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**Research Competences for LAEL-I Students:
A descriptive Study**

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For Rubén, Gio and Dan

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CHAPTER I: INTRODUCTION

From a constructivist perspective, research is inherently related to principles such as lifelong learning skills, learning to learn, and the application of scientific procedures. According to Cerezo (2007), constructivism represents an epistemology oriented to explain the way human beings learn and solve problems, that is, human knowledge, in nature, is inherently linked to previous knowledge. From this perspective, the term knowledge refers to everything available to be in touch with a person in academic or nonacademic environments. The core of this conception is the idea of each student building their knowledge based on concrete experiences and their belief system. Constructivism is also a pedagogical approach supported by philosophy resources – authors such as Bruner, Freire, Piaget and Vygotsky were interested in this way of explaining learning processes. In this order of ideas, research is a systematic process that influences the individual's transformation. A subject puts his/her intellectual capabilities into and apprehends an object of knowledge, so learning is a multidimensional phenomenon that demands some intellectual activities, for example, information, perception, memory, description, imagination, and thinking (Eyssautier, 2006).

Since research requires complex thinking skills, considering a learning framework, it is necessary to think about the competencies that a researcher needs to develop in order to achieve a research goal. A competency is an aptitude to produce knowledge, cognitive activity and wisdom. The constructivist posture emphasizes that the learner is the last and irreplaceable subject of his/her learning and, although learning is an internal process, it does not exclude external factors in order to facilitate a personal transformation and the incidence in a specific context. Research also considers the possibility of stating a problem and looking

for solutions through inquiry related to a theoretical interest or a practice concern – pure and applied research- (Ander-Egg, 2012).

The educational model of the Benemérita Universidad Autónoma de Puebla, Mexico, called “Minerva” (BUAP, 2006, p.75), supported by a constructivist perspective of learning and research, states that the student will become a change-maker agent, competent to develop research projects based on social values, attitudes, knowledge and skills. The student can identify needs in the environment in order to create projects with meaningful impact by solving problems and contributing to social transformation.

Research has to be a central part of academic life. Research is a primary function of universities because it is associated with knowledge. Research has been defined as a set of systematic, critical and empirical processes applied to the study of a phenomenon or a problem (Hernández, Fernández, and Baptista, 2014). Even though curiosity as motivation for the research is natural in human beings, some myths affect the perception of the research process: the first one is that research is arduous and complicated. The second one is that research is not connected with the everyday world. Nevertheless, facing globalization times, a professional without research knowledge will be in disadvantage to solve problems and, therefore, help higher education institutions (HEI) which are trying to make a difference through research. Then, not knowing about research and its methods involves lagging behind (Hernández et al., 2014).

The Tuning Project was born in a global scenario as an effort to establish the basis for the development of strategies, approaches, assessments and educational structures for higher education institutions. This project starts in Europe (Tuning Project, 2009) and the dynamic of this first effort has been extended around the world. For all discussions and proposals generated as a part of the Tuning Project, education is considered as an open-ended

process of becoming and developing of individuals. As a fundamental activity, education involves “the creation and transmission of knowledge, the development and transmission of culture, the enhancement of problem-solving skills and personal development” (Tuning Project, 2009, p. 15).

Some of the principal actors in education processes are teachers and, in this sense, the Tuning Project states that teachers require a multidisciplinary formative process based on research to ensure teachers acquire in-depth subject knowledge, pedagogy resources, skills and competences to guide a learner to a high understanding of cultural dimensions (Tuning Project, 2009). However, education has opened different modalities to course academic programs oriented to professionalization and research. One rising trend is the possibility to be a part-time student in response to socio-economical, educational and cultural needs. Also, inclusive policies have been promoted to empower people to decide when, how and which modality is the best for learning. In an ideal situation, it supposes that students that require a part-time have the maturity for self-management.

One of the main goals of The Tuning Project is to establish international references for higher education, so some of the most useful references for academic and professional immersion are the generic and the specific competences it describes. Accordingly, the Tuning Academy (Tuning Project, 2009) emphasizes the importance of building-up subject's specific knowledge and skills as the basis for a university degree program in order to prepare students to respond as citizens and members of society. Then, competences represent a dynamic combination of knowledge, understanding, skills, abilities, and values.

There are three types of competences (Tuning Project, 2009), namely, instrumental, interpersonal and systemic. Firstly, Instrumental competences include those which have an subsidiary function such as cognitive abilities, understanding, and linking of ideas,

production of thoughts, capacities to interact with the environment, time organization, decision-making, problem-solving, technological and linguistic skills. Secondly, Interpersonal competences are those individual abilities that allow people to express themselves, work in collaborative teams, and consider ethical issues. Finally, Systemic competences refer to skills and abilities related to systems, sensibility, knowledge, and design.

Coming from working backgrounds outside the academia, many people require initial support in developing an appropriate research proposal. According to The Tuning Project (2009, p.60):

Typical macro activities are: discussing the nature of educational research; giving and seeking information about the main approaches to research in educational research; examining the nature of research questions; discussing the main methods, techniques and instruments used to collect and analyze data, in accordance with the object and objectives of a particular research; discussing how to design a research plan. Students engage in a range of practical activities, such as defining research questions and objectives; developing appropriate instruments for data collection; developing and using methods of analysis for analysis of data, researching methods in the literature and evaluating their relevance to their own needs.

On the other hand, Higueta-Lopez, Molano-Velendia and Rodríguez-Merchán (2011, p.9) state that research competences could be classified into a) general competences that any person could have, not exclusive of researchers; b) competences related to the research process, they represent skills, knowledge and attitudes that a member of a research group has to develop in order to participate in research activities and c) innovation competences that

are oriented to generate improvements or new products, processes and materials. For a researcher, it is necessary to develop main competences such as observation, reading, expression, creativity, rigor, networking and socialization, construction, strategy, problematization and ethics (Cuevas, Guillén y Rocha, 2011).

Critical Humanism and socio-cultural constructivism are two of the main foundations of the Minerva Model. The first one is a philosophy trend related to the holistic understanding of the human being considered as a dynamic entity in constant evolution and interrelated with others. Then, each learner is a builder of his/her reality. In this sense, education implies interest, compromise, and respect for the students, it means, taking into consideration three dimensions: affective, axiological and relational. In order to achieve self-realization through a discovery process and the recognizing of the vocation, the person requires a high level of consciousness and autonomy (Cinto, Gutiérrez and Xique, 2015).

On the other hand, socio-cultural constructivism focuses on the problems of human knowledge production from an epistemological perspective. The learner produces and reproduces knowledge in an active way as a part of a society and in a specific context through symbolic tools and interactions in the zone of proximal development (ZPD) that allow the development of higher thinking processes through meanings and experiences (Vygotsky, 1982 quoted in Cinto, Gutiérrez and Xique, 2015).

1.1 Statement of the Problem

Research is an intellectual activity oriented to discovering new facts, data, laws, ideas and relations. Eyssautier (2006) defines research as “a systematic process for obtaining answers to meaningful and relevant questions using a method of accumulation of information and its interpretation” (p. 112). From this point of view, the product of interpretation generates

knowledge.

The educational model of the Benemérita Universidad Autónoma de Puebla, Mexico, called “Minerva” (BUAP, 2006, p.75), supported by a constructivist perspective of learning and research, states that the student will become a change-maker agent, competent to develop research projects based on social values, attitudes, knowledge and skills. The student can identify needs in the environment in order to create projects with meaningful impact by solving problems and contributing to social transformation. Accordingly, the LAEL-I program, grounded on critical humanism and social constructivism, treats education and pedagogy as sciences from a critical viewpoint. The graduate profile openly expresses the need for generating strategies to develop research competences. Indeed, the BA program in ELT points out, as a part of its specific goals that “students must be able to investigate and propose solutions to educational and social problems related to the teaching-learning process of languages” (LAEL-I-BUAP, n/d).

The LAEL-I profile determines that graduates will develop research skills in order to solve learning-teaching problems in English, abilities to analyze language teaching practices, capacity to research different evaluation learning methods, as well as logical and deductive thinking skills and the ability for autonomous learning (LAEL-I BUAP, 2018). However, the lack of a framework which makes explicit the research competences that LAEL-I students must develop stands as the problem to approach in order to contribute to specifically define the research profile to be achieved. Then the question is: What are the research competences that LAEL-I students need to develop to achieve the academic program outcome profile from the perspective of LAEL-I community members (students, teachers and administrative staff)?

Students’ participation in voluntary research projects is hugely reduced and they will only participate in research activities, which are mandatory or curriculum-derived. According

to Castelán, Cinto & Xique (2015), the collected data until 2015 shows that while dropout is high, the completion of the program rate is low and the number of students who obtain their degree is reduced. Besides, there is low interest to participate in extracurricular activities, thesis preparation and development of any other kind of research projects.

After a document revision of the Minerva Model (BUAP, 2006), the LAEL-I academic program fundamentals (LAEL-I, n.d.), and the fundamental documents of Vice-rectory for Research and Posgraduate studies (VIEP-BUAP, 2018a), it was not possible to find a document or a part of a document that states the research competences that LAEL-I students must develop. Besides, the published documents related to LAEL-I academic program only express a set of competences in general terms. Some of them declare the necessity of research competence development, but there is no in-depth description that includes those competences to be developed by each subject along the curriculum.

Universities at different levels of education are committed to doing research as one of their substantial tasks and promoting their students' participation in concrete research experiences. However, in a personal interview, Mayra Juárez Almaráz (2016), coordinator of the LAEL-I academic program until 2016 and researcher professor at LAEL-I program, expressed that LAEL-I students have presented a poor interest in participating in research activities and preparing a research project as an option to get a professional grade. She also emphasizes that the academic program needs to promote and support the development of research by LAEL-I students. Also, PhD. María Amelia Xique Suárez (2017), current coordinator of the academic program, has confirmed the situation.

The data obtained from LAEL-I's coordination office confirmed that the participation in research activities (as speakers in conferences, published articles in academic media or participation in academic official research groups ('cuerpos académicos')) is low. From 31

students enrolled in generation 2013, just two cases have been registered; generation 2014 did not report any case, generation 2015 reported three cases, and at this moment, there is no available data from generations 2016 and 2017. The pieces of evidence show that the development of research competences is essential and necessary at the LAEL-I program. However, if a research competences framework does not exist, it will be difficult to develop strategies for enhancing LAEL-I students develop them. Thus, the expected result of the research project is a research competences framework for the LAEL-I Academic Program.

1.2 General Objective

To determine the research competences that LAEL-I BUAP students need to develop to achieve the academic program profile outcome through the identification of similarities that LAEL-I community members presume.

1.3 Specific objectives

To compare the research competences suggested in authorized documents of reference and those that LAEL-I community members presume should be developed to achieve the professional profile.

To determine/define the research competences that LAEL-I BUAP students need to develop to achieve the professional profile.

1.4 Research Questions

What are the research competences to develop in undergraduate students stated in the literature?

What are the research competences that LAEL-I community members presume that should be developed to achieve the academic profile?

What are the research competencies that the community and the documents of reference share?

What are the research competences that LAEL-I students need to develop?

1.5 Hypothesis

LAEL-I community members share similarities regarding the research competences that LAEL-I students need to develop.

1.6 Significance of the study

According to Vargas (2009), although science and research receive low resources and it is not considered a primary issue in the national agenda, research is essential for the progress of our country. In this sense, the public university is the alternative to develop education, technology and research; the most significant part of research produced in Mexico is generated in public universities' classrooms, labs and research centers.

Currently, the department in charge to lead the research efforts at BUAP is the Vicerrectoría de Investigación y Estudios de Posgrados –VIEP-. According to prof. Ygnacio Martínez Laguna (Comunicación Interna BUAP, 2014), Vice-rector of Investigación y Estudios de Posgrado –VIEP-, the theme of research is considered as one the main functions of universities at BUAP and it is also a strength that has been internationally recognized. He also stated that the vice-rectory has the responsibility to promote a culture of research.

This Project presents the case of a BA program in ELT offered as a blended-learning modality by Benemérita Universidad Autónoma de Puebla –BUAP-. The LAEL-I population is

composed of in-service teachers that need to get their degree and improve their professional profile (Castelán, Cinto & Xique 2015).

The LAEL-I academic program is one of the four programs offered by BUAP in a kind of blended learning modality called ‘Abierta’ (Esparza, 2017a, p.6). LAEL-I program is oriented to a socio-participative curricular structure. Its cross-cutting curriculum issues are correlated to carry out transversal practices in order to achieve integral formation. Education has a humanistic sense because the program observes the social formation process in order to train integral subjects who develop knowledge, skills, attitudes and values that allow them to be autonomous, critical and reflective people with a high level of ethics and a sense of service (Castelán, Cinto & Xique, 2015).

However, according to Castelán, Cinto & Xique (2015), the collected data until 2015 shows that the existence of a high level of dropout, low levels in the completion of the program and earning of the bachelor’s degree. The low interest to prepare a thesis and to develop research projects, allows to conclude that interest in knowledge, favorable predisposition to train others, and compromise to research are not distinctive features of LAEL-I graduates.

Considering the contextual information, if one of the main tasks of the university and the educational programs is to promote students’ participation in research projects which contribute to social change and the generation of knowledge, but LAEL-I students’ participation is rather limited, it is a problem which deserves attention and research. In case of students enrolled in the LAEL-I program, their preparation has to include research competences to face multi-situational classroom because they are teachers on active duty, and to be consistent with Minerva’s Model which states the direction of research formation students (BUAP –MINERVA, 2006). LAEL-I students should become change-making

agents, competent to develop research projects based on social values, attitudes, knowledge, and skills. Students need to be prepared to define, develop and participate in projects with meaningful impact on social transformation.

This study is significant because LAEL-I academic must contribute to the training of professionals that be able to assume their vocation following the central premises of the BUAP and the social and educational demands. Those professionals require to develop research competences in order to improve their practices, to be creative and to propose new responses facing the challenges of dynamic contexts.

In words of BUAP's rector, Alfonso Esparza Ortiz, the best bet for 2018 is the investment in science and the promotion of research (Comunicación Interna BUAP, 2017). Recently Rector Esparza (2017b) presented his Workplan for the period 2017-2021. He showed a model of four action lines, including Committed Research as a second line. Rector Esparza (2017a) also expressed in the 'IV Informe de Gestión 2013-2017' that at BUAP, a long-term policy to encourage research is promoted. The goal is to increase detection, encourage and support of scientific vocations. Then research is developed in a horizontally and transversally scheme to impact all the Higher Education Divisions (DES) and all areas of knowledge in order to maintain the quality standards of the undergraduate and postgraduate educational programs.

Registered research activities have their origins since BUAP was called 'Colegio del Espíritu Santo' and it was considered as the State College. When 'Colegio del Estado' became 'Universidad Autónoma de Puebla –UAP- the importance of research was highlighted (Vargas, 2009).

In 1937, the Organic Law stated that the university had as objective to offer high education and to organize the scientific research in general, especially in topics of national

and local interest in order to train professionals and technicians in every area of human knowledge. On April 24th, 1985, the Academic Council approved the creation of a Secretary of Research and Postgraduate Studies. In 1990, the secretary transformed into a vice-rectory: Vicerrectoría de Investigación y Estudios de Posgrado –VIEP- (Vargas, 2009). Dr. Enrique Dodger Guerrero (n.d., quoted in Vargas, 2009) was its first vice-rector and affirmed that the main result of academic transformation was research; it was reflected an increase of productivity and efficiency. He also expressed that research was the distinctive feature of cutting-edge universities.

In 1954, Prof. Gabriel Jara Pérez and Gabriel Aguirre Carrasco presented to the Academic Council a Project to create a Language Department at the called UAP, the State College at that moment. Then a commission to generate a dual structure that included the learning of classic and modern languages was named. The courses were available to all people that demonstrate to have studied primary school. Those students that were doing some undergraduate program at the university had to present their registration form to be enrolled. In 1955, the character of an academic extension was delivered. Time after, the necessity to have qualified teachers in languages to teach in preparatory school and undergraduate programs led a group of students enrolled in extension courses to present a request to continue their studies in languages even though they did not have preparatory studies. The Academic Council accepted and decided to re-organize the Language Department functions: the offer of free courses and education for language teachers. At that moment, the course lasted four years with the inclusion of at least one foreign language (Bartolotti, 2005).

In 1981, the idea of an undergraduate program in ELT emerged. The central premise to support the proposal was the necessity of promoting the creation of an undergraduate program and the academic improvement for in-service teachers that could have an influence

in all the country. Victoria Stoianowsky, Jaime Estary Reyno and Antonio Vera García de León, led the integration of a document presented at the UAP Language Department. This document emphasized the necessity to form groups for teachers and researchers giving them tools to apply and follow teaching methods as well as making decisions considering scientific fundamentals according to the current context. The document also states that it is necessary to motivate and direct applied linguistic research especially in foreign languages. A nuclear group of teachers for the undergraduate program was integrated, and the Academic Improvement Program transformed in the undergraduate academic program of Licenciatura en la Enseñanza de Lenguas Extranjeras (BA in ELT). The first generation of graduate students was called Generation Zero (Bartolotti, 2005).

In 1993, the academic program changed its name to Licenciatura en Lenguas Modernas (BA in Modern Languages) with two terminal approaches: teaching and translation. In 1995, the School of Languages was officially created; its components were: Centro de Lenguas Extranjeras –CELE- and Licenciatura en Lenguas Modernas –LEMO-. In May 2000, the undergraduate program in a blended modality started with 30 students. Its name was ‘Licenciatura Abierta en la Enseñanza del Inglés’. Time after the undergraduate program in blended modality changed its name to ‘Licenciatura Abierta en Enseñanza de Lenguas – Inglés’ –LAEL-I. The program was focused on those teachers that had experience in teaching but didn’t have the degree. The School of Languages became Faculty of Languages in 2003 when a Master Degree was offered (Bartolotti, 2005).

The document called Anuario BUAP 2016-2017 (BUAP, 2017) shows the statistics of the university in different areas. Regarding LAEL-I, the number of new enrollment students was 19 and the total enrollment was 50 students. Concerning research, the Language Faculty has five official research groups called ‘Cuerpos Académicos’ reported and classified

two of them as in formation, two in consolidation and one consolidated. The Faculty has three professors registered as researchers level I at the ‘Sistema Nacional de Investigadores SNI’- National System of Researchers- and seventeen researchers registered at the ‘Padrón Institucional de Investigadores 2018’ (VIEP-BUAP, 2018b) – Institutional Register of Researchers 2018.

Comparing this register and the schedules programmed for LAEL-I during the periods 2016 to Spring 2018 (SIGE, n.d.), just three of the researchers have thought at LAEL-I program. Those three professors and the coordinator of LAEL-I program are registered as a part of official research groups –Cuerpos Académicos- (SIEP-BUAP, n.d.). Finally, during the period 2016-2017, the number of research scholarships to LAEL-I students was 0 (BUAP, 2017). The LAEL-I academic program has the potential to encourage the development of research in his students but it is necessary to recognize the set of research competences and socialize them to guide the efforts of the faculty.

1.7 Methodology

The research will be conducted from a quantitative approach that allows getting information regarding the research competences that a LAEL-I student need to develop in order to achieve the academic profile. A descriptive method is considered to analyze the presumptions that LAEL-I community members recognize as necessary research competences for identifying the similarities and contrast the results with those research competences stated in the literature used as a framework for the LAEL-I academic program. The study implies a cross-sectional design because the data will be collected in a single moment. The main research technique is the survey whose results allow describing research competences that a LAEL-I student needs to develop. A questionnaire will be used as the instrument of data collection.

It will be applied to a sample composed of LAEL-I community members, which includes students, professors, coordinator and administrative staff.

The questionnaire will consider the research competences declared in the literature and the presumptions that each member identifies as necessary research competences. The research inquiry locates in a public university in Puebla City. The case refers to the ELT academic BA program called LAEL-I offered as a blended-learning modality by Benemérita Universidad Autónoma del Estado de Puebla.

1.8 Limitations

The timescale to realize the study is from January 2018 to June 2018. The study will be contextualized in a public university in Puebla City that offers a Blended Learning Program of ELT. The primary analysis units are community members of LAEL-I academicians. The scope is descriptive and the expected result is a research competences framework for the LAEL-I academic program.

1.9 Key Terms

Research

Research is an “a systematic process for obtaining answers to meaningful and relevant questions using a method of accumulation of information and its interpretation”. From this point of view, the product of interpretation generates knowledge (Eyssautier, 2006, p. 112).

Competence

According to Ariton and Raileanu (2009, p.187), “a competence is the ability of a person or group to carry out major tasks of learning at a performance level corresponding to a criterion

or standard in a specific context”. This concept includes knowledge, skills, attitudes and values that make a person able to perform successfully in a job or task.

Research competences

Ariton and Reileaneu (2009), state the primary objective of the research is related to discovering, interpreting and work on the base of methods and systems that impact human knowledge in different scientific matters including ETL. Considering that, the research competences to develop includes observation, the ability for identifying and state a problem and a question, hypothesis production, design of data collection instruments, analysis, synthesis, skills for communicating and explain results orally and written, planning, critical, creative and ethical thinking.

CHAPTER II: LITERATURE REVIEW

“The most important reasons for understanding theories are that individuals’ theories are closely linked to their behaviors and practices” (Tracey & Mandel Morrow, 2006, p. 4). According to the American Heritage Dictionary (2001, quoted in Tracey & Mandel Morrow, 2006, p. 2) “theory is a set of statements or principles devised to explain a group of facts or phenomena,” tested or accepted. Theories are grounded on the belief systems supported by research and databases and shared by groups of people that identify some elements that offer credibility.

When regarding daily life, theories are explanations that people turn to when they are trying to understand what happens (or happened, or will happen). “The theories become the lenses through which individuals view the world” (2001, quoted in Tracey & Mandel Morrow, 2006, p. 2). In this chapter, the theories that support the research are presented. The theoretical framework is organized in two areas of knowledge: the concept of competence and the components to understand its logic in the educational context and the research as a critical topic to understand the sense of the research project, the identification of research competences that a LAEL-I student needs to develop according to the academic program.

2.1 Competences an in educational context

The word *competence* has been used in different contexts, especially in a job, education, economics, politics, industry among others. For this research, the concept rich sense in educational context considering references that manage the terminology considering those aspects related to professional formation.

2.1.1 Curriculum evaluation by competences

“Competent experts are extremely valuable for an organisation and therefore it is very important that higher education institutions produce good quality students with relevant learning outcomes for working life” (Kallioinen, 2010: 56). Curricular evaluation allows to maintain consistency throughout the training process. Then, a careful instrument design to assess learning outcomes for assuring quality (Kallioinen, 2010). The concept of evaluation by competences is related to formation processes and the improvement of the quality of education. Evaluation considers to assess a complex system of actions, tasks, methods and results but is a fundamental pedagogical effort to achieve the academic goals.

According to García, Guzmán and Murillo (2014), curricular innovation implies a reflexive and analytical process to integrate the requirements of the productive sector, the intellectual formation and the human development. Also, the evaluation is a major process for curriculum design processes and educative innovation. Then it is necessary to consider research as a central tool to recognize the different demands of the curriculum, the theoretical basis and the understanding of the needs.

The authors emphasize that the curriculum by competences present differences with the traditional measurements because the student performance is contextualized and it needs to consider the multiplicity of factors of influence. Thus, curriculum evaluation by competences is a dynamic and multidimensional process that offers quantitative and qualitative feedback allowing to introduce improvements, update perspectives and reorient academic efforts to the academic programs (García, Guzmán and Murillo, 2014).

“In the competence production of the higher education institutions it is extremely important to identify proactively competence needs and new competence combinations for the future, so that we can fulfil the needs of the organisations as they transform and develop

their core competences” (Kallioinen, 2010: 64). For this reason, it is suggested to conduct intermediate and final evaluations.

2.1.2 Origins of Competences

Although, in the context of this research, the concept of competence will be treated from an educative perspective, this term has its origins in the manufacturing and economic environments. After the Second World War, Japan faces up a critical necessity to reorganize its economy and the automotive industry played a central role changing the way to manage their processes.

In this scenario, the Toyotism emerges with a proposal that found a way to think and act based on competences. Considering these conditions, according to (Colovic, 2018, p.53), “l’acquisition de compétences a été à l’origine du progrès des PME au cours des cinquante dernières années”. The author explains that, on the search for developing new ways to manage and operate the SMEs (Small and Medium Enterprises), the factors of progress that led the changes were the outsourcing services, promoting a relation of dependence and learning between different kind of companies through new techniques of management and production in groups of enterprises—keiretsu-. The inherent characteristics of entrepreneurs, in so far as every Enterprise has to identify their unique features, resources, and competences as a base of development and offer; and finally, the enterprises' concentrations in industrial districts that favor networking and collaborative work. The core of Japanese industries transformation was the development of competences that helped them change the paradigms and to adapt the way of thinking and acting according to the circumstances.

Toyota Production System –TPS- is a model created by Taichi Ohno considered as an innovation in management and has led the change of a large number of enterprises and

organizations not just in economic contexts. One of the main premises is that it is necessary to coordinate the development of the individual, collective and organizational competences (Coriat, 2000). The model lies in two fundamental pillars, on the one hand, by just-in-time, and by self-activation –*jidoka*- on the other. This conception determines the need to develop the self-activation competences before achieving a just-in-time action. Also, it introduces a change of conception in the way to work until that moment (following Taylorist and Fordist models production) because *jidoka* implies delegating responsibility to the workers for the quality of products. Just in this way, workers could be involved in problem-solving processes and invited to take the initiative in order to maintain high-quality standards. Workers are also responsible for their development of competences, and the enterprise shares the responsibility to create the conditions to do that.

The practices in work teams and a continuous improvement philosophy were central parts of the TPS success as well. “In order to deal with product variety (to produce 'just' as much as the factory has sold, without having to continually re-program workstations and assembly lines), it is necessary to have teams composed of polyvalent workers capable of managing by themselves the unforeseen contingencies in quantity and quality” (Coriat, 2000). Besides, the worker is considered as a problem solver, which implies that he/she has to be skilled in dealing with undetermined problems, to manage uncertainty and to accept a dynamic of change. Following Coriat (2000) “This, in turn, implies the ability (i) to detect, (ii) to diagnose, and (iii) to take appropriate action in each case”. The main results obtained with the Toyota Production System implementation were to economize on raw materials and to ensure product quality, and the collateral effect was a worldwide impact that the model got. Since then, the model has been an inspiration for adaptations and new models.

From a management perspective, the development of competences was one of the topics of interest because enterprises need workers to be prepared to interact with complex scenarios; this challenge motivates different theories. “From a company perspective, corporate values, business model, and value-creating processes present an inside-out view of the competence development activities. The analysis of capacity development activities, in turn, suggests that capabilities can be developed as firm-specific operational and leadership capabilities as well as a constellation of firm-addressable ecosystem-level capabilities (Wallin, 2012, p.91). In this order of ideas, the competence-based theory introduces new dynamic, systemic, cognitive, and holistic dimensions to strategic management. The contemporary work in leveraging and competence building offers enterprises a dynamic point of view based on the understanding of the actual value-creating process within a business ecosystem in order to define the competences that will be developed.

While competences were an essential topic in economic and manufacturing environments, the relationship between professional development and education appears almost as a natural consequence. Framed in the formation of the European Union and the Sorbon-Praga-Bolonia-Berlin processes to create a high education integrated community, “Tuning Academy emerged with the aim of being an international reference point in higher education, specifically in those matters related to teaching-learning processes and the design and implementation of quality degrees/qualifications and the objective of turning into a university center of excellence (Tuning Educational Structures in Europe, n.d.).

The European Higher Education Area-EHEA- (2002), explained that the Tuning Educational Structures were part of a pilot project-oriented and developed to and by higher education institutions considering the Socrates program context. The Tuning project departs from student’s mobilization needs for competitiveness, comparability, and compatibility

between High Education academic programs (Arévalo, 2010). This project receives support from the European Commission and represents a process, an approach to re-designing, develop, implement, evaluate and enhance the quality for degree programs in each cycle. Having specific purposes to regulate the educational issues for the European Union, the Tuning project became a world reference regarding competences. The Tuning Project has had international impact respecting education not just in Europe, where the project started, but worldwide.

Put in context, The Tuning Latin America Project was motivated as a moment of reflection around higher education. Once the European project was created involving more than 135 universities, during 2012, the 4th follow-up meeting of the European Higher Education Area for the European Union, Latin America and the Caribbean (UEALC) the representatives of considering the possibility to develop a similar project as Tuning but in LATAM; the proposal was presented to the European Commission in October 2003 (Tuning Project LATAM, n.d.).

For all discussions and proposal generated as a part of The Tuning Project, education is considered as an open-ended process of becoming and developing of individuals. As a fundamental activity, education involves “the creation and transmission of knowledge, the development, and transmission of culture, the enhancement of problem-solving skills and personal development” (The Tuning Project, 2009, p. 15). In this order of ideas, Fotso (2011) defines the term ‘learning’ in the context of competences as a process of information management; this activity implies the comprehension of information, present stimuli, and observable responses.

2.1.3 Concept of competence

There is no unique definition of competence; the term tends to be used in different contexts. From a communicational perspective, according to Chomsky (1977 quoted in Fotso, 2011), the competence is a general faculty, a potential feature of the humanity. Then, it is a capacity oriented to the infinite production. The competence is the capacity of continually improvising or inventing without a pre-established list of options. Besides, the competence will be a unique feature of human beings because it implies the capacity to create responses without a repertoire.

From this perspective, if competence implies the ability to generate non-prototypic responses, it is connected with the concept of innovation. Likewise, research could be linked to innovation because research offers the possibility to find new responses to questions that require a glance beyond the prototypes. Of course, there is a generic patrimony produced by other human beings, but the subject can transform the previous knowledge of new products according to his/her learning because learning is an intimate process.

Le Boterf (s.d., quoted in Fotso, 2011, p.27), defines competence as a “savoir-agir”. It means to know how to mobilize. This definition implies an integrated knowledge and the capacity to transfer a set of resources in a context in order to face up different kinds of problems or to develop a task. These resources could be knowledge, wisdom, attitudes, and aptitudes, reasoning, among others. From this point of view, the concept of competence is intrinsically linked to the context and, therefore, a socio-cultural approach is coherent to this research.

Quellet (1999, quoted in Fotso 2011), expresses that the competence is a capacity of a person to perform numerous actions in new or different contexts about his/her learning context. The competence in new contexts shows its global, intuitive, synthetic, lasting and

transferable character. Following Fotso (2011, p.29): “la capacité, le contenu et la situation sont considérés comme étant alors des éléments structurels distinctifs du concept compétence”. In general terms, the concept of competence implies the possibility to transfer the acquired knowledge, skills, values and attitudes to a new situation in a different scenario.

In other sense, according to the Tuning Educational Structures in Europe (n.d.), the term *competence* represents a “dynamic combination of knowledge, understanding, skills, and abilities”. Thus, “A competence or a set of competences means that a person can accomplish a certain knowledge-based skill or set of skills to perform a task at a particular level of achievement” (Tuning Project, 2009, p.36). Competences also can be developed and assessed considering that no one presents an absolute lack of competence; education and practice, then, could help to achieve a better level of competences than the ones possess at the moment to start the learning process.

For its part, the LATAM Tuning Project takes into consideration that competence could be defined as a set of capacities that every human being needs in order to solve the situations of life autonomously and effectively. These capacities have to be based in an in-depth knowledge, beyond what and who. It is necessary to learn to be a person in a complex, changing and competitive world (Wattíez, Quiñonez and Gamarra, n.d. quoted in Tuning Project LATAM, 2007). From this perspective, competences imply a set of complexly integrated capabilities with different levels that education systems are committed to developing in the individuals in order to allow them to perform as responsible people no matter the situation and the context of social and personal life. The individual will observe, act and enjoy the decision-making process, considering alternatives and choosing the proper strategies for each case (Cullen, 1996 quoted in Tuning Project 2007).

Concerning professional competence, Echeverría (2012) states that the competence considers that the reality is a structure formed by elements that are functionally connected one to the other. Thus, the tasks and the personal features and the socio-organizational context allow developing the mentioned competences. For this research project, the concept of competence from an educational perspective is fundamental in order to understand the components to be considered for the development of research competences.

Fotso (2011) explains that there are multiples usages of competence, then there is not a unique definition. In order to clarify his concept of competences, he offers a set of characteristics: competence is the result of the mobilization of cognitive, psychomotor and emotional resources, among others. The mobilization is a necessary condition to acquire the competence. The competence cannot be separated from the possibility to perform a complex task. The competence is required and learned in a specific situation. The competence allows solving problems and has a disciplinary character; there is a category of situations that correspond to specific problems framed in a discipline and its exigencies. The competence has an evaluable character, but it just can be assessed in specific and particular situations.

If a competence implies a mobilization, and an action mobilizes knowledge, there are some abilities that an individual will put into practice. For example, the production and the verification of a hypothesis, the reasoning about the words of an interlocutor, the text analysis, the identification of the author's intention, to identify a posture and the understanding of a scientific problem (Fotso, 2011). The competences described by Fotso, are in a sense, necessary competences to develop research.

2.1.4 Taxonomies of competences

In order to identify the different set of research competences proposed by authors, it is necessary to establish elements to classify them. Then, taxonomies from educational contexts will help to state a structure that helps to organize the competences that LAEL-I students should develop as part of their professional profile during their formative process.

2.1.4.1 Fotso's Taxonomy of competences

Considering the proposals of Ketelle (1996 quoted in Fotso, 2011) and Fotso (2011), the competences could be classified in: basics and improvement competences; disciplinary or intradisciplinary; and transversal or transdisciplinary competences.

Basic competences allow acquiring some learning that helps to perform other competences; therefore, they are a pre-requirement. Perfectioning competences could also be called extension competences; this type of competences is developed at a specific moment in the learning processes in order to get higher learning.

While disciplinary competences are defined through a category of situations that correspond to specific problems for a discipline, transversal competences are defined by situations that correspond to problems that need to be solved from different approaches. According to this taxonomy, research requires transversal competences, because problems or phenomena analyzed require in the majority of times, a transdisciplinary approach; it focuses on complex situations. However, considering the researcher's disciplinary field, the dominant treatment of data will be executed from his/her expertise area.

2.1.4.2 Generic and specific competences

One of the main goals of The Tuning Project was to establish international references for higher education and professional immersion. For this reason, The Tuning Academy (Tuning Project, 2009), states a distinction between specific and generic competences. Generic competences refer to those competences that would be desirable in any graduate student in any area; it means, common to all or most degrees. On the other hand, there are competences related to a specific subject area or field of study. These kinds of competences are intimately linked to the particular professional identity in a specific context (Tuning Project LATAM, 2007). Then, those people who participate in specific academic programs have to be conscious of those competences explicitly required for that specific professional field. At the same time, the generic competences were classified and defined as follows (Tuning Project, 2009, p.39):

Instrumental competences: Those which have an instrumental function. These include cognitive abilities, capacity to understand and manipulate ideas and thoughts. Methodological capacities to manipulate the environment: organizing time and strategies of learning, making decisions or solving problems. Technological skills related to using technological devices, computing and information management skills. Linguistic skills such as oral and written communication or knowledge of a second language.

Interpersonal competences: Individual abilities relating to the capacity to express one's feelings, critical and self-critical abilities. Social skills relating to interpersonal skills or team-work or the expression of social or ethical commitment. These tend to facilitate processes of social interaction and cooperation.

Systemic competences: those skills and abilities concerning whole systems. They suppose a combination of understanding, sensibility, and knowledge that allows one to see how the parts of a whole relate and come together. These capacities include the ability to plan changes to make improvements in whole systems and to design new systems. Systemic competences require as a basis the prior acquisition of instrumental and interpersonal competences.

The Tuning Academy (Tuning Project, 2009) also emphasizes the importance of building-up subject-specific knowledge and skills as the basis for a university degree program in order to prepare students that could respond as citizens and members of society. These distinctions are essential to identify the relationship between competences and fields of development. Especially in the case of research competences, the recognition of taxonomy allows understanding the complexity of the combination of competences in order to achieve a research goal.

2.1.4.3 Professional competences taxonomy

Bunk (1994, quoted in Vázquez and Quintero) proposed a set of four categories to classify the professional competences: technical, methodological, social and participative competences. Technical competences are those that belong to a specific professional field. They include the dominance of development tasks, knowledge and skill for working. Methodological competences refer to the capacity to react considering procedural sequences to solve problems in specific contexts. Competences of applying knowledge, transferring knowledge, adaptability and contextual understanding are included. Social competences are those competences oriented toward interaction, collaborative work, communication, and

interpersonal understanding. Finally, participative competences are related to start, organize, decide and integrate into a specific situation with responsibility, ethics, and enthusiasm.

2.1.5 Criteria to assess a competence

Once competence has been defined and classified, according to Fotso (2011, p.25-48), a competence could be assessed considering the following criteria:

- a) The aptitude, an individual quality to execute a specific task. Example: physic, intellectual and manual, strength, motor skills, among others.
- b) Capacity, the conjunction of inside cognitive resources and its transformation in order to face up a situation or problem located in daily life. It is the information that lives in the memory. This information is available to be used in specific situations to perform a task. Disposition to do something.
- c) Content, the subject, the disciplines, the activities, the learning obtained in a learning-teaching process.
- d) Efficiency, the production of a desirable effect. The capacity to get the maximum result.
- e) A family of situations, a situation is a set of circumstances where the individual is immersed that allows him/her to explain and identify relations and to find the sense of his/her intervention.
- f) Integration, a capacity to link elements in context (culture, society features, colorcast, thoughts, persons. It refers to an operation to articulate.
- g) Objective, intention.
- h) Performance, The obtained result in a specific domain. Action.
- i) Quality, a parameter, a criterion of the well-done task, benefits.

j) Know-how, ability to solve practical problems. It is a competence, an experience artistic or intellectual. Procedural knowledge.

k) A scheme, simple habits, unchangeable and rigid structure. Instrumental learning.

Vázquez and Ramírez (2015) explain that the competences need to be transferred from academic to specific situations, especially in professional scenarios. Transference implies four stages: internalization, when individuals recognize their cognitive competences in-laws, concepts, values, premises and conclusions and their connections with a work environment. Externalization is a stage that implies the influence of the individual to another through dialogue. Externalization processes provoke collective reflection, collaboration, training writing, product design and use of technology. Externalization processes allow solving concrete problems using resources and media and offering mutual support. The combination is a stage related to interactions between individuals and information resources. The subjects can combine resources to get new competences and to reconfigure the intervention space. This stage implies choosing, addition, combination, and categorization. The elements that allow assessing a competence will be fundamental to establish a framework that works as a reference for the LAEL-I academic program.

2.1.6 Generic and specific competences for education

As has been mentioned, the Tuning Project declares a set of generic competences that any graduate student could manage as a part of his/her outcome profile. The list of generic competences stated includes (Tuning Project, 2009, p.40):

Ability for abstract thinking, analysis, and synthesis

Ability to apply knowledge in practical situations

Ability to plan and manage time

Knowledge and understanding of the subject area and understanding of the profession

Ability to communicate both orally and through the written word in the native language

Ability to communicate in a second language

Skills in the use of information and communications technologies

Ability to research at an appropriate level

Capacity to learn and stay up-to-date with learning

Ability to search for, process and analyze information from a variety of sources

Ability to be critical and self-critical Ability to adapt to and act in new situations

Capacity to generate new ideas (creativity)

Ability to identify, pose and resolve problems

Ability to make reasoned decisions

Ability to work in a team

Interpersonal and interaction skills

Ability to motivate people and move toward common goals

Ability to communicate with non-experts of one's field

Appreciation of and respect for diversity and multiculturalism

Ability to work in an international context

Ability to work autonomously

Ability to design and manage projects

Commitment to safety

Spirit of enterprise, ability to take initiative

Ability to act on the basis of ethical reasoning

Ability to evaluate and maintain the quality of work produced

Determination and perseverance in the tasks given and responsibilities taken

Commitment to the conservation of the environment

Ability to act with social responsibility and civic awareness

Ability to show awareness of equal opportunities and gender issues.

Besides generic competences, specific competences per academic area have been defined, too. Each Subject Area Working Group realized a process of an initial list of subject specific competences considering a literature review, consultation with national bodies and discussion with specialists and the academia. The initial list was tested and reformulated considering also other initiatives as Tuning LATAM and Tuning Georgia. The list functions as indicative, but it has not the intention to be exhaustive or definite (Tuning Project, 2009). The areas defined for LATAM (Tuning Project LATAM, n.d.) are: “Business, architecture, law, education, nursing, physics, geology, history, civil engineering, mathematics, medicine, and chemistry”. The LAEL-I academic program could be classified into the education area. The list of consultation in education includes (Tuning Project, 2009, p. 42-43):

Ability to critically analyze educational theories and issues of policy in a systematic way
Ability to identify potential connections between aspects of educational theory and educational policies and contexts

Ability to provide education in values, citizenship, and democracy and reflect on one’s value system

Ability to understand and apply educational theories and methodology as a basis for general and specific teaching activities

Ability to recognize and respond to the diversity of learners and the complexities of the learning process

Awareness of the different contexts in which learning can take place

Understanding the structures and purposes of educational systems

Awareness of the different roles of participants in the learning process

Ability to do appropriate educational research in different contexts

Ability to manage educational/developmental projects

Ability to consult about various educational issues and counseling skills (psychological counseling, counseling learners and parents)

Ability to manage and evaluate educational programs, activities and materials

Ability to understand processes of development and change in the community

Ability to lead or coordinate a multidisciplinary educational team

Ability to understand trends in education and be able to recognize their potential implications

Commitment to learners' progress and achievement

Competences in teaching and learning strategies

Knowledge of the subject/subjects to be taught

Ability to communicate effectively with groups and individuals

Ability to create a climate conducive to learning

Ability to make use of E-learning and to integrate it into the learning environment

Ability to improve the teaching and learning environment

Ability to adjust the curriculum and educational materials to a specific educational context

Ability to design and implement varied strategies, based on specific criteria, to evaluate learning

Ability to design and implement education, which integrates people with specific needs.

The European academic system is divided into three cycle levels correlated with bachelor degrees- first cycle-, master's degrees - second cycle-, and doctorate -third cycle-. However, education has opened different modalities to course academic programs oriented to professionalization and research. One new trend is the possibility to be a part-time student in response to socio-economical, educational and cultural needs. People are empowered to decide when, how and which modality is best for learning, at least for each student's conditions. In an ideal state, it supposes that students that require a part-time have the maturity for self-management (Tuning Project, 2009).

“l’analphabète de demain ne sera pas celui qui ne sait pas lire; ce sera celui qui n’aura pas appris à apprendre” (Toffler quoted in Fotso, 2011, p.83). In the education field, an analphabet could be someone who is not able to investigate because education faces up professionals to new scenarios every day. Hence, research competences allow teachers to dialogue with the world and to interact with others with knowledge of the cause.

2.2 Research

Some of the principal actors in education processes are teachers and, in this sense, The Tuning Project states that teachers require a formative process based on a multidisciplinary approach, which enhances research competences for ensuring teachers acquire in-depth subject knowledge, pedagogy resources, skills and competences to guide a learner, and high understanding of cultural dimensions (The Tuning Project, 2009). Then, educational contexts need to develop research competences to truly develop a professional profile, that is, teachers who can solve learning problems and enable others to learn.

2.2.1 Origins of research as a human activity

Research has been part of the human evolution. Humans as part of an intelligent species can perform intellectual activities and complex thinking. The etymology of the word science means knowledge, but this term has changed through the history of human life. Therefore, there is not a unique definition of science. In these conditions, the concept of science in a broad sense has been defined as a system of demonstrated knowledge that comes from the application of a method used by a human being to describe and explain the phenomena according to laws and principles (Eyssautier, 2006). As could be inferred, the primary function of research is to produce knowledge, defined as everything that the human mind can catch about a phenomenon. Knowledge requires three essential elements to exist: a subject and object and a relation between the subject that performs the act to know and the object of knowledge (Eyssautier, 2006). Regarding research, the subject is named researcher and the phenomenon of his/her interest is the object of study.

In order to understand the field of sciences and to clarify the boundaries, different thinkers such as Aristotle, Mora Comte, and Ampere have proposed taxonomies, but the diversity of the word promotes the emergence of new classifications up to this day. Perhaps, one of the most influential classifications to understand the research field is the Husserl's taxonomy. He divided sciences according to scenes or existence in eidetic sciences –those oriented to the ideas- and factual sciences –oriented to the facts and practical applications- (Eyssautier, 2006). The taxonomy includes a correspondence with the methods to achieve the research goals, which result in an extended classification of research as pure or applied.

The original field of science has been studied by philosophy. Thus, the first attempt to question and explain the natural phenomena was formally developed by philosophers

(Eyssautier, 2006). Before Greek thinkers –called *sofos*, which means wisdom-, people try to explain the world through magic, myths, and witchcraft.

The semantic relation of research and systematic processes, methods, logic among others has provoked misunderstanding and rejection to research. However, Hernández, Fernández and Baptista (2014) explain that those urban legends around research are myths. The main myths are: research is extremely complicated and, and research is not related to daily life. However, human curiosity and the need to understand the world is proper to all people; it is part of human nature, just as it is the capacity to produce the explanations through research. In this sense, research is part of everyday human activities.

2.2.2 Concept of Research

The 16th article of the ‘Estatuto Orgánico de la BUAP’ (1991, quoted in Vargas, 2009), defined research as a systematic and creative work performed with the goal of producing advances beyond knowledge boundaries in relation with mankind, culture, nature, and society. As well as the use of knowledge to generate new applications and to discover relationships and the essence of each phenomenon, to establish laws and to contribute to produce practical application of laws, forces and natural elements; to increase and to improve knowledge including knowledge application in order to solve human and social problems. In the same line, research as a systematic process for obtaining answers to meaningful and relevant questions using a method of accumulation of information and its interpretation (Eyssautier, 2006), implies an intellectual activity oriented to discovering new facts, data, laws, ideas, and relations.

Furthermore, Hernández, Fernández and Baptista (2014) express the necessity to understand the research as a compound process, which involves other processes that are

interrelated. Accordingly, when a teacher starts to be involved in tasks of research, their mind structures expand, and the practices for linking ideas to put them together in an organized process with the goal of solving a problem based on knowledge and evidence produces the development of research competences; which teachers can use for specific purposes to create an impact in their immediate environment.

Following Eco (2006), when a student starts a research project, it is important to encourage the development of those themes of student's interest, and it requires the guidance of a professor with willingness to interpret the student's needs. In this sense, there are four rules to start working with a theme: the researcher's interest, affordable information sources, an achievable theme regarding student's culture, and student's previous experience, which represents a non-basic knowledge about the topic. These four rules could be resumed in the statement if somebody wants to do research, they have to be able to fulfill its demands. In this order of ideas, previous experience is essential, but training is necessary, too. Campeinhoudt (2008) expresses that the main difficulty to start a research project is, frequently, a concern to do it exceptionally well. However, if research is something that promotes searching, uncertainty that has to be considered as something natural in a research process.

A formal research project needs to observe its *scientificity*. This aspect does not depend on the knowledge field. A project could be qualified as scientific when it treats a recognizable and defined object of study. It means that the research establishes the conditions that regulate the approach to a topic. The research has to state things that were not said before or offer a different perspective on a topic previously developed. Also, the research has to be helpful for somebody. Finally, the research has to offer elements for verification and refutation, and then it could be followed by others in a public way (Eco, 2006). Meanwhile,

Eyssautier (2006) adds that, if a research work should be genuinely considered a scientific work, it has to be based on original and reliable sources. Scientificity gives research congruency so that it can attain its main purpose, which is to produce knowledge.

2.2.3 Research competences

In Education, most students undertake independent research projects and do not usually work as part of a research team, although this may be changing for a minority. Coming from working backgrounds outside academia, many require initial support in developing an appropriate research proposal. According to The Tuning Project (2009, p.60),

Typical macro activities are: discussing the nature of educational research; giving and seeking information about the main approaches to research in educational research; examining the nature of research questions; discussing the main methods, techniques and instruments used to collect and analyze data, in accordance with the object and objectives of a particular research; discussing how to design a research plan. Students engage in a range of practical activities, such as defining research questions and objectives; developing appropriate instruments for data collection; developing and using methods of analysis for data, researching methods in the literature and evaluating their relevance to their own needs.

On the other hand, Higuera-Lopez, Molano-Velendia and Rodríguez-Merchán (2011, p.9) state that research competences could be classified in:

a) General competences that any people could have, not exclusive of researchers; b) competences related to the research process. They represent skills, knowledge, and attitudes that a member of a research group has to

develop in order to participate in research activities and c) innovation competences that are oriented to generate improvements or new products, processes and materials.

For a researcher, it is necessary to develop main competences such as observation, reading, expression, creativity, rigor, networking, and socialization, construction, strategy, problematization, and ethics (Cuevas, Guillén y Rocha, 2011).

Although teacher Education has traditionally been based on theoretical and practical knowledge, many governments are now prioritizing classroom-based research, assuming that it will be directly relevant for educational practice; — consequently a research component is included in programs of Initial Teacher Education in an increasing number of countries. This element has not yet become an integral component of all models of Initial Teacher Education in Europe at first degree level. However, a research component forms an integral aspect of all programs at the second cycle level (Tuning Project, 2009) typically.

In this regard, the situation of LAEL-I students is interesting because their profile is a kind of hybrid between students of the first and second cycle. According to the taxonomy, an undergraduate academic program corresponds to the first cycle, but, in this case, the students' teaching experience, employment situation, age, and maturity, allow considering a LAELI student near the second cycle.

Considering the Tuning Project for Europe, most universities in all member states provide some research training. It is common that “research teams in departments increasingly provide rich and supportive learning environments for the candidates they have selected, including access to current research project teamwork. At best, candidates work in a richly supportive and mixed learning environment, enriched by access to a range of seminars, senior researchers, projects and other candidates. Supervision is normally provided

by academicians who are research-active in the area of the candidate's research" (Tuning Project, 2009, p.68). Besides, the use of the virtual environment as a tool to develop and supervise research has increased, especially in working with students of the third cycle. Research as a component has to be included in programs of Initial Teacher Education (first cycle) not just for second and third cycles (Tuning Project, 2009).

Vincentas Lamanauskas and Dalia Augiene (2016 quoted in Emalyanova, Teplyakova and Bolunova, 2017) prove teaching is and should be a research-based profession. Nevertheless, the question is whether the students consider the research competence necessary or not. The authors concluded that some students highly value scientific research activity significant to teacher's profession, and understand this multifaceted activity influence on teacher's activity: both teacher's professional activity and teacher's personality show improvement. Researcher career aspect is double-sided. For instance, two equal groups were discerned. One of them claimed that their attitude to the scientific career is positive, and they express wish when having the opportunity to do scientific work. The other half of students has a negative attitude to science, and think that it is an uninteresting, hard and poorly valued activity.

Different education levels represent different levels of maturity, not just because of the age but because of the competence development:

There are different types of activities which students must learn during the training in bachelor's and master's degree. Among them, there is research activity for bachelor students and scientific research activities for master students. Bachelor students' research activity includes the use of research methods, formulating and solving research problems in professional activity. Master students' research activity includes analysis, systematization, and

generalization of scientific research results, conducting scientific research in the education field independently, complex application of research methods for solving specific research tasks, the use of modern scientific methods and technologies (Emelanova, Teplyakova and Boltunova, 2017, p.707).

2.2.4 Research competences for academic teachers training

Emalyanova, Teplyakova, and Bolunova, (2017, p.709-711), express that introducing students to research activity as a part of their teacher's formation has to be planned according to the students' profile. In academic environments, the research competences that need to be developed are: a) choosing and discussing a topic b) introducing its results in the pedagogical process, c) elaborating a justification, d) knowledge of methodology and research methods, pedagogical experimentation, as well as qualitative and quantitative diagnostic methods, e) capacity to determine the problem, contradictions, subject and object, f) logical scientific thinking, g) management of resources, h) capacity to define contradictions between real practice and research results impact when those are introduced into practice, and i) disposition to build a holistic research project through dialogue with other disciplines. Due to the numerous variations of research competences, it is suggested to define clusters of competences. It means, groups of essential components of professional training in competences that allow organizing the training process as well as its evaluation (Table 1).

Table 1: Example of clusters of research competences

Set 1:	<p>Defining the problem and research topic. Forming of a source base. Defining the object, the subject of the study and the procedure for research. Drawing up an individual research plan. Determining the contradictions of real practice in the context of the problem under study. Annotations of foreign articles on the research topic.</p>
Set 2:	<p>Planning of ascertaining and forming experiment. Conducting a pilot study on the topic of the master's dissertation. Selecting diagnostic techniques on the research topic. Conducting the ascertaining experiment. Formulating scientific novelty and practical significance of the study.</p>
Set 3	<p>Presentation of materials. Formalization of scientific results. Preparing the text of the master's dissertation.</p>

Source: own elaboration with data of Emelanova, Teplyakova and Boltunova, 2017, p. 711.

2.2.5 Applied research competences

Vázquez and Ramírez (2015), explain that competences need to be transferred from academic settings to specific situations, especially in professional scenarios. Transference implies four stages. Firstly, internalization takes place when individuals recognize their cognitive competences, concepts, values, premises and conclusions and their connections with a professional environment. Secondly, externalization is a stage that implies the influence of the individual to another through dialogue. Thirdly, externalization processes provoke collective reflection, collaboration, training writing, product design and use of technology. Externalization processes allow solving concrete problems using resources and media and

offering mutual support. Finally, the combination is a stage related to interactions between individuals and information resources. The subjects can combine resources to get new competences and to reconfigure the intervention space. This stage implies choosing, addition, combination, and categorization.

Munthe and Rogne (2015; quoted in Emelyonova et al., 2017) believe undergraduate research is one way to qualify teachers for professional learning and innovation. They investigate how Initial teacher education programs in Norway address research for students. They conclude that these programs emphasize research, but teacher-led more than student engagement. Therefore, the first experience of the research will be obtained with the support of the scientific supervisor. The teachers' training needs a mentor or a facilitator during the process to develop research competences. The facilitator has to be qualified and experienced in research issues in order to lead the learning efforts.

2.2.6 The researcher profile

Intellectual development is not exclusive of some human beings, but some of them who methodologically apply their intelligence to produce knowledge -pure research- or to develop knowledge to be applied in a specific case, could be named researchers. According to Eyssautier (2006), a researcher is every person that habitually performs high-level research works in any field of knowledge or application. Eyssautier offers a researchers' classification depending on the area: if research is developed in technological and natural sciences, he/she is called scientific researcher, but if he/she works in humanities, they will be called social researchers.

For Eyssautier (2006) the researcher profile is characterized by a professional with a wide range of experience, divergent and convergent thinking, and ability to observe different

angles of a phenomenon, capacity to offer doable solutions. The author also explains that a researcher has to be in a constant updating process about models, tools, techniques, and technology that help them to develop a research project. Researchers have to be able to manage abstract and logical thinking. Besides, the researcher has to be able to understand the social and scientific problems, and to be able to effectively communicate findings and results with ethics, honesty, and responsibility. A researcher is a committed person with his/her professional activity.

Specifically speaking of the profile of a social researcher, Campeinhoudt (2008) states that the researcher must be able to manage uncertainty and indeterminate situations, have the ability to pre-figure and visualize a complete project and to consistently and efficiently coordinate operations. The capacity for planning is also needed. Flexibility is another competence of a researcher because during the research process, it is possible to face up difficulties that put the inquiries in risk. The author emphasizes that the capacity to ask for help and to dialogue with other disciplines is a very important competence, which implies the ability to identify the researcher's limits and the disposition to collaborative work.

The literature review has allowed stating the concepts, premises, classifications, and arguments which will constitute the basis of the research project and consequently, the basis of a framework that functions as a reference for the LAEL-I academic program so that it is possible to focus the efforts of the faculty members in order to to make the professional profile come true. In this section, different components that help to state a set of research competences that a LAEL-I student should develop has been founded. The theoretical framework will be regarded as a reference to define the instruments for the data collecting process and to analyze and interpret the information received.

2.3 Comparative of research competences stated in the literature

A group of statements offered by experts was compared with the goal of identifying the research competences –knowledge, values, attitudes, and skills, that they proposed and those what they concur taking in account the literature review. The proposals were classified in those that literature authorities present, those related to BUAP references, the Tuning Project and International references (Table 2, 3, 4 y 5).

Table 2: Research competences proposed by experts documented in the literature

Criteria	AUTHORS		
	Cuevas, Guillén and Rocha, (2011)	Research profile Eyssautier (2006)	Social Researcher Profile Campeinhoudt (2008)
Knowledge		Wide range of experience	
Skills	Observation, reading, expression, creativity Construction, strategy, Problematization	Divergent and convergent thinking, and ability to observe different angles of a phenomenon, capacity to offer doable solutions Abstract and logic thinking To be able to understand the social and/or scientific problems To efficiently communicate findings and results	Be able to manage uncertainty and indeterminate situations. Ability to pre-figure and visualize a complete project To coordinate operations consistently and efficiently The capacity for planning
Attitudes	Rigor, networking and socialization	Constant updating process in relation with models, tools, techniques and technology Compromise with his/her professional activity	Flexibility To identify the researcher's limits and the disposition to collaborative work. The capacity to ask for help and to dialogue with other disciplines.
Values	Ethics	Ethic, honesty and responsibility	

Source: own elaboration with data of Cuevas, Guillén and Rocha, 2011; Eyssautier, 2006;

Campeinhoudt 2008.

Table 3: Research competences proposed by BUAP references

Criteria	BUAP REFERENCES	
	LAEL-I BUAP (2011)	Minerva's Model (BUAP, 2007)
Know-ledge	Knowledge about approaches and methodologies in the field of language teaching.	To be specialized, circumscribed to a subject of study
	To formally master the language -English. To manage and/or design techniques for the organization, systematization and analysis of information.	To favor the construction of knowledge.
Skills	Research skills for English teaching-learning problems.	Basic skills for research, (train for research or teach research)
	Skills for the analysis of the teaching languages practices Skills for the application of knowledge in the teaching area through methods, techniques, strategies and technological resources. Ability to research different methods of evaluating learning. Selective Perception Know to ask. Think critically. Generate ideas Problematize	To Consider and problematize prior knowledge. Problematizing, generates imbalances, reflects and creates spaces for reflection To learn from the same practice. Cognitive abilities of higher order To Link research activities in teaching practice
	To design procedures and tools to search, retrieve and / or generate information.	To improve learning experiences through inquiry focused on the resolution of theoretical or practical problems Dynamic management of learning environments
Attitudes	Autonomy	Open to having a commitment to the new, to the unknown, to the uncertain, to the changing, in a permanent attitude of search.
	Reflective practice Collaborative work To Socialize knowledge Self-regulating cognitive processes in action during the generation of knowledge.	Autonomous To carrier of cultural heritage. To seek solutions to all those problems related to the scientific and technological development of humanity
Values	Responsibility, perseverance Respect for different opinions Self-assess of the consistency and validity of the products generated in the research.	Consider RESEARCH as an active entity in their learning. Social commitment

Source: own with data of LAEL-I BUAP, 2011; BUAP, 2007.

Table 4: Research competences proposed by The Tuning Project

Criteria	THE TUNING PROJECT		
	Tuning generic competences (2009)	Tuning specific competences for education (2009)	Tuning research competences (2009)
Knowledge	Knowledge and understanding of the subject area and understanding of the profession	Ability to critically analyze educational theories and issues of policy in a systematic way	Giving and seeking information about the main approaches to research in educational research
	To communicate in a second language	Ability to identify potential connections between aspects of educational theory and educational policies and contexts Understanding of the structures and purposes of educational systems Ability to understand trends in education and be able to recognize their potential implications Competences in a number of teaching and learning strategies Knowledge of the subject/subjects to be taught Ability to create a climate conducive to learning Ability to make use of e-learning and to integrate it into the learning environment Ability to improve the teaching and learning environment Ability to adjust the curriculum and educational materials to a specific educational context Ability to design and implement varied strategies, based on specific criteria, to evaluate learning	Researching methods in the literature
Skills	Ability for abstract thinking, analysis and synthesis	Ability to understand and apply educational theories and methodology as a basis for general and specific teaching activities	Discussing the nature of educational research
	Ability to apply knowledge in practical situations		Examining the nature of research questions
	Ability to plan and manage time		
	Ability to communicate both orally and through the written word in native language	Ability to recognize and respond to the diversity of learners and the complexities of the learning process	Discussing the main methods, techniques and instruments used to collect and analyze data
	Skills in the use of information and communications technologies		
	Ability to undertake research at an appropriate level	Ability to do appropriate educational research in different contexts	Discussing how to design a research plan
	Capacity to learn and stay up-to-date with learning	Ability to manage educational/developmental projects	Defining research questions and objectives
	Ability to search for, process and analyze information from a variety of sources	Ability to consult about various educational issues and counseling skills (psychological counseling, counseling learners and parents)	Developing and using methods of analysis for analysis of data
	Ability to adapt to and act in new situations	Ability to manage and evaluate educational programs, activities and materials	
	Capacity to generate new ideas (creativity)		
Ability to identify, pose and resolve problems	Ability to communicate effectively with groups and individuals		
Ability to make reasoned decisions			
	Ability to design and manage projects		
Attitudes	Ability to be critical and self-critical	Awareness of the different contexts in which learning can take place	
	Ability to work in a team		

	<p>Interpersonal and interaction skills</p> <p>Ability to motivate people and move toward common goals</p> <p>Ability to communicate with non-experts of one's field</p> <p>Ability to work autonomously</p> <p>Spirit of enterprise, ability to take initiative</p> <p>Determination and perseverance in the tasks given and responsibilities taken</p>	<p>Ability to understand processes of development and change in the community</p> <p>Ability to lead or coordinate a multidisciplinary educational team</p> <p>Ability to design and implement education, which integrates people with specific nee</p>
Values	<p>Appreciation of and respect for diversity and multiculturality</p> <p>Ability to act on the basis of ethical reasoning</p> <p>Ability to evaluate and maintain the quality of work produced</p> <p>Ability to act with social responsibility and civic awareness</p>	<p>Ability to provide education in values, citizenship and democracy and reflect on one's own value system</p> <p>Awareness of the different roles of participants in the learning process</p> <p>Commitment to learners' progress and achievement</p>

Source: own elaboration with data of Tuning, 2009.

Table 5: Research competences proposed by Internacional sources

INTERNATIONAL FRAMEWORKS		
Criteria	South Hampton (Kelly and Greenfell, n.d.)	Research competences for academic Emalyanova, Teplyakova and Bolunova, (2017)
Knowledge	Training in language teaching methodologies, and in state-of-the-art classroom techniques and activities	Forming of a source base. Annotations of foreign articles on the research topic
Skills	<p>Training in the development of a critical and enquiring approach to teaching and learning</p> <p>Linguistic competence</p> <p>Skills and fluency in writing, reading, speaking and listening, and in the trainee's productive, receptive, interactive and mediating skills.</p> <p>Creative and effective teaching</p> <p>Training in information and communication technology for personal planning, organization and resource discovery</p> <p>Communicating and exchanging ideas with colleagues.</p> <p>Application of various assessment procedures and ways of recording learners' progress</p> <p>Training in ways of adapting teaching approaches to the educational context and individual needs of learners</p> <p>Action research incorporating research into teaching</p>	<p>Defining the problem and research topic</p> <p>Defining the object, the subject of the study and the procedure for research. Drawing up an individual research plan.</p> <p>Determining the contradictions of real practice in the context of the problem under study</p> <p>Planning of ascertaining and forming experiment Conducting a pilot study on the topic of the master's dissertation. Selecting diagnostic techniques on the research topic Conducting of the ascertaining experiment. Formulating scientific novelty and practical significance of the study.</p> <p>Presentation of materials. Formalization of scientific results. Preparing the text of the master's dissertation.</p>
Attitudes	<p>Undertake action research and maintain reflective practice</p> <p>Critical evaluation of nationally or regionally adopted curricula in terms of aims, objectives and outcomes</p> <p>A open-minded Attitude to educational research</p> <p>Team-working, collaboration and networking, inside and outside the immediate school context</p>	
Values	<p>Peer observation and peer review</p> <p>Value and relevance of research for their teaching and learning</p> <p>Social and cultural values</p>	

Source: own elaboration with data from Kelly and Greenfell, n.d.; Emalyanova,

Teplyakova and Bolunova, 2017.

CHAPTER III: METHODOLOGY

In this chapter, the methodology employed for the development of the project entitled *Research Competences for LAEL-I Students: A descriptive Study* is explained. This explanation includes the approach, method, procedure, subjects, the instrument and the method of analysis. This research project was conducted with a quantitative approach in order to get information regarding the research competences that LAEL-I students at BUAP need to develop to achieve the professional profile. The lack of a research competence framework as a guide to focus the academic efforts motivates the search of information using a descriptive method. It was needed to identify the similarities between what authorities stated at the official curriculum and experts register in the literature, established as a desirable set of research competences, and those presumptions that LAEL-I community members recognize as essential elements of their formation. Once the variables and the indicators were defined, a cross-sectional design was developed through a survey whose results allowed describing the set of research competences that LAEL-I students presume they need to develop. A questionnaire was designed considering the research competences declared in the literature and the presumptions that each member identifies as necessary research competences.

3.1 Subjects

The research inquiry was located in a public university in Puebla City. The case refers to the ELT academic BA program called LAEL-I offered as a blended-learning modality by Benemérita Universidad Autónoma de Puebla. The population was composed by LAEL-I community members, who, according to the registration at the period Spring 2018, includes 42 students that belong to the generations 2011 to 2017, ten professors, one coordinator, and

one administrative staff. The achieved sample was 29 LAEL-I community members. 66% were women and 34% men. Their ages ranged as follows: 48% of the subjects were from 30 to 40 years old; 21% from 21 to 30; 4% from 51 to 60; and 3% older than 60 years old. Because LAEL-I students are in-service teachers, the LAEL-I community declared to have acquired teaching experience. 31% of the respondents had accumulated from 5 to 10 years of experience; 31% from 2 to 5; and 28% more than ten years of teaching experience.

61% of the subjects expressed that they acquired teaching experience in private schools, and 32% in public schools. The subjects also indicated that this kind of experience was acquired at universities (11%), multilevel schools (21%), high school (9%), secondary schools (7%), primary schools (14%), pre-schools (5%), specialized languages schools (14%) and 9% of the subjects did not offer information.

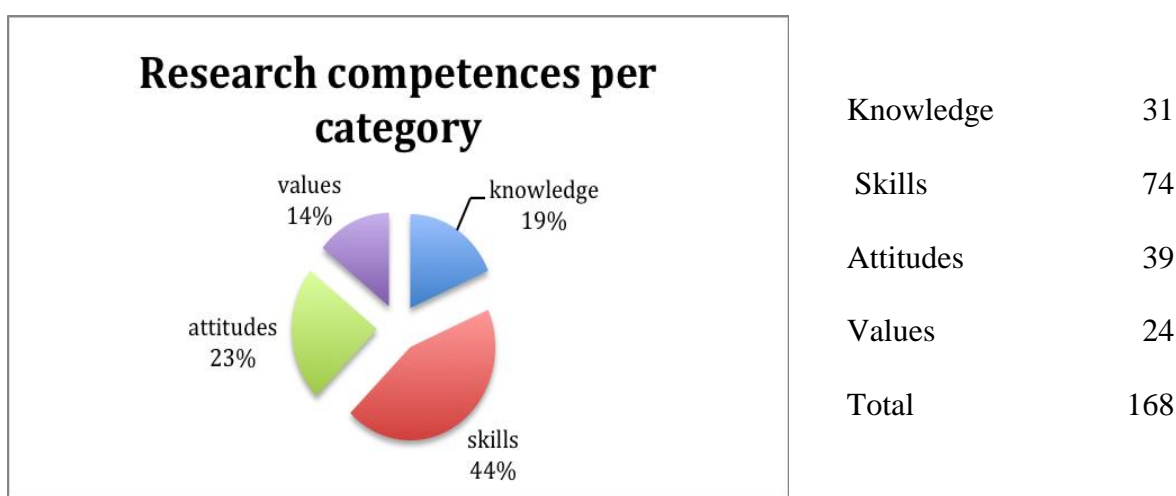
3.2 Instrument

In order to integrate a set of research competences by convention that works as a framework for the LAEL-I community, a questionnaire was designed with the goal of measuring the attitude regarding the level of importance the LAEL-I community gives to different research competences.

The operationalization for this study, it was compulsory to state the variable research competences and, according to the theoretical framework, the resultant research competences were classified into four categories: knowledge, skills, attitudes, and values. In order to define the indicators for each category, it was necessary to develop a comparison between recognized and specialized authors in themes of research competences such as Cuevas, Guillén and Rocha (2011), Eyssautier (2006), Campeinhoudt (2008), the specifications of LAEL-I program outcome profile (2011) and Minerva's Model by BUAP (2007), generic,

specific and research competences by Tuning (2009; n.d.) and international frameworks of development of research competences for education professionals as South Hampton (Kelly and Greenfell, n.d.) and Emalyanova, Teplyakova and Bounova (2017). The frequency of occurrence analyzed using Atlas.Ti allowed identifying a set of 168 research competences grouped in each category: 31 knowledge, 74 skills, 39 attitudes and 24 values (Graph1).

Graph 1: Proportion of research competences divided into attitudes, knowledge, skills and values



Source: own

Competences represent a dynamic combination of knowledge, understanding, skills, abilities and values. In this sense, the questionnaire (Appendix 1) presented a set of questions related to the research competences that may be important for success in a LAEL-I students' professional career. The first section is about personal information. This section allowed identifying the subjects' features as age, teaching experience, status as a part of the LAEL-I community, and the way that they got teaching experience. Once the obtained indicators were organized into categories (Appendix 2), the second section of the questionnaire was developed. This section focused on measuring the level of importance that LAEL-I

community members think each research competence has for their professional development. The subcategories were analyzed according to the following criteria: High mentioned= more than 4 mentions, medium mentioned=3, and 2 mentions, low mentioned= 1 mention according to the number of mentions (groundedness) in the literature review, (Appendix 3). This information allowed organizing the items in descending order.

A Likert scale of five stages was used considering the values from 1 to 5, where 1 means not important at all, 2 not important, 3 neutral, 4 important and 5 very important. The first category /knowledge/ measured the next 14 items: information management, teaching and learning strategies, English, language teaching, methodologies, approaches, issues of policy, theories, e-learning, educational materials, education systems, experience and trends in education.

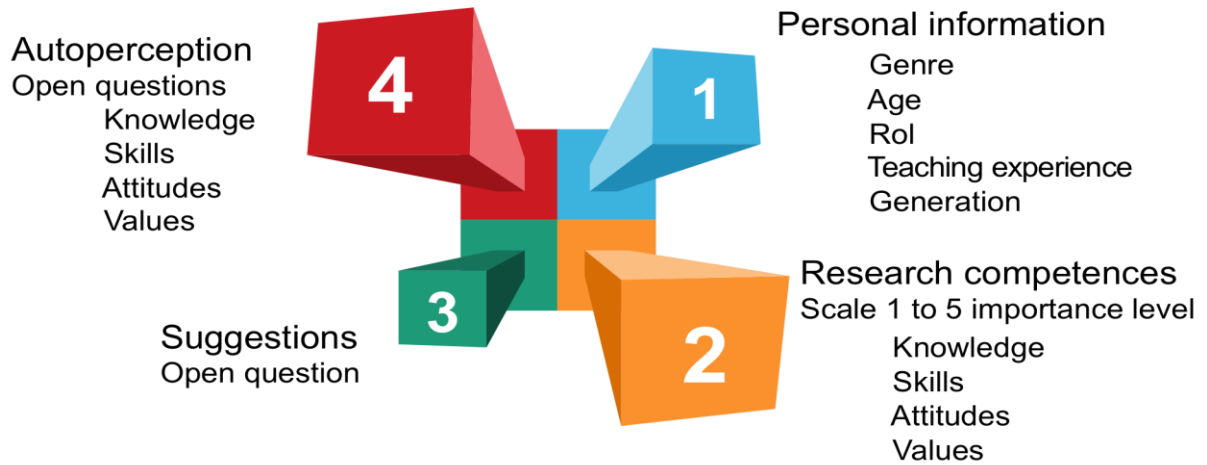
The second category /skills/ includes 34 indicators: problematization, teaching-learning practices, information management, research skills, application of methods, project management, application of knowledge, construction, creativity, expression, solutions, strategy, uncertainty management, analysis, technological resources management, abstract thinking, evaluation, linking, observation, planning, producing information, applications of techniques, cognitive skills, continuous learning, critical thinking, decisions, divergent and convergent thinking, logic thinking, questioning, reading, reflection, selective perception, synthesis. The third category /attitudes/ included 24 the following items: autonomy, collaborative work, leadership, professional compromise, asking for help, attitude of search, critical, initiative, interdisciplinary dialogue, reflexive practice, socialization, awareness, communication, compromise, cultural heritages, determination, flexibility, identifying limits, open mind, perseverance, responsibility, rigor, updating. Finally, the last category /values/ includes 13 indicators: ethics, responsibility, social commitment, awareness of the learning

process, research importance, citizenship, quality, democracy, education in values, honesty, perseverance and respect for diversity. According to semantic implications, some of the items were fused. The result was a section with four categories: knowledge with ten items, values eight items, skills 25 items and attitudes 19 items.

The third section of the questionnaire was dedicated to get a maximum of three suggested competences that the respondents considered should be included in the framework. The fourth section focused on self-perception, included two open questions. The first one focused on knowing the competences listed in the second section that the respondents consider they have thrived and those that they think they need to develop. Each question asked for a maximum of three responses in each category: knowledge, values, skills, and attitudes. Summarizing, the complete questionnaire (Figure 1) was composed by 65 items organized in four sections: personal information presenting four questions; research competences using a Likert scale to measure the level of importance of 62 items organized by categories: knowledge, values, skills and attitudes; suggestions presenting one open question, and finally the self-perception section presenting two open questions.

Figure 1: Questionnaire organization

The instrument: questionnaire



Source: own

3.3 Pilot study

For the validation of the instrument, it was submitted to judgment expert and Cronbach's alpha coefficient to verify the internal consistency. Three experts revised the structure, quality of questions and accuracy. The experts profile included researcher whose experience in research in educational field, language teaching and the design of data collection instruments was proved.

The experts recommended simplify the introductory paragraph, to include a question to know the respondent's years of teaching experience, to decide if the Likert scale was intended to measure relevance or importance, to verify some mistakes in the question numbers, and to adjust the conjugation in the third person. Cronbach's alpha coefficient could be used when the Likert scale was ready. A similar sample composed of 26 students of

Bachelor in Teaching English –LEI- BUAP participated in the pilot phase of the questionnaire on April 18th and 25th, 2018.

The instrument was applied to a group of LEI students in similarity conditions: students belonged to an academic program oriented to language teaching. They were enrolled in a BA in ELT. They belonged to the same university and shared the same location. After the application, the Cronbach's alpha coefficient resultant was 0.95. It indicated a high internal consistency. The index has to be between 0.6 and 1 to be considered as acceptable validity.

During the application some observations were registered. The average response time was 7 minutes, students took more time to answer the open question sections, and students did not show a problem to answer open questions according to the competence list. The recommendations and observations were considered to define the final version of the questionnaire that includes 65 items (Appendix 4).

3.4 Procedures

The questionnaire was reproduced and printed for its application. The procedures for collecting data demanded the request for permission. The LAEL-I coordinator, PhD. María Amelia Xique Suárez and the Faculty professors made it possible to apply the questionnaire to the community members. The questionnaire was applied to students on April 28th, 2018 during class sessions. The LAEL-I staff helped to deliver the questionnaire to professors and staff members from April 28th to May 16th, 2018. The questionnaire was designed to be self-administrated. After the applications, the answered questionnaires were prepared for the analysis stage.

3.5 Data analysis

The data analysis required to be prepared. Each questionnaire was listed consecutively. A spreadsheet was prepared to codify the responses section by section. The items that were measured using the Likert scale and the information collected in section 1 –personal information- was analyzed by counting and descriptive statistics. The open questions were processed and analyzed using Atlas.ti. The section called personal information allowed recognizing the features of the subjects. The second section oriented to measure the level of importance that the subjects indicate for research competences was analyzed concerning the occurrence. The procedure followed helped to identify what research competences LAEL-I community members consider relevant to their professional development.

Later, the results were compared to the groundedness of each set of competences regarding knowledge, skills, values, and attitudes identified in the literature review (Appendix 5). The suggestions offered in the third section of the questionnaire was statistically analyzed for identifying those competences that the respondents thought had to be considered a part of the framework to be proposed. Finally, the fourth section related to the competence development self-perception was statistically analyzed.

CHAPTER IV: FINDINGS

This chapter has been dedicated to present the data analysis based on the data collection resultant from the application of a questionnaire to discuss them. The responses of 37 LAEL-I community members -LAEL-I students, professors, coordinator and administrative staff represented- were analyzed considering: the variable research competences and the categories of knowledge, skills, attitudes, and values. The indicators for each category of competences were constructed from a more in-depth revision of the literature review, considering the research competences that moral authorities, specific LAEL-I BUAP frameworks, and International references offered (Appendix 5 and 6). The findings help to answer the scientific questions as well as offer elements to be considered as a basis to propose a research competence framework for the LAEL-I academic program. From a population of 42 students, ten professors, one coordinator and one assistant registered during the period Spring 2018, the achieved goal was 37 respondents which include: 28 students, and 9 academic and administrative members.

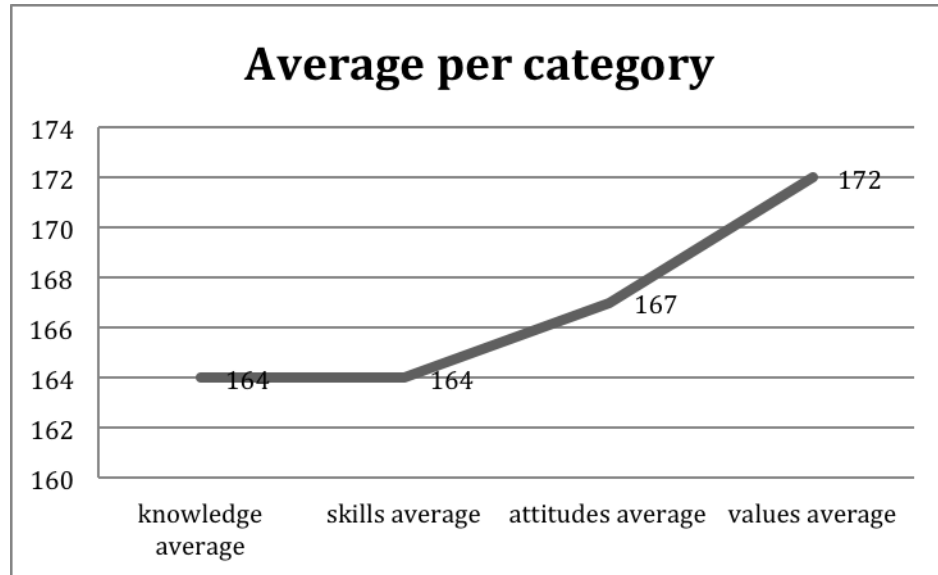
4.1 Importance of the research competences for LAEL-I community members

This analysis section describes the importance that LAEL-I community members assigned to each research competence taking into consideration a scale from 1 to 5. For this analysis, competence is a capacity that any person needs to respond to specific problems of daily life in specific contexts (Zabala, 2008 quoted in Trujillo-Segoviano, 2014, p. 431).

In general terms, the respondents show a tendency to assign values from 3 to 5. However, in some cases, some items were not answered, so their value was zero. In general terms, the respondents tended to use the high values of the scale, but the average of each answer was 2.6 because of the non-typical behavior of zero. The average for each category was: knowledge 164, skills 164, attitudes 167 and values 172 points (Graph 2). These data

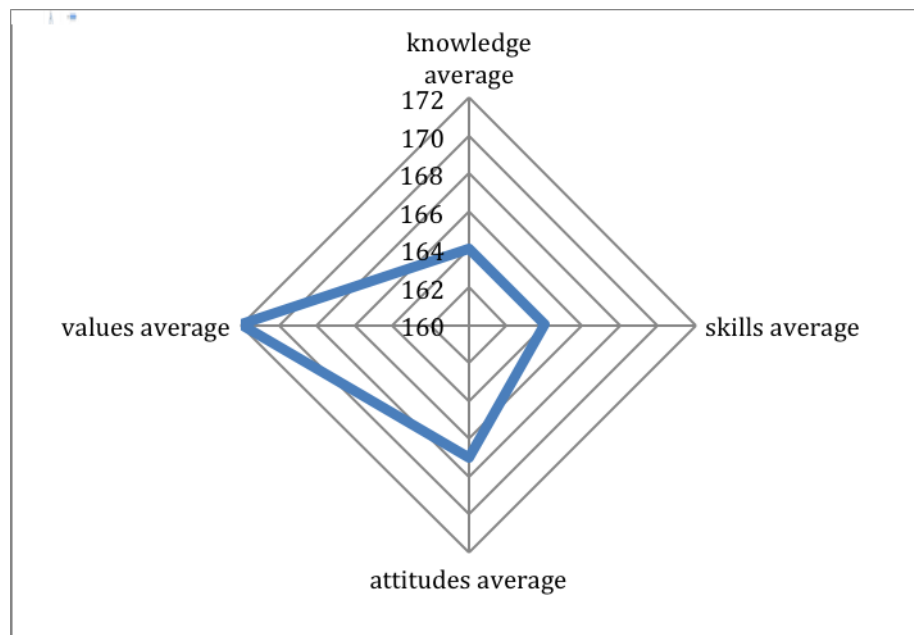
reflected that the respondents confer more importance to values over any other type of competences (Graph 3).

Graph 2: Average per category



Source: own

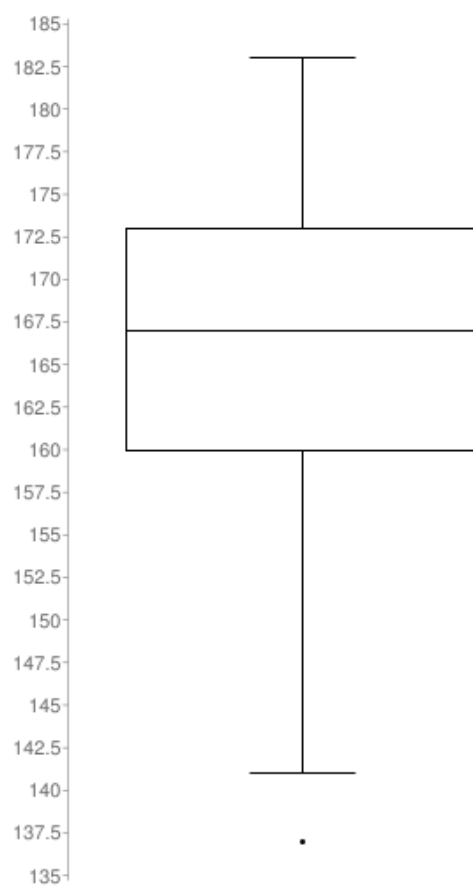
Graph 3: Tendency



Source: own

From a total of 63 items, the median, measuring the central number of the responses was 167, and the mean was 166. The first quartile was 160 and the third quartile 173, also, the mode was 173. The lowest value was 137 that correspond to the research competence of knowledge: educational systems and policies; in fact, this score behaves as an outlier data considering the quartiles composition (Graph 4). The highest score was 183 that corresponds to the value: honesty. The range between the lowest and highest score is 46, and the standard deviation was 9.3.

Graph 4: Quartiles-whisker diagram



Source: own

The competences imply the interrelated mix of knowledge, skills, attitudes, and values (Trujillo-Segoviano, 2014, p. 431). Once the description of the general data collection

behavior was analyzed, the research competences were revised considering the four categories of knowledge, skills, attitudes, and values to identify what those competences that LAEL-I community members considered the most and the less important to their professional formation are. To do that, the highest and lowest scores of each category were detected and considered as maximum and minimum limits. After, the three nearest scores to those limits (-/+) were identified.

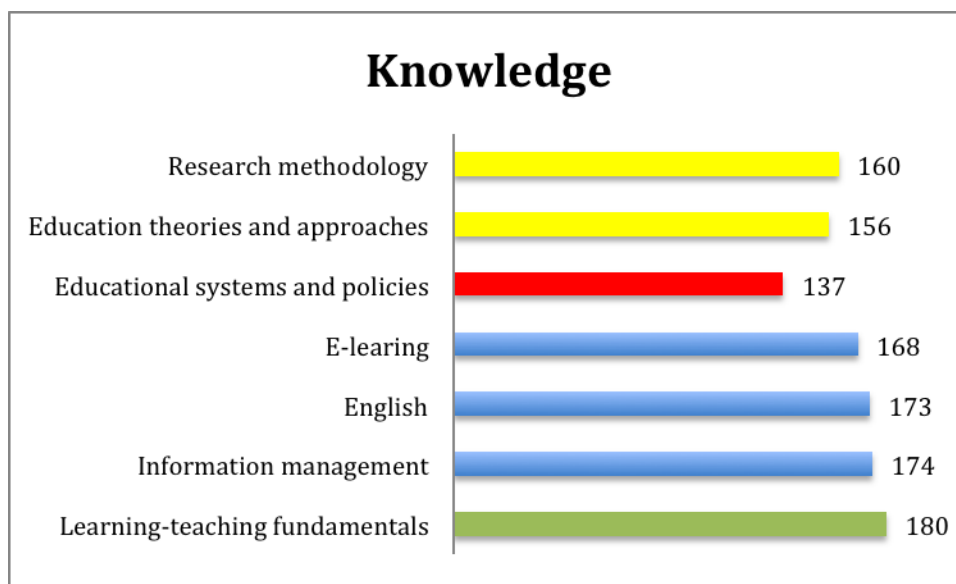
Once the answers had been analyzed, they were compared to the research competences proposed in the literature, considering the groundedness in order to identify the coincidences and discrepancies between them. To standardize the index of comparison, the groundedness was classified using a scale from 1 to 4. While 4 represented the value assigned to the most mentioned competence in each category, 1 was the least mentioned competence. Also, the value 2.5 was introduced to give a value for those competences that were in the middle of the limits.

4.1.1 Knowledge

There were ten items for the category knowledge. On the one hand, the LAEL-I community members assigned the highest score to learning-teaching fundamentals (180 points), recognizing the importance to go deep into the elements that support the education practices and research. Other high scores were assigned to information management (174), knowledge of English as a language (173), and E-learning. On the other hand, the lowest score was for educational systems and policies (137) It shows that LAEL-I community members do not consider this kind of knowledge to be one of the main elements to develop research competences. Other lower values were for educational theories and approaches (156), research methodologies (160) and teaching experience (160). It would be attention calling because some of the main aspects to develop the research process are based on a more in-

depth knowledge of educational theories and approaches, the necessity to identify the way to investigate and the teaching experience as a basis to identify themes and opportunities to do research (Graph 5).

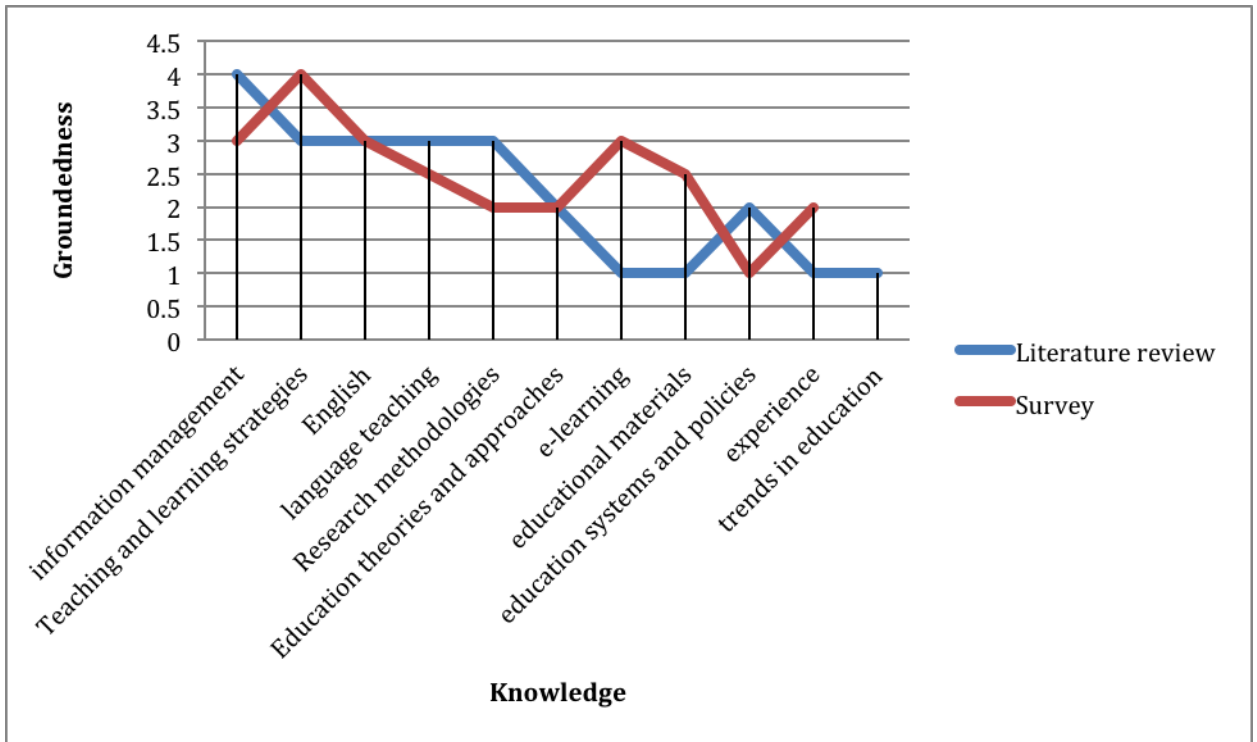
Graph 5: Knowledge



Source: own

The comparison between the competences proposed in the literature review and the LAEL-I community members' answers (Graph 6) shows coincidences in the high zone of the scale (3 and 4 points). Knowledge of information management, teaching and learning strategies were considered essential research competences. For the experts quoted in the literature review, the most mentioned competence was information management, and for LAEL-I community members was teaching and learning strategies. On the other hand, E-learning, and trends in education were the least mentioned by experts. Both literature and respondents agreed that the less critical competence in the category of knowledge is educational systems and policies.

Graph 6: Knowledge comparison



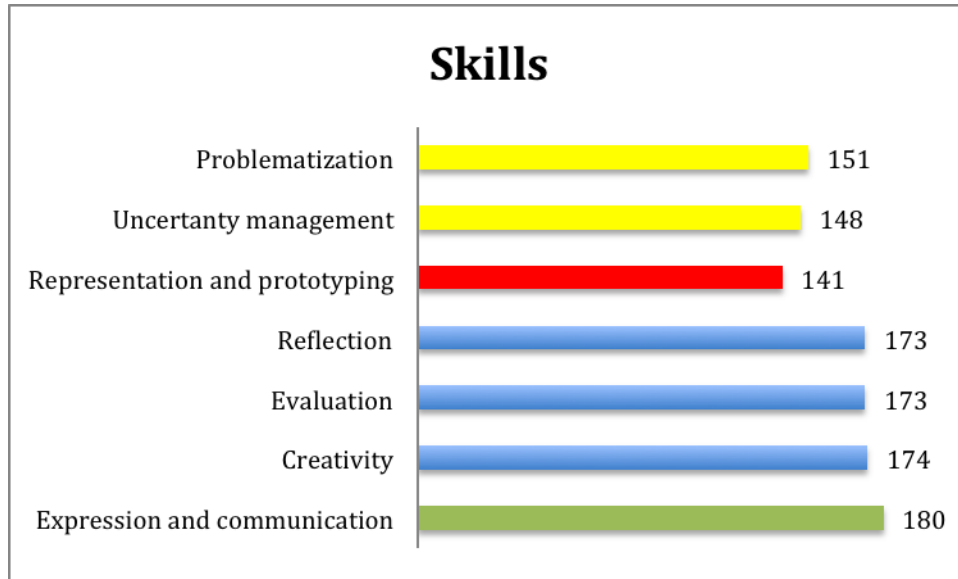
Source: own

4.1.2 Skills

Skills category is the most significant set of indicators (25). The respondents consider expression and communication the most important skill for developing their professional profile (180 points). This indicator was considered in a broad sense grouped abilities for writing and speaking skills. High scores also include creativity (174), evaluation (173) and reflection (173). The lowest score was representation and prototyping (144). This data allows identifying an opportunity area because representation tools help to understand a problem. Low scores were problematization (151) and uncertainty management (148). Experts consider problematization the main stage of a research process, but the respondents do not explicit an agreement. Moreover, uncertainty is a natural condition of research project development. However, the higher scores allow inferring that LAEL-I community members

are clear about the importance of these competences to develop research: creativity, evaluation, and reflection (Graph 7).

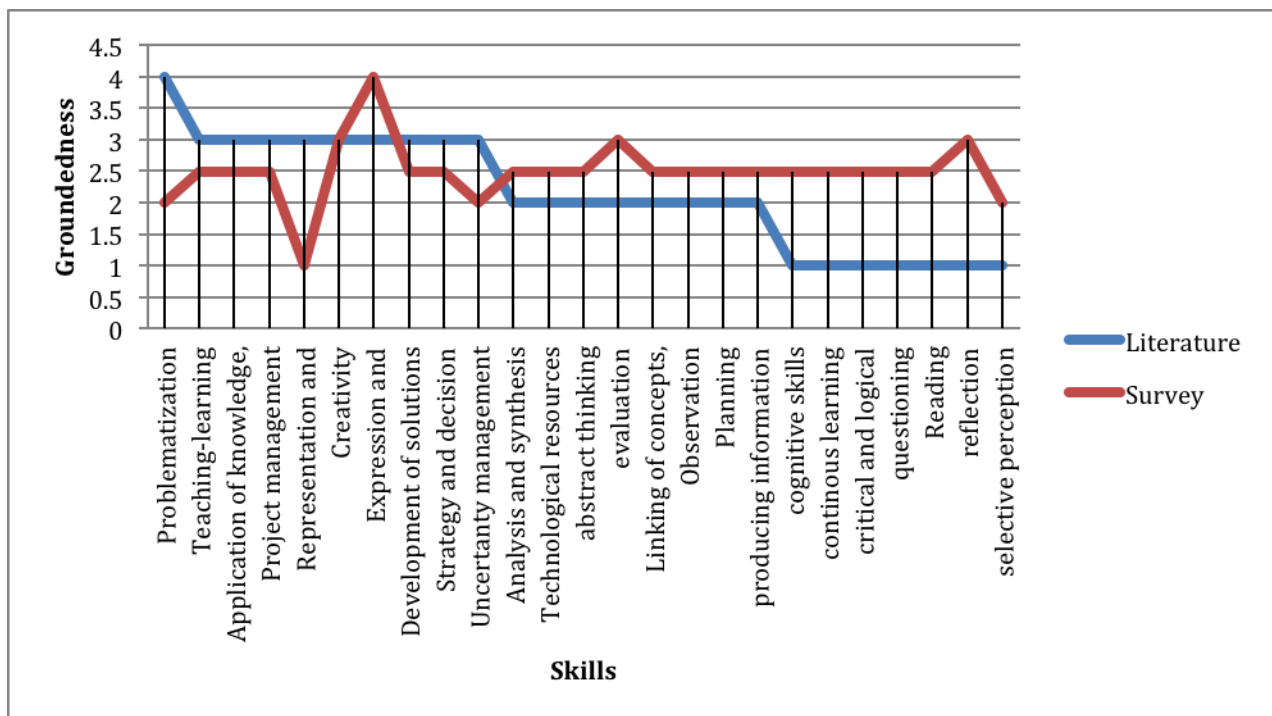
Graph 7: Skills



Source: own

When comparing the literature and the LAEL-I community members' responses (Graph 8), it was found that both groups agreed in the high zone of the scale just in the competence expression and communication. At the low zone of the scale, they coincided in the competence selectivity. Those were the only coincidences near to the maximum and minimum limits. The respondents rated the skills near to the middle zone. However, the literature highlights the importance of the next competences according to the groundedness: teaching-learning strategies, application of knowledge, methods and research techniques, project management, representation and prototyping, creativity, development of solutions, strategy and decision making, and uncertainty management (Graph 8).

Graph 8: Skills comparison

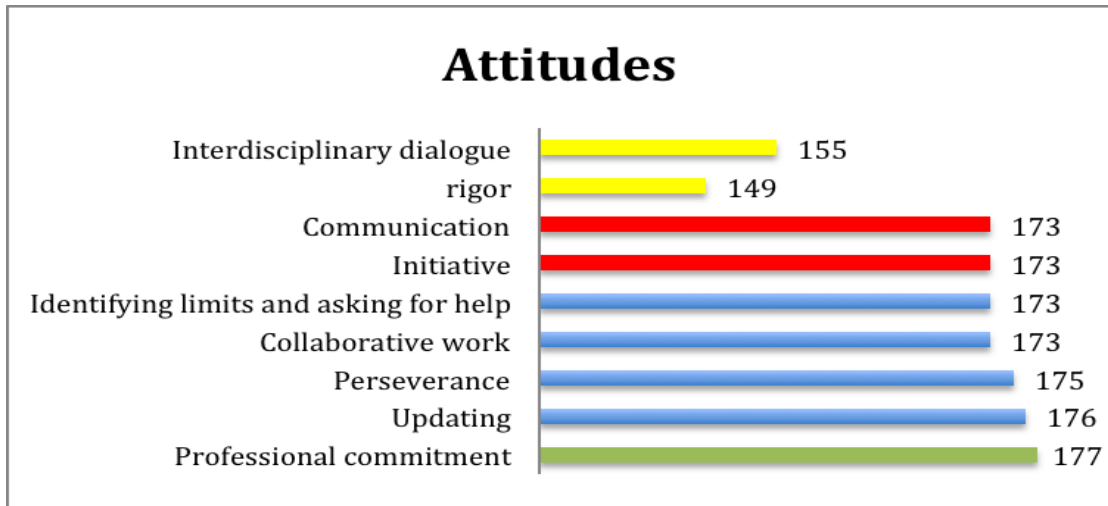


Source: own

4.1.3 Attitudes

The section of attitudes includes 19 items. The highest score was the professional commitment (177). Updating (176), perseverance (175), collaborative work (173) and identifying limits and asking for help (173) represents high scores that LAEL-I community considered necessary for their professional profile. On the other hand, communication (173) and initiative (173) were tied to the lowest scores. Rigor (149) and interdisciplinary dialogue (155) are also low scores (Graph 9). This section highlights the importance of professional commitment, a competence that could be encouraged. The results of the higher scores, updating, and perseverance, allow inferring a relation with the community members' profile, especially those students who are in service teachers that combine their professional work with the course of an academic program in the process.

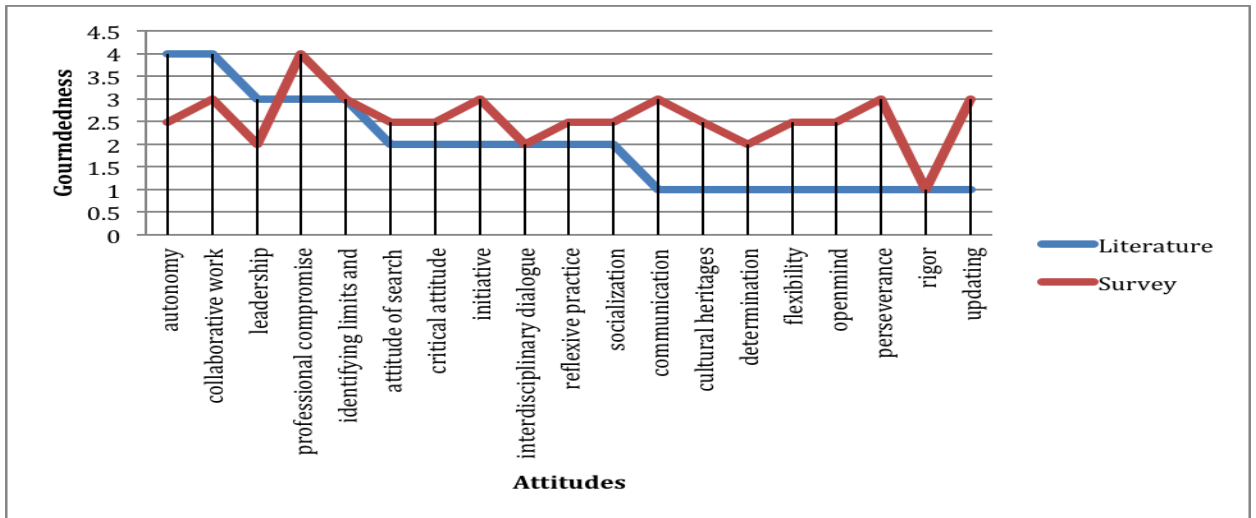
Graph 9: Attitudes



Source: own

The research competences that were proposed by authorities and LAEL-I community members' answers were compared (Graph 10). The coincidences in the high zone of the scale were: collaborative work, professional commitment and identifying limits and asking for help. For the literature, autonomy is the most mentioned attitude for developing research. On the other hand, the respondents highlighted professional commitment. The coincidence in the low zone of the scale was rigor.

Graph 10: Attitudes comparison

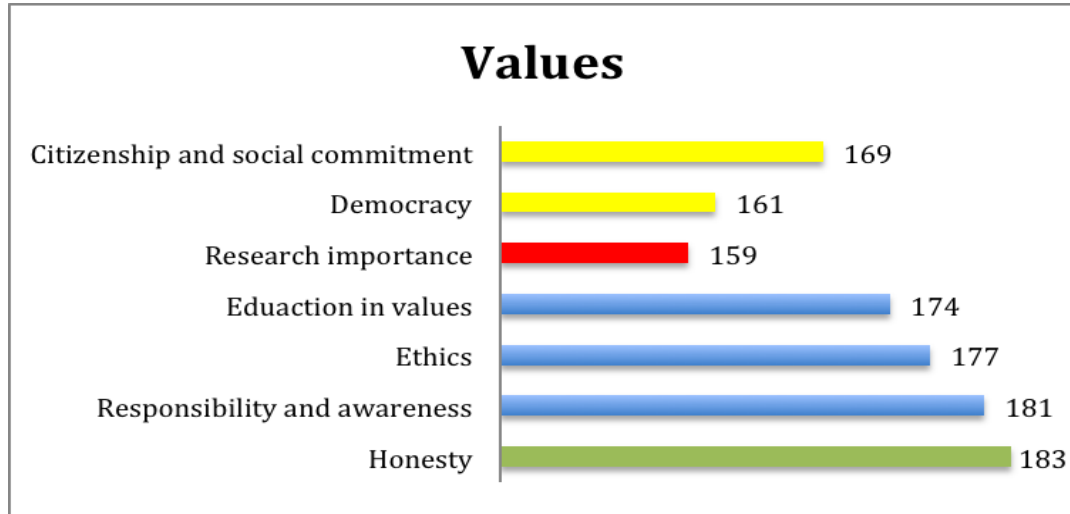


Source: own

4.1.4 Values

The research competences referred to the values category obtained the highest score of all of the categories according to the LAEL-I community members' responses (Graph 11). This section includes nine items being honesty (183) the highest score of all the research competences proposed in the questionnaire. The high scores were responsibility and awareness (181), ethics (177), and education in values (174). The lowest value was research importance (159), which catches the attention because the low importance of research could represent a low interest in research competence development. The low scores were the democracy (161) and citizenship and social commitment (169). Both competences are oriented to the disposition/willingness to/of the researcher concerning the others and the society where both parts interact.

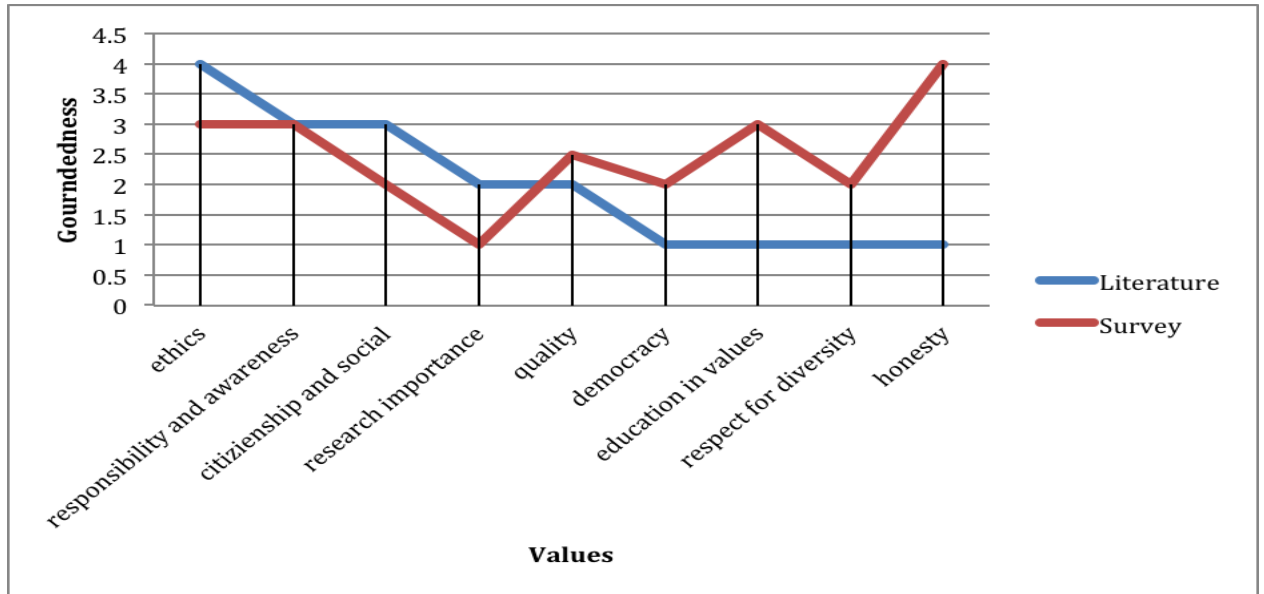
Graph 11: Values



Source: Own

When literature and LAEL-I community members' responses were compared (Graph 12), the coincidences in the high zone of the scale were ethics, and responsibility and awareness. The literature introduced the competences of citizenship and social commitment. Nevertheless, the LAEL-I community members assigned more importance to education in values and honesty.

Graph 12: Values comparison



Source: own

4.2 Suggestions

The questionnaire design included an open question to allow LAEL-I community members to suggest those competences that are not on the list of research competences proposed and they think are important to develop. The responses were classified in knowledge, skills, attitudes, and values (Table 6). The analysis allows identifying the main proposed competences regarding occurrence. The highest mentioned competences for skills, attitudes, and values were the organization, patience, and compromise respectively. The category knowledge does not present coincidences.

Table 6: Research competences proposed by LAEL-I community members

Scores	Knowledge	Skills	Attitudes	Values
The highest mentioned		Organization	Patience	Compromise
Higher mentioned		Understanding	Empathy	Respect
		Oral communication in public		
Mentioned	Holistic learning	Assertiveness	Permanent learning attitude	Love
	English language management	Reality analysis	Self-learning	Humanism
	Quantitative and qualitative methods	Analysis of necessities	Transversal competences	Motivation
	Grammar	Cunning	Mastermind	Solidarity
	Blended and online learning modalities	Technical competences	Effort	Tolerance
	Teaching materials development	Description	Investigative disposition	Courage
	Learning styles	Continuous evaluation	Continuous improvement	
	English variations	Skill for literature searching	Sensibility	
	Scholar management	Stress management		
	Self-knowledge	Emotion regulation		
		Feedback		
		Follow-up instructions		

Source: Own

4.3 Self-perception

The questionnaire included a section oriented to the self-perception that LAEL-I community members had about those competences that they considered they had successfully developed, and those they thought to need their attention to be developed. To analyze this section, the answers were classified according to the numbering of the questionnaire. Then, the measure mode allows identifying the highest mentioned competence per category, and also the three competences in which respondents presented big coincidences.

4.3.1 Developed research competences

The LAEL-I community members' answers showed that the most developed competences regarding knowledge, skills, attitudes, and values were English, reflection, autonomy, and ethics, respectively. Other high mentioned competences concerning knowledge were learning-teaching strategies and learning-teaching fundamentals. For skills, the answers were the reflection, communication, practice in language teaching and observation. The high attitudes developed were autonomy, collaborative work, socialization, open mind, planning, and continuous learning. Finally, the values that respondents considered developed were ethics, honesty, and respect for diversity.

4.3.2 Research competences to be developed

Following the same procedure, the LAEL-I community members considered that the competences that they needed to develop the most in each category were: the knowledge of research methodologies, project management skills, the attitude of identifying limits and asking for help, and the value of social commitment and citizenship. Respondents also considered that the pieces of knowledge that they needed to develop were E-learning and trends in education. The skills to be developed included project management, uncertainty management and producing information. The attitudes that LAEL-I community members mentioned were interdisciplinary dialogue, reflective practice, perseverance, and rigor. At last, respondents were aware of the values that they needed to develop: research importance, quality, and democracy.

CHAPTER V: CONCLUSIONS

In this last chapter, the main conclusions and answers to the research questions are presented as well as the limitations of the study, implications and directions for further research.

5.1. Comparison between the documents of reference and the community members' answers

The research project starting point was the identification of a need in the context of LAEL-I BUAP Academic Program: the necessity of a research competence framework that could be used as a reference for the LAEL-I community members in order to help to achieve the LAEL-I professional profile. According to the Tuning Project Europe (2007: 18). “The emphasis on learners obtaining a particular competence or set of competences also affects the transparency in the definition of objectives set up for a particular educational program, adding indicators with higher possibilities for being measured, while making these objectives more dynamic in taking into consideration the new needs of society”.

To accomplish the general objective of determining the research competences that LAEL-I BUAP students need to develop to achieve the academic program profile outcome through the identification of similarities that LAEL-I community members presume, it was necessary to develop a descriptive study. The results allowed identifying the similarities regarding the research competences that the LAEL-I community members presume and comparing them to those competences proposal by authorities revised in the literature. The study allows reaching the objectives. The results of this study were the basis for integrating a proposal for a Research Competences Framework for LAEL-I Academic.

The philosophic question related to the understanding of the research competence concept was developed based on the literature review, starting from the concept of competence, adding the concept of research and working with theories proposed by the specialists in research competences as Eyssautier, Campeinhoudt, Hernández Sampieri, Ariton and Reileaneu, Cuevas, Guillén y Rocha. International frameworks of competences in educational context were also revised. In this research, the concept of research competence refers to a capacity that interacts with other competences - knowledge, skills, attitudes and values - that allows people to answer to different situations associated with personal, social and professional contexts that implies a research perspective to understand a problem, produce knowledge, make decisions and act in consequence.

Considering the literature review, a basis to locate the research competences to develop in undergraduate students was stated. Furthermore, the scientific question related to the research competences that LAEL-I students need to develop, implied to develop a quantitative-descriptive study using a questionnaire that was applied to the LAEL-I community members to know what were the research competences that they presumed should be developed accordingly to the academic program outcome profile.

To integrate a proposal of research competences framework for the LAEL-I Academic Program, a set of criteria were defined: a) The comparison of groundedness between the literature review proposals and the LAEL-I community members' answers should be added. A maximum of five competences per category, which offer high scores, would be chosen. b) The higher competences that respondents suggested through the open questions should be considered. c) Those competences that were stated in the LAEL-I Academic Program but not highlighted in the findings should be incorporated in order to be consistent with the outcome profile.

5.1.1 Research competences to develop in undergraduate students according the literature

After the comparison of the research competences offered in the literature, the most recurrent competences per category include:

Knowledge: information management, teaching and learning strategies, English and research methodologies.

Skills: Problematization, teaching-learning practices, application of methods, project management, representation, expression, developing strategies and uncertainty management.

Attitudes: autonomy, collaborative work, leadership, professional compromise, identifying limits.

Values: ethics, responsibility and social commitment, citizenship, research importance and quality.

5.1.2 Research competences that LAEL-I community members presume that should be developed to achieve the academic profile

Once the survey was applied to LAEL-I community (students and faculty), the categories of competences where integrated as follows:

Knowledge: information management, teaching and learning strategies, English, language teaching and research methodologies.

Skills: Expression, creativity, evaluation and reflection.

Attitudes: Professional compromise, collaborative work identifying limits, perseverance and updating

Values: Honesty, ethics, responsibility and education in values.

The literature review considers more than 63 possibilities, however, the comparison with the LAEL-I community members' responses allow to select those research competences that resulted pertinent to the specific community by consensus. Thereby, a set of 27 research competences was proposed. The procedure allows demonstrating that the hypothesis of LAEL-I community members share similarities regarding the research competences that LAEL-I students need to develop was true.

The categories that present more similarities between the compared items are knowledge and attitudes. However, despite the categories skills and values present consistency, there are some competences that attract the attention because of the discrepancies. In the case of skills, being the category that groups the greatest number of competences, the variation among the answers is higher than the other categories. In case of values, the most significative variation is the level of importance that respondents give to education in values, something not so mentioned in the literature. The points of discrepancy appear because the community members answers are linked to their professional practice and influenced by they work context.

5.2 Proposal of a Research Competences Framework for the LAEL-I

Academic Program

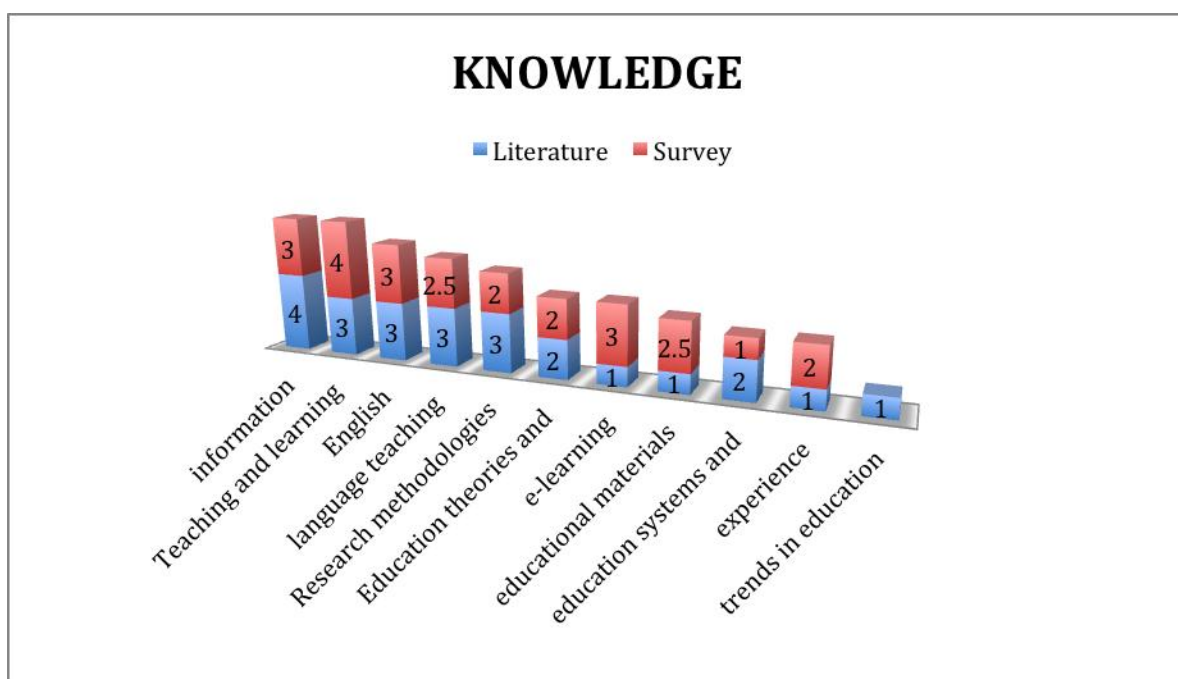
Asking the question: What are the research competencies that the community and the documents of reference share? And given that the hypothesis was verified, a basis to make a proposal that work as a framework to guide the LAEL-I academic program in order to develop the Research Competences required to fulfill the professional profile is presented.

The research process allows discriminating from more than 63 research competences to a set of 27 competences founded and conventionalized by a quantitative descriptive and

comparative method. This framework is contextualized considering the institutional references as well as the experience and knowledge of the LAEL-I community members.

The comparison of groundedness between literature and the data collection suggest that the knowledge category should include: information management, learning-teaching strategies, English, learning-teaching fundamentals, research methodologies, education theories and approaches, and E-learning (Graph 13).

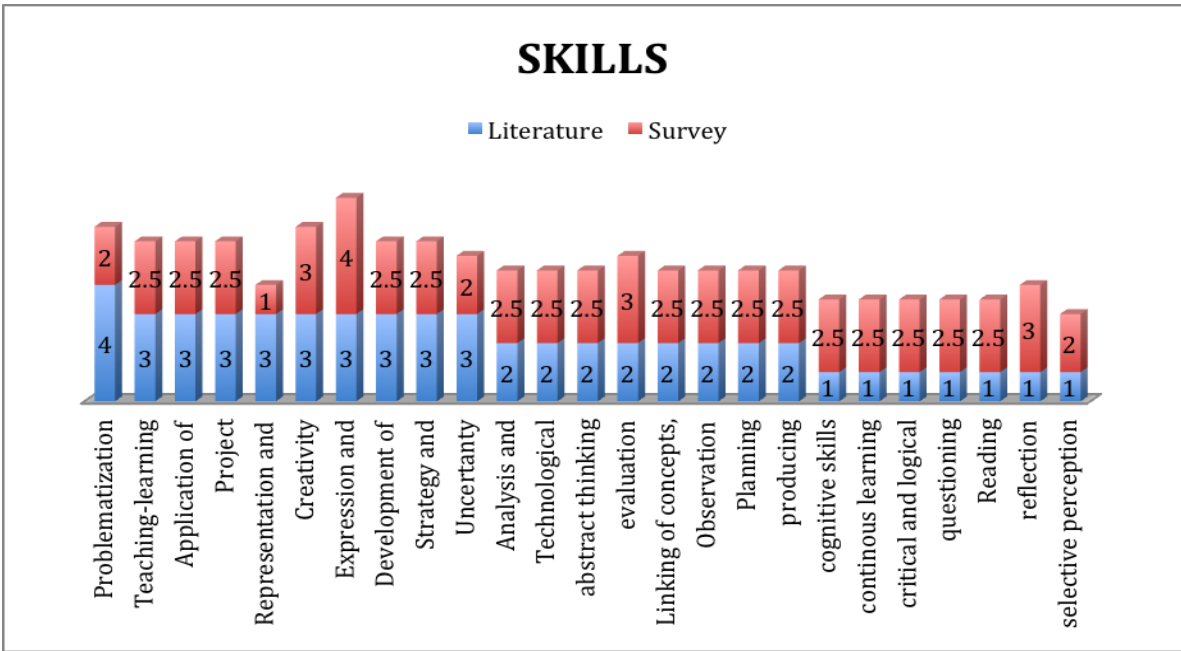
Graph 13: Results of adding literature and questionnaire data for knowledge



Source: own

The resultant skills were: expression and communication, problematization, creativity, uncertainty management, and evaluation (Graph 14).

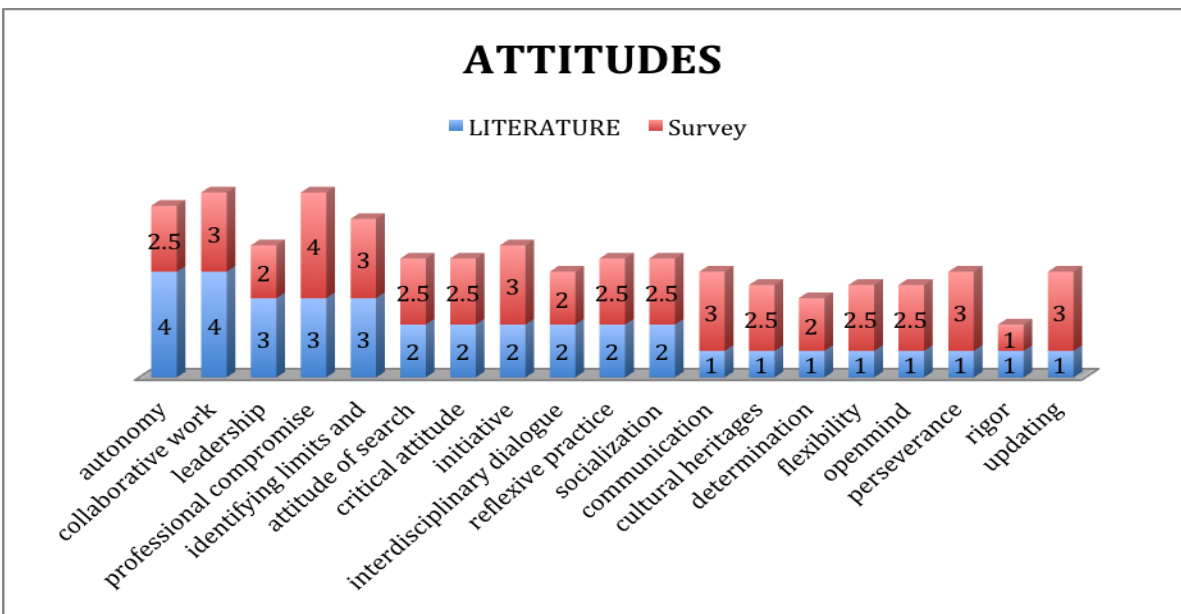
Graph 14: Results of adding literature and questionnaire data for skills



Source: Own

The attitudes that the comparison suggests were: Collaborative work, professional compromise, autonomy, identifying limits and asking for help, leadership, and initiative (Graph 15).

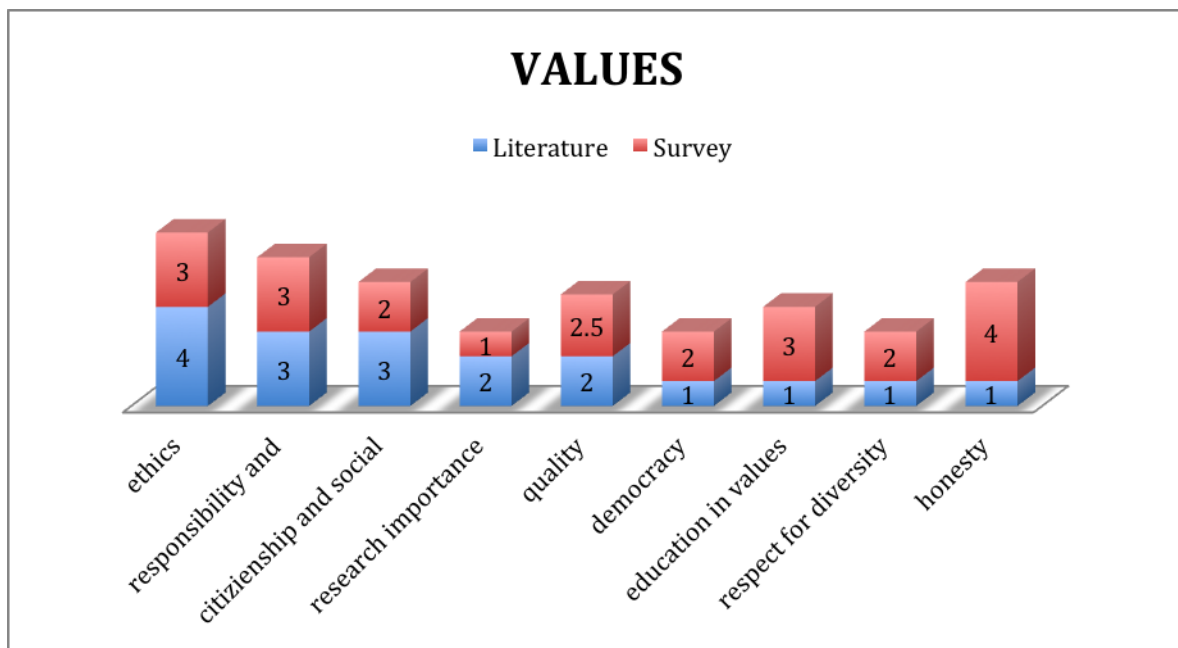
Graph 15: Results of adding literature and questionnaire data for attitudes



Source: own

Finally, the values that got the high scores were: Ethics, responsibility and awareness, citizenship and social commitment, honesty and, quality (Graph 16).

Graph 16: Results of adding literature and questionnaire data for values



Source: own

The higher competences that LAEL-I community members suggest for each category were the organization as a skill, patience as an attitude and the value of compromise. The category of knowledge was declared deserted due to the lack of coincidences in the LAEL-I community members' responses. The LAEL-I Academic Program's professional profile (BUAP, 2011) emphasizes the importance to develop the next research competences: Knowledge about approaches and methodologies in the field of language teaching, to formally master the language -English and, to manage and/or design techniques for the organization, systematization and analysis of information. Accordingly, the set of research

competences proposed to be considered as a framework for the LAEL-I Academic Program have been integrated as follows (Table 7):

Table 7: Proposal of a Research competences framework for the LAEL-I Academic Program

RESEARCH COMPETENCES	
Knowledge	Information management
	Teaching and learning strategies
	Mastering the language -English
	Language learning-teaching fundamentals
	Research methodologies
	Education theories and approaches
	E-learning
Knowledge	Information management
	Teaching and learning strategies
	Mastering the language -English
	Language learning-teaching fundamentals
	Research methodologies
	Education theories and approaches
	E-learning
Attitudes	Collaborative work
	Professional compromise
	Autonomy

	Identifying limits and asking for help
	Leadership
	Initiative
	Patience

Values	Ethics
	Responsibility and awareness
	Citizenship and social commitment
	Honesty
	Quality
	Compromise

Source: Own

In the context of curriculum design, according to Tobón (2013), even though the redaction/writing of competences accepts different formats, he suggests including an infinitive verb in present tense, a conceptual object, the purpose, and a contextual or circumstantial reference. Depends on the case, the purpose and the context or circumstance could be optional. Following the structure that Tuning Project (2009; n.d.) uses to express competences, it is possible to recognize: the category of competence, the conceptual object, and a contextual or circumstantial reference (optional).

Knowledge:

Knowledge of resources, techniques, and procedures for information management

Knowledge of teaching and learning strategies for language teaching

Knowledge of English language

Knowledge of Language learning-teaching fundamentals

Knowledge of research methodologies

Knowledge of educational theories and approaches

Knowledge of E-learning environments, procedures, and fundamentals

Skills

Ability to express and communicate ideas, procedures, findings, and results in different modalities

Ability to problematize a situation in language learning-teaching contexts

Creativity skills

Ability to manage uncertainty

Ability to evaluate

Organization skills

Ability to systematize and analyze information

Attitudes

Capacity of collaborative work

Professional compromise

Autonomy

Capacity to identify limits and ask for help

Leadership

Initiative

Patience

Values

Capacity to act ethically

Awareness and responsibility in the education context

Awareness of social commitment and citizenship

Honesty

Quality

Compromise.

5.3 Directions for further research

It is recommended to discuss the proposed framework during Faculty sessions in order to consider other factors before its startup. This research project opens new lines of research including research competences assessment, analysis of factor that determines the development of research competences and strategic planning for the development of research competences in Language Teaching. The LAEL-I Faculty could find in this proposal, a tool that contributes, from a research perspective, to guide and focus the efforts of all the talented people that belong to the academic community to achieve the goals that have been officially declared.

The development of research competence implies considering other factors: policies, curriculum evaluation, contextual factors, work environments among others. This proposal

could be as a starting point for new research lines to evaluate the grade of accomplishment of the professional profile, to measure the grade of consistency between the authorized documents of reference and the community members perception and to identify the discrepancies between the community needs and the official curriculum considers.

5.4 Final comments

The research project and its results contribute to LAEL-I Academic Program offering a research competence framework as a reference to be considered for curriculum design processes, students' evaluation, evaluation of processes, development of teaching-learning strategies, development of continuous learning courses, among others. The designed procedures could be considered as a contribution to the academic context of Language-Teaching and Education because it could be reproduced and followed to identify the competences needed in other specific situations. The project also offers elements to be part of Faculty reflections.

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Appendix

Appendix 1. First questionnaire

CUESTIONARIO SOBRE COMPETENCIAS DE INVESTIGACIÓN

El concepto de competencias representa una combinación dinámica de conocimientos, actitudes, habilidades y valores. Este cuestionario es parte de un estudio para la materia de Seminario de Titulación II de la Facultad de Lenguas realizado por una estudiante de licenciatura abierta. El cuestionario presenta una serie de preguntas referentes a las competencias de investigación que un estudiante de licenciatura en Enseñanza de Lenguas debería desarrollar para tener éxito en su carrera. Por favor seleccione la opción que corresponda en cada caso. Sus respuestas serán tratadas confidencialmente. Gracias por su cooperación.

I. INFORMACIÓN PERSONAL: Por favor marque con una x la respuesta que corresponda a su condición.

a. Género: Masculino: _____ Femenino: _____

b. Edad:

_____ 20 o menos	_____ 41 – 50
_____ 21 – 30	_____ 51 – 60
_____ 31 – 40	_____ 61 o más

c. Rol dentro de la comunidad académica de la Facultad de Lenguas

a. Estudiante _____ b. Profesor _____

d. Si es estudiante, ¿a qué generación pertenece?

2014 _____ 2015 _____ 2016 _____ 2017 _____ otra: _____

II. COMPETENCIAS DE INVESTIGACIÓN

Para cada competencia enunciada en la siguiente lista, por favor valore el nivel de relevancia que cada una tiene para la formación de su perfil profesional usando la siguiente escala:

1 = muy irrelevante; 2 = irrelevante; 3 = neutral; 4 = importante; 5= muy importante

1	¿Cuál es el nivel de relevancia que cada competencia tiene para su formación profesional en términos de CONOCIMIENTO?				
CONOCIMIENTO	Muy irrelevante	Irrelevante	Neutral	Importante	Muy importante
1. Técnicas de manejo de información	1	2	3	4	5
2. Estrategias y materiales de enseñanza-aprendizaje	1	2	3	4	5
3. Conocimiento del Idioma Inglés	1	2	3	4	5
4. Fundamentos de enseñanza-aprendizaje	1	2	3	4	5
5. Metodologías de investigación	1	2	3	4	5
6. Política y sistemas educativos	1	2	3	4	5

7. Enfoques y teorías sobre educación	1	2	3	4	5
8. Recursos de E-learning	1	2	3	4	5
9. Experiencia docente	1	2	3	4	5
10. Tendencias en educación	1	2	3	4	5

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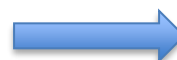


2	¿Cuál es el nivel de relevancia que cada competencia tiene para su formación profesional en términos de VALORES?				
VALORES	Muy irrelevante	Irrelevante	Neutral	Importante	Muy importante
53. Ética y honestidad	1	2	3	4	5
54. Responsabilidad y conciencia	1	2	3	4	5
55. Ciudadanía y compromiso social	1	2	3	4	5
56. Importancia de la investigación	1	2	3	4	5
57. Calidad	1	2	3	4	5
58. Democracia	1	2	3	4	5
59. Educación en valores	1	2	3	4	5
60. Respeto a la diversidad	1	2	3	4	5

3	¿Cuál es el nivel de relevancia de cada competencia tiene para su formación profesional en términos de HABILIDADES?				
HABILIDADES	Muy irrelevante	Irrelevante	Neutral	Importante	Muy importante
11. Problematicación	1	2	3	4	5
12. Práctica en la enseñanza-aprendizaje de lenguas	1	2	3	4	5
13. Aplicación de conocimientos, métodos, y técnicas de investigación	1	2	3	4	5
14. Administración de proyectos	1	2	3	4	5
15. Representación y construcción de prototipos	1	2	3	4	5
16. Creatividad	1	2	3	4	5
17. Expresión y comunicación	1	2	3	4	5
18. Desarrollo de soluciones	1	2	3	4	5
19. Estrategia y toma de decisiones	1	2	3	4	5
20. Manejo de la incertidumbre	1	2	3	4	5
21. Análisis y síntesis	1	2	3	4	5
22. Administración de recursos tecnológicos	1	2	3	4	5
23. Pensamiento abstracto	1	2	3	4	5
24. Evaluación	1	2	3	4	5
25. Conectar conceptos, ideas y disciplinas	1	2	3	4	5
26. Observación	1	2	3	4	5
27. Planeación	1	2	3	4	5
28. Producir información	1	2	3	4	5

29. Habilidades cognitivas y de investigación	1	2	3	4	5
30. Aprendizaje continuo	1	2	3	4	5
31. Pensamiento crítico y lógico	1	2	3	4	5
32. Elaboración de cuestionamientos	1	2	3	4	5
33. Lectura	1	2	3	4	5
34. Reflexión	1	2	3	4	5
35. Selectividad	1	2	3	4	5

Continúa en la siguiente hoja



4	¿Cuál es el nivel de relevancia de cada competencia tiene para su formación profesional en términos de ACTITUDES?				
ACTITUDES	Muy irrelevante	Irrelevante	Neutral	Importante	Muy importante
36. Autonomía	1	2	3	4	5
37. Trabajo colaborativo	1	2	3	4	5
38. Liderazgo	1	2	3	4	5
39. Compromiso profesional	1	2	3	4	5
40. Identificar límites y pedir ayuda	1	2	3	4	5
41. Actitud de búsqueda	1	2	3	4	5
42. Actitud crítica	1	2	3	4	5
43. Iniciativa	1	2	3	4	5
44. Diálogo con otras disciplinas	1	2	3	4	5
45. Práctica reflexive	1	2	3	4	5
46. Socialización	1	2	3	4	5
47. Comunicación	1	2	3	4	5
48. Actitud positiva hacia las herencias culturales	1	2	3	4	5
49. Determinación	1	2	3	4	5
50. Flexibilidad	1	2	3	4	5
51. Mente abierta	1	2	3	4	5
52. Perseverancia	1	2	3	4	5
53. Rigor	1	2	3	4	5
54. Actualización	1	2	3	4	5

III. SUGERENCIAS (Máximo 3)

53. ¿Qué otras competencias, además de las mencionadas en este cuestionario, serían importantes para el desempeño exitoso de los estudiantes de las licenciaturas de la Facultad de Lenguas en su vida profesional?

1. _____
2. _____
3. _____

IV. AUTO-PERCEPCIÓN

55. A su consideración, ¿qué competencias has desarrollado exitosamente? (Por favor seleccione un máximo de tres opciones de cada set de competencias mencionado en la parte II de este cuestionario)

a) Conocimiento:

b) Valores:

c) Habilidades:

d) Actitudes:

55. A su consideración, ¿qué competencias piensas que necesita desarrollar? (Por favor seleccione un máximo de tres opciones de cada set de competencias mencionado en la parte II de este cuestionario)

a) Conocimiento:

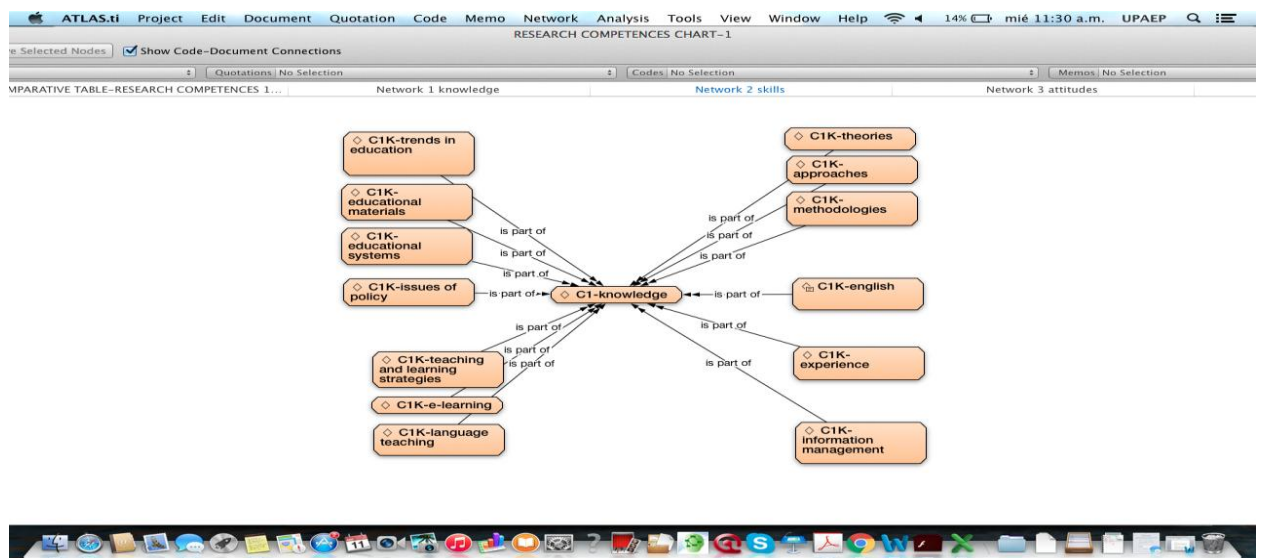
b) Valores:

c) Habilidades:

d) Actitudes:

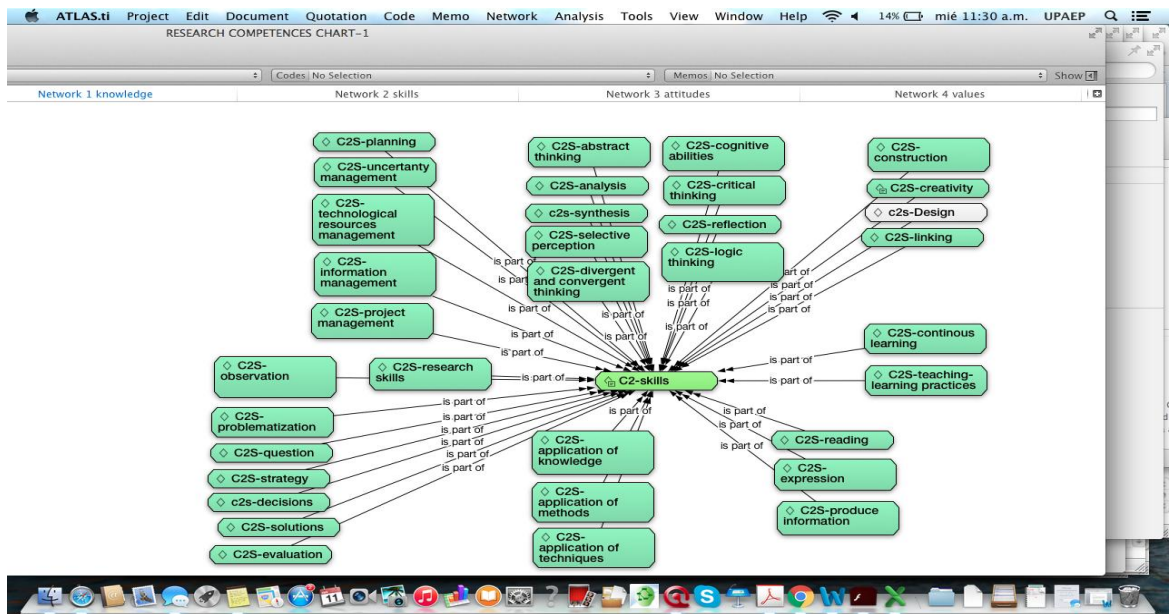
¡Gracias por su cooperación!

Appendix 2. Research competences as indicators by category



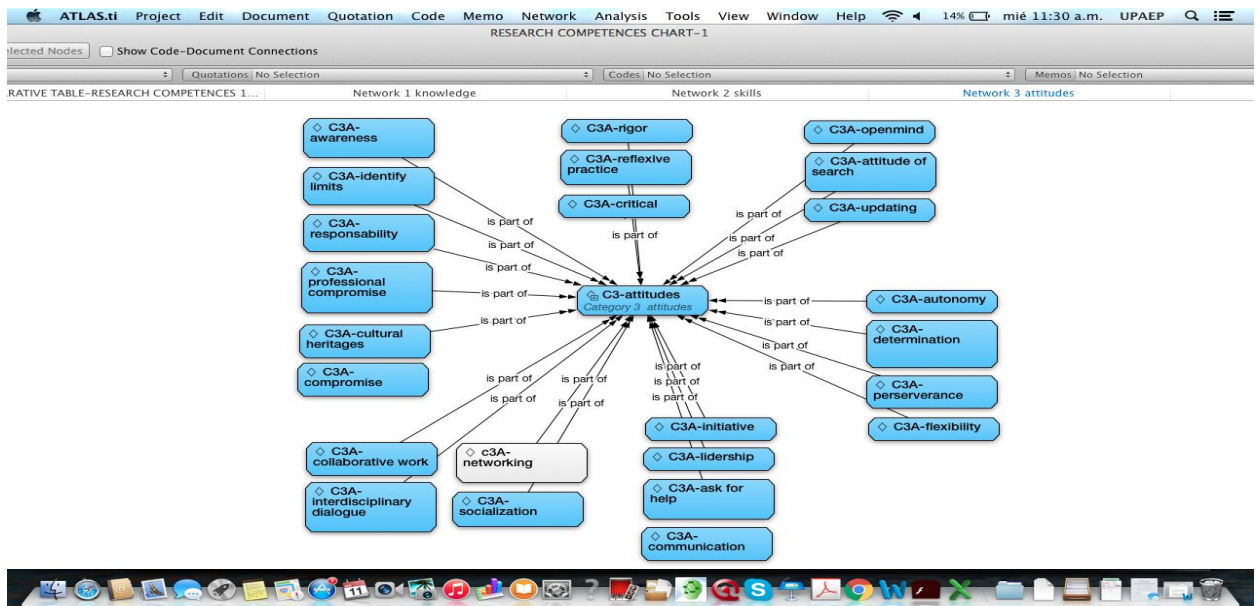
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Category 2: Skills: a) management, b) thinking, c) creation, d) research skills, e) application, f) information skills, g) learning-teaching process



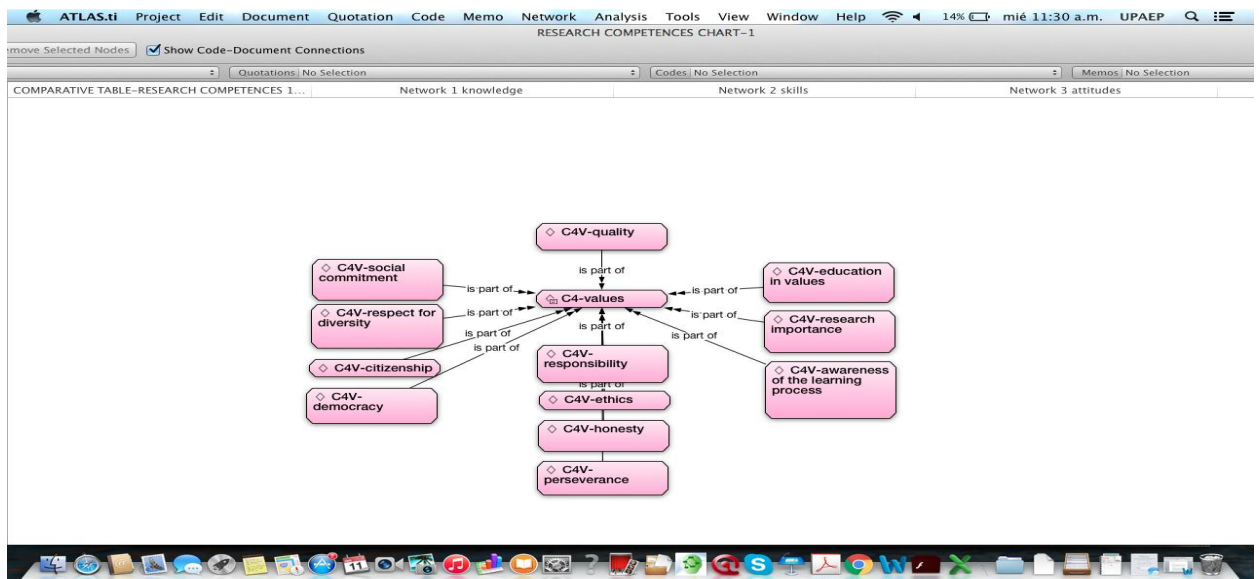
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Category 3: Attitudes: a) social, cultural and professional compromise, b) rigor, c) open, d) features, e) interaction, f) leadership and direction



Source: own

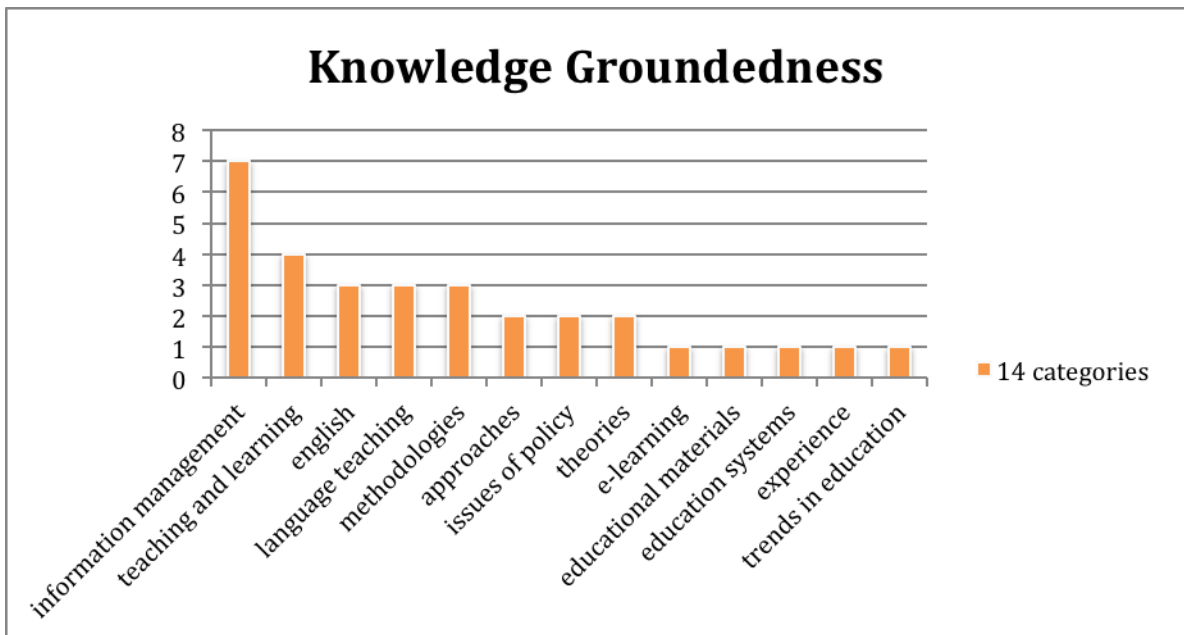
Category 4: Values: a) quality, b) commitment, c) features, d) professional perspective



Source: own

Appendix 3: Categories and indicators considering groundedness

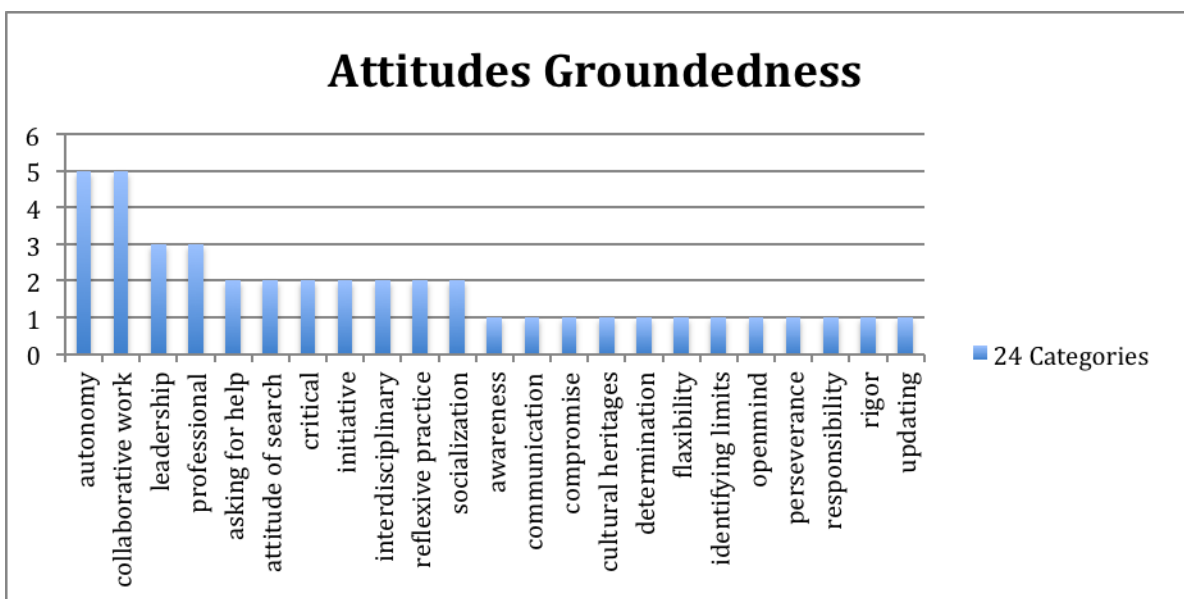
C1 knowledge	14 categories
information management	7
teaching and learning strategies	4
English	3
language teaching methodologies	3
approaches	2
issues of policy	2
Theories	2
E-learning	1
educational materials	1
education systems	1
experience	1
trends in education	1



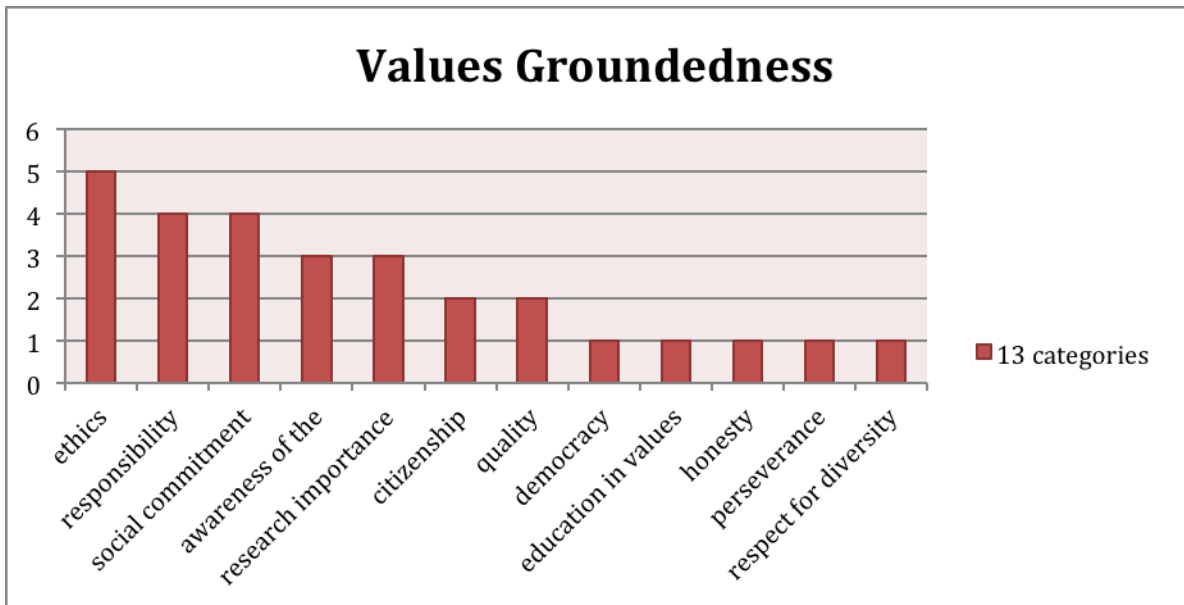
C2 skills	34 categories
problematization	9
teaching-learning practices	7
information management	6
research skills	6
application of methods	5
project management	5
application of knowledge	4
construction	4
Creativity	4
expression	4
Solutions	4
Strategy	4
uncertainty management	4
Analysis	3
technological resources management	3
abstract thinking	2
evaluation	2
Linking	2
pbobservation	2
Planning	2
producing information	2
application of techniques	1
cognitive skills	1
continuous learning	1
critical thinking	1
Decisions	1
divergent and convergent thinking	1
logic thinking	1
Question	1
Reading	1
reflection	1
selective perception	1
synthesis	1

C3 attitudes 24 Categories

autonomy	5
collaborative work	5
leadership	3
professional compromise	3
asking for help	2
attitude of search	2
Critical	2
initiative	2
interdisciplinary dialogue	2
reflexive practice	2
socialization	2
awareness	1
communication	1
compromise	1
cultural heritages	1
determination	1
Flexibility	1
identifying limits	1
open mind	1
perseverance	1
responsibility	1
Rigor	1
updating	1



C4 values	13 categories
Ethics	5
responsibility	4
social commitment	4
awareness of the learning process	3
research importance	3
citizenship	2
Quality	2
democracy	1
education in values	1
Honesty	1
perseverance	1
respect for diversity	1



Appendix 4: Final questionnaire

CUESTIONARIO SOBRE COMPETENCIAS DE INVESTIGACIÓN

Este cuestionario es parte de un estudio para la materia de Seminario de Titulación II realizado por una estudiante de LAEL-I. Por favor seleccione la opción que corresponda en cada caso. Sus respuestas serán tratadas con confidencialidad y respeto. Gracias por su cooperación.

II. INFORMACIÓN PERSONAL: Por favor marque con una x la respuesta que corresponda a su condición.

a. Género: Masculino: _____ Femenino: _____

b. Edad:

_____ 20 o menos _____ 41 – 50
 _____ 21 – 30 _____ 51 – 60
 _____ 31 – 40 _____ 61 o más

c. Rol dentro de la comunidad académica de LAEL-I

Estudiante _____ b. Profesor _____

d. Si es estudiante, ¿a qué generación pertenece?

2014 _____ 2015 _____ 2016 _____ 2017 _____ otra: _____

e. Si ha ejercido la docencia, ¿cuántos años de experiencia docente tiene?

_____ De 0 a 1 año _____ De 5 a 10 años
 _____ De 2 a 5 años _____ Más de 10 años

f. Si cuenta con experiencia docente, ¿en qué instituciones la ha adquirido?

II. COMPETENCIAS DE INVESTIGACIÓN

Para cada competencia enunciada en la siguiente lista, por favor valore el nivel de importancia que cada una tiene para la formación del perfil profesional de los estudiantes de LAEL-I usando la siguiente escala:

1 = no importante; 2 = poco importante; 3 = neutral; 4 = importante; 5= muy importante

1 CONOCIMIENTO	¿Cuál es el nivel de importancia que cada competencia tiene para su formación profesional en términos de CONOCIMIENTO?				
	No importante	Poco importante	Neutral	Importante	Muy importante
1. Técnicas de manejo de información	1	2	3	4	5
2. Estrategias y materiales de enseñanza-aprendizaje	1	2	3	4	5
3. Conocimiento del Idioma Inglés	1	2	3	4	5
4. Fundamentos de enseñanza-aprendizaje	1	2	3	4	5
5. Metodologías de investigación	1	2	3	4	5
6. Política y sistemas educativos	1	2	3	4	5

7. Enfoques y teorías sobre educación	1	2	3	4	5
8. Recursos de E-learning	1	2	3	4	5
9. Experiencia docente	1	2	3	4	5
10. Tendencias en educación	1	2	3	4	5

Continúa a la vuelta de esta página



2 VALORES	¿Cuál es el nivel de importancia que cada competencia tiene para su formación profesional en términos de VALORES?				
	No importante	Poco importante	Neutral	Importante	Muy importante
11. Ética	1	2	3	4	5
12. Honestidad	1	2	3	4	5
13. Responsabilidad y conciencia	1	2	3	4	5
14. Ciudadanía y compromiso social	1	2	3	4	5
15. Importancia de la investigación	1	2	3	4	5
16. Calidad	1	2	3	4	5
17. Democracia	1	2	3	4	5
18. Educación en valores	1	2	3	4	5
19. Respeto a la diversidad	1	2	3	4	5

3 HABILIDADES	¿Cuál es el nivel de importancia que cada competencia tiene para su formación profesional en términos de HABILIDADES?				
	No importante	Poco importante	Neutral	Importante	Muy importante
20. Problematicación	1	2	3	4	5
21. Práctica en la enseñanza-aprendizaje de lenguas	1	2	3	4	5
22. Aplicación de conocimientos, métodos, y técnicas de investigación	1	2	3	4	5
23. Administración de proyectos	1	2	3	4	5
24. Representación y construcción de prototipos	1	2	3	4	5
25. Creatividad	1	2	3	4	5
26. Expresión y comunicación	1	2	3	4	5
27. Desarrollo de soluciones	1	2	3	4	5
28. Estrategia y toma de decisiones	1	2	3	4	5
29. Manejo de la incertidumbre	1	2	3	4	5
30. Análisis y síntesis	1	2	3	4	5
31. Administración de recursos tecnológicos	1	2	3	4	5
32. Pensamiento abstracto	1	2	3	4	5
33. Evaluación	1	2	3	4	5
34. Conectar conceptos, ideas y disciplinas	1	2	3	4	5
35. Observación	1	2	3	4	5
36. Planeación	1	2	3	4	5
37. Producir información	1	2	3	4	5
38. Habilidades cognitivas y de investigación	1	2	3	4	5

39. Aprendizaje continuo	1	2	3	4	5
40. Pensamiento crítico y lógico	1	2	3	4	5
41. Elaboración de cuestionamientos	1	2	3	4	5
42. Lectura	1	2	3	4	5
43. Reflexión	1	2	3	4	5
44. Selectividad	1	2	3	4	5

Continúa en la siguiente hoja



4 ACTITUDES	¿Cuál es el nivel de importancia que cada competencia tiene para su formación profesional en términos de ACTITUDES?				
	No importante	Poco importante	Neutral	Importante	Muy importante
45. Autonomía	1	2	3	4	5
46. Trabajo colaborativo	1	2	3	4	5
47. Liderazgo	1	2	3	4	5
48. Compromiso profesional	1	2	3	4	5
49. Identificar límites y pedir ayuda	1	2	3	4	5
50. Actitud de búsqueda	1	2	3	4	5
51. Actitud crítica	1	2	3	4	5
52. Iniciativa	1	2	3	4	5
53. Diálogo con otras disciplinas	1	2	3	4	5
54. Práctica reflexiva	1	2	3	4	5
55. Socialización	1	2	3	4	5
56. Comunicación	1	2	3	4	5
57. Actitud positiva hacia las herencias culturales	1	2	3	4	5
58. Determinación	1	2	3	4	5
59. Flexibilidad	1	2	3	4	5
60. Mente abierta	1	2	3	4	5
61. Perseverancia	1	2	3	4	5
62. Rigor	1	2	3	4	5
63. Actualización	1	2	3	4	5

III. SUGERENCIAS (Máximo 3)

64. ¿Qué otras competencias, además de las mencionadas en este cuestionario, serían importantes para el desempeño exitoso de los estudiantes de las licenciaturas de LAEL-I en su vida profesional?

1. _____

2. _____

3. _____

IV. AUTO-PERCEPCIÓN

65. A su consideración, ¿qué competencias ha desarrollado exitosamente? (Por favor seleccione un máximo de tres opciones de cada set de competencias mencionado en la parte II de este cuestionario)

a) Conocimiento:

b) Valores:

c) Habilidades:

d) Actitudes:

66. A su consideración, ¿qué competencias piensa que usted necesita desarrollar? (Por favor seleccione un máximo de tres opciones de cada set de competencias mencionado en la parte II de este cuestionario)

a) Conocimiento:

b) Valores:

c) Habilidades:

d) Actitudes:

¡Gracias por su cooperación!

Appendix 5: Comparative table of research competences

Comparative Table:

Criteria	AUTHORS			BUAP REFERENCES		TUNNING PROJECT			INTERNATIONAL REFERENCES	
	Cuevas, Guillen and Rocha, (2011)	Research profile Eyssautier (2006)	Social Researcher Profile Campeinhoudt (2008)	LAEL-I BUAP (2011)	Minerva's Model (BUAP, 2007)	Tuning generic competences (2009)	Tuning specific competences for education (2009)	Tuning research competences (2009)	South Hampton (Kelly and Greenfell, n.d.)	Research competences for academic Emalyanova, Teplyakova and Bolunova, (2017)
Knowledge		Wide range of experience		<p>Knowledge about approaches and methodologies in the field of language teaching.</p> <p>To formally master the language-English.</p> <p>Manage and / or design techniques for the organization, systematization and analysis of information.</p>	<p>Be specialized, circumscribed to a subject of study</p> <p>Favor the construction of knowledge.</p>	<p>Knowledge and understanding of the subject area and understanding of the profession</p> <p>To communicate in a second language</p>	<p>Ability to critically analyze educational theories and issues of policy in a systematic way</p> <p>Ability to identify potential connections between aspects of educational theory and educational policies and contexts</p> <p>Understanding of the structures and purposes of educational systems</p> <p>Ability to understand trends in education and be able to recognize their potential</p>	<p>Giving and seeking information about the main approaches to research in educational research</p> <p>Researching methods in the literature</p>	<p>Training in language teaching methodologies, and in state-of-the-art classroom techniques and activities</p>	<p>Forming of a source base.</p> <p>Annotations of foreign articles on the research topic</p>

							<p>implications</p> <p>Competences in a number of teaching and learning strategies</p> <p>Knowledge of the subject/s subjects to be taught</p> <p>Ability to create a climate conducive to learning</p> <p>Ability to make use of e-learning and to integrate it into the learning environment</p> <p>Ability to improve the teaching and learning environment</p> <p>Ability to adjust the curriculum and educational materials to a specific educational context</p> <p>Ability to design and implement varied strategies, based on specific criteria, to evaluate learning</p>			
Skills	observation,	divergent	be able to	Research skills for	basic skills for	Ability for abstract	Ability to understand	Discussing the nature	Training in the	Defining the problem

reading, expression, creativity construction, strategy, problematization	and convergent thinking, and ability to observe different angles of a phenomenon, capacity to offer doable solutions abstract and logic thinking to be able to understand the social and/or scientific problems to efficiently communicate findings and results	manage uncertainty and indeterminate situations. ability to visualize a complete project to coordinate operations in a consistent and efficient way The capacity to planning	English teaching-learning problems. Skills for the analysis of the teaching languages practices Skills for the application of knowledge in the teaching area through methods, techniques, strategies and technological resources. Ability to research different methods of evaluating learning. Selective Perception Know Ask. Think critically. Generate ideas Problematize Design Procedures and tools to search, retrieve and / or generate information.	research, (train for research or teach research) To Consider and problematize prior knowledge. To Problematize, generates imbalances, reflects and creates spaces for reflection. To learn from the same practice. cognitive abilities of higher order To Link research activities in teaching practice To improve learning experiences through inquiry focused on the resolution of theoretical or practical problems Dynamic management of learning environments	thinking, analysis and synthesis Ability to apply knowledge in practical situations Ability to plan and manage time Ability to communicate both orally and through the written word in native language Skills in the use of information and communications technologies Ability to undertake research at an appropriate level Capacity to learn and stay up-to-date with learning Ability to search for, process and analyze information from a variety of sources Ability to adapt and act in new situations Capacity to generate new ideas (creativity Ability to identify, pose and resolve problems Ability to make	and apply educational theories and methodology as a basis for general and specific teaching activities Ability to recognize and respond to the diversity of learners and the complexities of the learning process Ability to do appropriate educational research in different contexts Ability to manage educational/developmental projects Ability to consult about various educational issues and counseling skills (psychological counseling, counseling learners and parents) Ability to manage and evaluate	of educational research Examining the nature of research questions Discussing the main methods, techniques and instruments used to collect and analyze data Discussing how to design a research plan Defining research questions and objectives Developing and using methods of analysis for analysis of data Ability to manage education al/developmental projects Ability to consult about various educational issues and counseling skills (psychological counseling, counseling learners and parents) Ability to manage and evaluate	development of a critical and enquiring approach to teaching and learning Linguistic competence Skills and fluency in writing, reading, speaking and listening, and in the trainee's productive, receptive, interactive and mediating skills. Creative and effective teaching Training in information and communication technology for personal planning, organization and resource discovery Communicating and exchanging ideas with colleagues. Application of various assessment procedures and ways of recording learners' progress Training in ways of adapting teaching approaches to the educational context and individual	and research topic Defining the object, the subject of the study and the procedure for research. Drawing up an individual research plan. Determining the contradictions of real practice in the context of the problem under study Planning of ascertaining and forming experiment Conducting a pilot study on the topic of the master's dissertation. Selecting diagnostic techniques on the research topic Conducting of the ascertaining experiment. Formulating scientific novelty and practical significance of the study. Presentation of materials. Formalization of scientific results. Preparing the text of the master's dissertation.
--	---	--	---	--	---	--	--	--	--

						reasoned decisions Ability to design and manage projects	educational programs, activities and materials Ability to communicate effectively with groups and individuals (lo moví de conocimiento a habilidades)		needs of learners Action research incorporating research into teaching	
Attitudes	Rigor, networking and socialization	Constant updating processes in relation with models, tools, techniques and technology Compromise with his/her professional activity	Flexibility to identify the researcher's limits and the disposition to collaborative work. the capacity to ask for help and to dialogue with other disciplines.	Autonomy Reflective practice Collaborative work To Socialize knowledge. Self-regulating cognitive processes in action during the generation of knowledge.	Open to having a commitment to the new, to the unknown, to the uncertain, to the changing, in a permanent attitude of search. Autonomous Carrier of cultural heritages. To seek solutions to all those problems related to the scientific and technological development of humanity	Ability to be critical and self-critical Ability to work in a team Interpersonal and interaction skills Ability to motivate people and move toward common goals Ability to communicate with non-experts of one's field Ability to work autonomously Spirit of enterprise, ability to take initiative Determination and perseverance in the tasks given and	Awareness of the different contexts in which learning can take place Ability to understand processes of development and change in the community Ability to lead or coordinate a multidisciplinary educational team Ability to design and implement education, which integrates people with specific need		Undertake action research and maintain reflective practice Critical evaluation of nationally or regionally adopted curricula in terms of aims, objectives and outcomes An open-minded Attitude to educational research Team-working, collaboration and networking, inside and outside the immediate school context	

						responsibilities taken				
Values	Ethics	Ethic, honesty and responsibility		Responsibility, perseverance Respect for different opinions Self-assess of the consistency and validity of the products generated in the research.	Consider RESEARCH as an active entity in their learning. Social commitment	Appreciation of and respect for diversity and multiculturalism Ability to act on the basis of ethical reasoning Ability to evaluate and maintain the quality of work produced Ability to act with social responsibility and civic awareness	Ability to provide education in values, citizenship and democracy and reflect on one's own value system Awareness of the different roles of participants in the learning process Commitment to learners' progress and achievement		Peer observation and peer review Value and relevance of research for their teaching and learning Social and cultural values	

Groundedness:

The top 25 words used in the comparative table are:

WORD	LENGHT	COUNT
Ability	7	41
Research	8	30
Learning	8	17
Educational	11	16
Teaching	8	14
Knowledge	9	10
Skills	6	10
Be	2	6
Design	6	6
Different	9	6
Information	11	6
Manage	6	6
Techniques	10	6
Analysis	8	5
Capacity	8	5
Communicate	11	5
Language	8	5
Learners	8	5
Methods	7	5
Practice	8	5
Problems	8	5
Social	6	5
Specific	8	5
Study	5	5
Work	4	5

Tag Cloud:

The graphic shows the subcategory with most density in each category according to the information of the comparative table. C1K-knowledge, C2S-skills, C3A-attitudes, and C4V-Values. Note: information management appears in two categories, as Knowledge and in Skills.



Source: own

Appendix 6: Operationalization

Variable	Categories	Indicators
Research competences	Knowledge	information management
		teaching and learning strategies
		English
		language teaching
		methodologies
		approaches
		issues of policy
		Theories
		e-learning
		educational materials
		education systems
		Experience
		Skills
	teaching-learning practices	
	information management	
	research skills	
	application of methods	
	project management	
	application of knowledge	
	Construction	
	Creativity	
	Expression	
	Solutions	
	Strategy	
	uncertainty management	
	Analysis	
technological resources management		
abstract thinking		
Evaluation		
Linking		
Observation		
Planning		
producing information		
application of techniques		
cognitive skills		
continuous learning		
critical thinking		
Decisions		
divergent and convergent thinking		

		logic thinking
		Question
		Reading
		Reflection
		selective perception
		Synthesis
	Attitudes	Autonomy
		collaborative work
		Leadership
		professional compromise
		asking for help
		attitude of search
		Critical
		Initiative
		interdisciplinary dialogue
		reflexive practice
		Socialization
		Awareness
		Communication
		Compromise
		cultural heritage
		Determination
		Flexibility
		identifying limits
		open mind
		Perseverance
		Responsibility
		Rigor
		Updating
	Values	Ethics
		Responsibility
		social commitment
		awareness of the learning process
		research importance
		Citizenship
		Quality
		Democracy
		education in values
		Honesty
		Perseverance
		respect for diversity