

☐ Impreso ☐ Indiferente

14. ¿Qué elementos considera importantes en el diseño de materiales para Biología?

	Sí	No
- Imágenes		
- Color en las imágenes		
- Presentación del material (outline, layout)		
- Claridad en las instrucciones		

- Otros elementos:
  - Fecha
  - Fuente		