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# ANALYSIS OF THE DETERMINING FACTORS OF THE QUALITY AND CULTURE OF HIGHER EDUCATION IN THE DUAL TRAINING SYSTEM: ECUADOR CASE FROM THE EUROPEAN STUDENT PERSPECTIVE

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## **Summary**

The objective is to know the factors that define a good higher education in Ecuador with the Dual system taught at the Universidad Católica Santiago de Guayaquil from the perspective of European foreign students. It seeks to know their points of view, their experience and main cultural aspects within the universities contrasted with the German culture.

It will also be observed how the students lived their exchange program in a major with the same characteristics of their country of origin, as well as the perspective of Ecuadorian students who were in exchange programs in Germany. The study analyzed attitudes, academic relations with teachers using a frame of reference to the cultural dimensions of Hofstede.

You will see the impact of language in their studies, why choosing a South American coun-

try as a place of exchange, reasons why they would return or not, their adaptation to the Ecuadorian dual education system and the recommendations that should be taken into consideration as improvements to the dual system.

Key words: Higher Education, Dual System, Cultural Dimensions, Hofstede, Exchanges, Productive Matrix, Germany, Ecuador.

#### Introduction

The research carried out by Geert Hofstede (1984) in one of the most complete studies on cultural dimensions. Geert Hofstede (2015) on his official website indicated that "collective programming of the mind distinguishes members of one group or category of people from others. The six dimensions of national culture are based on extensive research."

The previous Hofstede study is taken into account, since it is expected to compare the culture between Germany and Ecuador focused on the education received by the German students and the Ecuadorians in exchange processes.

Student exchange allows the enrichment of knowledge, according to Durand (2014) in his research on the mobility of Mexican students to France, it was indicated that the reasons for continuing studies in another country are pluricasuals, from which they are deployed; The search for visions they have



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nology.

about a country, innovation, traditions, inventions and often their preference is based on the international prestige of that country. In the case of Ecuador, we are working to evolve from being a country dependent on non-renewable resources such as oil, towards the generation of new income through human capital that generates science, innovation and tech-

Ramsden (2007) stated that goals are classified into two types: (a) abstract, generic and personal development, and (b) those related to the domain of disciplinary knowledge, including the particular skills and techniques that distinguish each profession (Guzman, 2011).

Quality education is defined as "achieving the teaching goals, which are distinguished by their ambition and complexity, such as seeking students to achieve critical thinking, be creative and develop complex cognitive skills" (Guzmán, 2011).

Higher education in Ecuador has become a controversial issue given the ongoing reforms have been rising over the past 7 years, however according to UNESCO (2014), they state that: Ecuador improved its results in all the evaluated areas (Language, Mathematics and Natural Sciences) and ranks among the Latin American countries with the most advances in education, comparing the results of the Third Explanatory and Comparative Study (Terce) with the Second Explanatory and Comparative Study (Serce), conducted in 2006, where Ecuador was among the three countries in the region with the worst educational performance.

Through the examination of elementary and high school students in Ecuador prepared by the Program for the International Evaluation of Students (PISA), Unesco recognized the educational system of Ecuador as "the most advanced in recent years at regional level" (Miranda, 2014). Higher Education includes as components (a) educational quality, (b) undergraduate and postgraduate fellowships abroad, (c) new research-driven universities are considered as developmental infrastructure and (e) teachers with updated knowledge, which are strategies to achieve the change of the productive matrix.

Currently, those who qualify for higher education in Ecuador are: (a) The National Institute for Educational Evaluation (INEVAL)), (b) The Council for Higher Education (CES), and (c) The Evaluation Council, accreditation and quality assurance Higher Education (CEAACES).

Ecuador is considered the country that invests the most in higher education, within the region the public investment in higher education in the last seven years was of USD 9,445 million. The allocation of the Gross Domestic Product (GDP) for that area went from 0.72% in 2006 to 2.12% in 2014 "(National Bureau of Science and Technology, 2014).

Achieving high standards of quality is a daily task of teachers who must be accompanied by the best resources to impart knowledge. This new approach is called productive matrix of knowledge whose purpose is to choose non-traditional

careers in Ecuador and generate new ideas to be a product development country. Teachers who hold the approval of the Regulations of Career and Classification of Professor and Researcher of the System of Higher Education increased their income by a considerable percentage, this in order to have Quality and Experienced Teaching in Universities, and above all impart their knowledge to the students allowing the country to grow in science, technology and education. The Ministry of Education (2013) states that "a quality teacher is one who provides learning opportunities to all students and contributes, through their training, to building the society we aspire to our country."

The competitiveness that Ecuador projects to the world in education is positive, according to the article called "an economic perspective "after the leap in 2012, Ecuador again climbs another 15 places in the Global Competitiveness ranking, ranking 71. It is our best historical scenario "(GERMAN, 2014).

According to Wong (2014) in his article on the compendium of topics explained in the Global Competitiveness Report 2013- 2014 (World Economic Forum) indicates that Ecuador moves from 86 to 72, thus achieving a better scale in the course of a year. The score obtained in technology and innovation was the lowest rating, which is detrimental because it is one of the main premises in Ecuador's Higher Education. According to Good Country, based on evaluated data by the UN, indicates that:

Ecuador is among one of the best countries in America occupying the 39th place. Regarding Science and Technology in the country, it examines: (a) international students, (b) international publications, (c) Nobel Prizes, (d) patents, ranks N° 105 of 125 Countries, this point being the differeting breaking point (2014).

Within these components, the Ecuadorean Government in the course of 7 years until 2013, invested in education \$ 3,289.8 million (2015). An additional 6,698 scholarships were given in that same period so that knowledge-bearers that emigrated to other countries return to teach what was learned to the next university students and thus to be competitive in Latin America.

In addition to the transformation in education, the image that Ecuador projects in the tourist area can be added, due to its tourist wealth being an option for students considering Ecuador for an exchange.

It can be taken into consideration when asking the question ¿Why study in Ecuador?, the language spoken which is the second most-spoken worldwide. The Instituto Cervantes (2014) states that "Spanish is the second largest mother tongue in the world by number of speakers, in 2014 6.7% of the world population was Spanish-speaking (a total of almost 470 million people speaking native Spanish) ".

The convergent evolution of the reforms to the quality of ed-

ucation, tourism and language allow Ecuador to be a destination for foreign students. According to the Yearbook of Statistics of international entries and exits issued by the Ecuadorian Institute of Statistics and Censuses (2013):

The total number of foreigners during that period of time who entered the country for study reasons were 1,904 people. 282 people from the European continent were divided among the top three among the countries; Germany (71), Spain (68) and France (11).

However Ecuadorian education has decided to bet on a new modality of higher education which has been developing in private universities within the main cities of Ecuador, the modality of education is called dual training mode. Majors that are part of this new approach of the government are those of specialization with technical training and technologies.

In the 54th statement presented on the National Leveling and Admissions System (2015) page, it was indicated that enrollment in the level of higher technical and technological training in countries such as France, USA, UK, Korea or Switzerland, the figures reach as far as 23 and 29%. In China, the percentage is 47% and in Belgium 50%. In 2017, Ecuador aims to achieve a participation in the technical and technological superior level equal to 25%.

According to the SENESYT in its Interinstitutional Agreement No. MDT-SENESYT-2015-003, article 3 defines dual training as follows:

The learning process of the student when it occurs in real, virtual or simulated work environments, which is the organizing axis of the curriculum; its development also involves the management of practical learning with integrated professional and academic tutorials (2015).

Those who achieve this connection between studies with German methodology in Ecuador is the Ecuadorian-German Chamber of Commerce (AHK), which manages all the parameters that allow the development of careers by connecting them with training companies. The Duale Hochschule indicates that:

The dual character of this type of training lies in the linking of the classroom to develop theoretical knowledge and skills; And the company as a training place, with a specific curriculum, in specific areas during the course, students acquire the necessary professional skills to strengthen business development in their region (2015).

A Study conducted by the University of Buffalo in the United States to a group of students where they discussed the topic "Encourage participation in Enrichment Study of Experiences Abroad" in which they detailed that the value of an experience abroad helps Broaden their perspectives and cultural understanding (VanZile-Tamsen, Bissonnette, & Ng, 2010). Bronwyn Miller, a student at the University of Minnesota who made an exchange at the San Francisco University of Quito, stated that:

The imparted education was more difficult in Ecuador given the language, there were more tasks and the teachers motivated them to learn the language well. Studies as demanding as the University of Minnesota. (Miller, 2012)

# Methodology

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The research pursues a descriptive purpose and is within the constructivist qualitative paradigm, under an inductive logic based on the study of singular statements, which in this case are the discourses of foreign and national students considered as a unit of analysis. The time horizon for the analysis of the present study is transectional (Hernández, Fernández, & Baptista, 2003; Cegarra Sánchez, 2012).

The research has a qualitative approach in which the tools used for the collection of information have been through in-depth interviews through semi-structured questionnaires (Hernandez et al., 2010).

These interviews were conducted through a protocol and interview guide. The participants of the study were guaranteed the confidentiality of the information, and the audio obtained from the interviews was transcribed and later analyzed, along with notes and reports of the researcher, the cross-sectional analysis of the cases was carried out. The sample was of 5 Germans who came from exchange for 3 months to the city of Guayaquil in Ecuador in the period 2013 - 2015, plus an in - depth interview was conducted with an Ecuadorian who is currently studying social work in Germany and an Ecuadorian who went to the same country. They were students of business majors with different minors which they were; international business, marketing, human talent.

The interview lasted approximately 45 minutes per student, face to face, the interviewees are within the range of 21 to 25 years of age. The sample was non-probabilistic, given that the European students accepted to participate in the study. In order to evaluate the cultural dimensions and differences with the education given in Germany, an interview was carried out with eight Ecuadorian students who went to an exchange in the European country, under the same methodology previously described.

It includes a qualitative decision tree of why to choose Ecuador as an arrival destination for an exchange. According to Coss Bu Raúl, he defines the decision tree as something "very similar to dynamic programming, it is a convenient method to represent and analyze a serious investment made over time" (2005).

The study will take into consideration the work developed by Geert Hofstede from 1980 to 1995 which analyze dimensions to study the impact that exists under this method on Germany and Ecuador. Said author defines culture as "the collective programming of the mind that distinguishes members of one group or category of people from others" (Hofstede P. G., 2015).

The dimensions to be analyzed are four, however, the complete model has six dimensions. Hofstede (2001) described the dimensions as follows:

- (A) Power Distance: The relation with authority is of small proportion ie people are ready to be invited or give their opinions, for their part in Countries where authority is high level power, orders are executed From above here is observed in the job market the lack of places to occupy positions at strategic levels. It is observed how society does not treat people equally are based on a hierarchical order.
- (B) Individualism and collectivism: Individualism is defined as own preferences where people only seek self-protection or close associates is defined in terms of self. Collectivism seeks to have a framework of unity to society. It can be defined as the "we".
- (C) Masculinity and femininity: It allows measuring the sense of preference of the differences between masculinity and femininity by means of characteristics. Society with an attachment to masculinity are based on competition, reward system on their side women seek the affective side, modesty, care of life.
- (D) Avoidance of uncertainty: It expresses the degree of tolerance that a society has regarding uncertainty and ambiguity, is how people feel about behaviors, beliefs, laws they have in a structured way or if they do not have, what their reaction is. (Culture's Consequences International Differences in Work-Related Values, 2001).

# Development of the Research

The purpose of the research is the analysis of the factors that determine the quality of Higher Education with dual mode from a perspective of European students who made an exchange at the Universidad Católica Santiago de Guayaquil. Within the exploration the students see the aspirations of reaching a country towards the experience of adapting to it. A semi-structured questionnaire was carried out with open questions to students under exchange programs. Among the questions asked were:

(a) selecting Ecuador as a place of exchange, (b) education in Ecuador, (c) main aspects that draw the attention of the study in Ecuador, (d) among others.

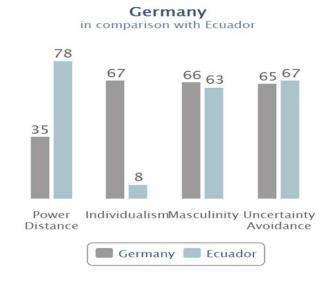
After completing the 16 questions, we conducted interviews with each of the students, of which 85% (5 people) were in agreement with the learning service provided by the University and 15% (1 person) was not satisfied with the service purchased. Of the 5 interviewees, only 2 of them gave permission to use the name for the research, the remaining 3 are kept anonymous.

The interviews were conducted personally with the European students, as well as the Ecuadorian who lives in Germany who was in the country for personal reasons.

A second in-depth interview was conducted to Ecuadorian students who were part of exchange programs with German universities in a period of 3 months. They were asked 10 questions in which it is sought to observe the contrast that is based on the information given by the German students. Table 1 shows the German students and Table 2 shows the Ecuadorian students interviewed.

Finally, through the study of values realized by Hofstede, the cultural dimensions between Germany and Ecuador are consecutively applied to higher education in Germany and the contrast with the education developed in the dual system of Guayaquil.

Figura 1: Cultural dimensions, comparison between Germany and Ecuador. Source: The Hofstede Center (2015)



Fuente: Encuesta

It is important to compare the education provided with a new model of education given that the changes are recognized in a timely manner.

Figure 2 shows the relationship between the cultures of the countries to study Ecuador and Germany with respect to the education provided. The influence of people's behavior will depend on culture. In the dimension of individualism the difference is observed since the Ecuadorian student received training in the class on teamwork, and in contrast the German student is focused more on the personalized study. According to Morera he referred to the culture and teaching methods as:

Knowing the cultural reality and the educational experience of our students can help us to deeply understand what happens in our classrooms, avoiding ethnocentric judgments and acting accordingly with a more diversified teaching for a better integration and learning of students (2012).

Figure 2: Cultural dimensions applied to dual mode education

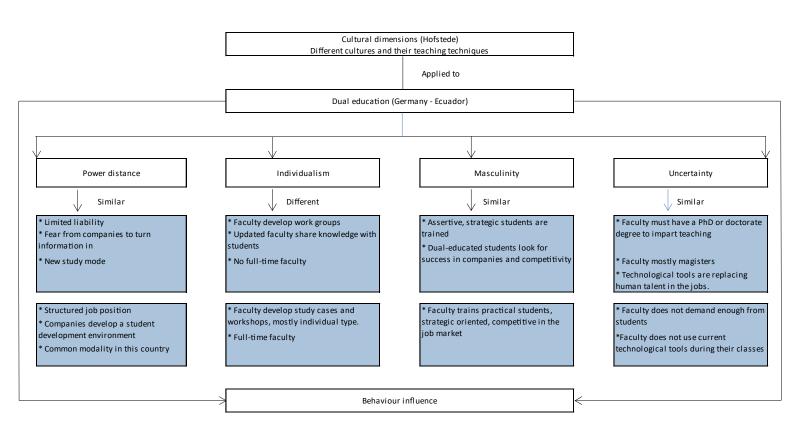
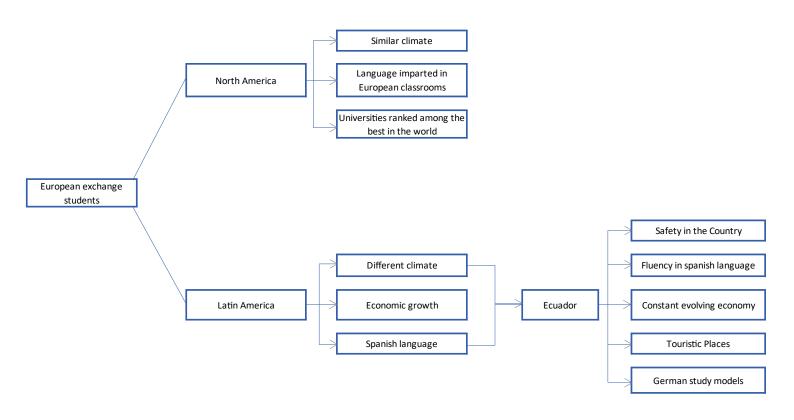


Figure 3: Decision tree of why studying in Ecuador.



	European Students										
Questions	Karsten Domalgasky	Katharina Eugerin	Exchange Student 3	Exchange Student 4	xchange Student	Exchange Student 6	Exchange Student 7				
Why choose coming to Ecuador?	Safety	Agreements with institutions in Germany	Language practicing	Knowing the biodiversity in Ecuador	Practicing spanish	Ecuador has beautiful landscapes	Eagerness to know more about Ecuador				
What other countries could you have chosen instead of Ecuador?	Colombia, Peru and Mexico										
How long does your major take to complete?	3 years, given they study in institutes										
What is the most representative aspect in german education?	Grading system flexibility	Time organization	Faculty organization	Educational material within the university platform for easy-to-download availability for students	Punctuality	Faculty organization	Free english courses				
What is the aspect that impacted you the most about the Dual system in Ecuador?	Ecuadorian-focused studying practices	Ofimatic levels managed by students and faculty	Class interactivity	Companies reliability for sharing information to students for their professional development	Faculty dynamis	Updated faculty and focused on Ecuador	Semester information must be studied in half the time				
How is studying in institutes in Germany?	Theoretical	Non-dinamic	Statistic calculations estimated with no tools	Ofimatic classes not included	Class punctuality	Free	Theoretical				
What is your opinion regarding the teaching methods of the faculty of the Dual system in Ecuador?	Dynamic. Globally explained with focus in Ecuador										
Are you studying a dual-	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
What is the difference between your major and the ecuadorian dual system?	Intership time, given that they last 2 weeks	No business project required in Germany, only information needs to be delivered to University	Dual system is free	Motivation for students to learn different languages	Free	Schedules are respected	No use of ofimatic tools in an intermediate or higher level				
What is your opinion on the dual-system education?	Very good	Heavy	Very good	Hard	Very good	Very good but disorganized	Disorganized				
Within your major, do you use resources such as ofimatic or technological programs complementary to the subjects?	Microsoft office, although basic										
Why choose a dual-system major?	Theoretical, practical	Avoids forgetting what was learned in the class	Project based on real- companies cases are requested	Elicits students to achieve higher grades (higher than 8.5)	Good quality content	Theoretical, practical	Complementary technological tools are taught				
Acording to you, how would you grade the information provided by the faculty of the ecuadorian dual-system?	Very good										
If re-applying, would you choose to come back to Ecuador?	Yes	No	Yes	Yes	Yes	No	Yes				
What interests you the most about Ecuador?	Language	Touristic places	Language	Language	Language	Language	Touristic places				
What don't you like about the ecuadorian dual-system?	People speak very fast which makes it difficult to understand	Class-schedules disorganization	Spanish classes incurr in additional fees	Very strict grading system	Very strict grading system	Not for free, if money is unavailable it can not be paid for	No platform for downloading material for classes				

Table 2. Investigation of factors that determine the quality in Higher Education with the dual modality by Ecuadorian students who attended exchange to Germany

0	Ecuadorian Students										
Questions	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7	Student 8			
What is the representative aspect that positevily impacts the education in Germany?	High importance towards companies that hold social responsibility on the formation of the students	Universities are often monitoring the academic performance	in the companies,	Student behaviour in companies is monitored	Education quality and Government concern for giving access to all population from Germany to educational centers in all levels is strong	Subjects are studied in one or two weeks, full time, from 8 to 5. After two weeks the midterms take place	Subject methodology is good because there is no cummulative of several subjects for the tests	quality education. It has the social responsibility			
What is the representative aspect that negatively impacts the education in Germany?	Academic content is not very demanding, as fas as it concerns to administrative oriented majors		Not elaborating small group projects and debating on a specific subject	Most calculations in class are done manually	Academic content lacking depth	The student does not demand himself for a high grade	Majors are of less duration	Academic content not very demanding			
What is the representative aspect that positevily impacts the dual system in Ecuador	It is a very uncommon formation in our country, and as such it gives advantage to its students over others, thanks to business practices	Change of focus of the business sector towards the idea of human resource as main "asset"	Support by new laws that promote gradual insertion of students		The opportunity to apply knowledge on the field	People learn more by doing and applying the learnt knowledge in the class	The received quality of education with dual system in Ecuador is better than Germany's	It is an uncommon training in the country, but you acquire solid knowledge			
What is the representative aspect that negatevily impacts the dual system in Ecuador	Little importance by private companies, often regarding dual formation as mere extensive practices	Not acknowledging the valuable job of a business project by companies, without delegatin relevant functions, and with no type of compensation whatsoever	Information access that the student has on the company is fundamental for the professional and academic development and growth	The behaviour from employees in the company who have not visualized the advantages of the dual student in the business sector	The paradigms of believing that younger people are not equal or more capable than people who have years of experience in companies	I do not know the level of importance of a business project	Business tutors are not adequately prepared to provide the students with new knowledge	Lack of information access despite the confidentiality agreement			
Why choosing an exchange to Germany?	It is one of the world powers, with very strong industries and students who have grown in that business environment	By participating in an exchange program to that country, it gives you new and many insights, knowledge, and it amplifies your business vision	It helps to grow as a professional and as a human being	It expands your mindset to new cultures, thinking, custom, it enriches you as a person and you learn how to negotiate and stablish an intercultural relationship with no issues	It is palpable how a work culture positevili influences a country and greatly contributes growth and development	Experience is unique, it give great exciment and satisfaction	Sharing the class with students of different nationalities and life styles enriches personal and professional growth	You learn new knowledge and insights			
What is your opinion on Dual-System Education?	Very good, it helps the student to get involved in the organizations and to acquire strategic thinking, not just operative	levels of the organization, which	Acquiring experience is fundamental to grow professionally	It allows the student to be fully trained to compete in the job market	Highly competitive	The student criteria forges through the decision making process that takes place at work	Work experience acquired	Works on projects based on the major and the needs of the company			
In your opinion, how would you grade the information provided by the faculty of the ecuadorian dual- system?	An added value unlike different majors	Dual system allows professional growth for students	Faculty highly competitive in contrast to other business majors	Faculty members seek to share all their business knowledge	Innovator	Competitive	Faculty have a real interest in the growth of the students	Faculty provide tools they actually used in their jobs			
In your opinion, how would you grade the information provided by faculty in Germany?	General acedemic content with no depth	Technological tools should be used in class	It contains research fundamentals on every given information	Dynamic classes through workshops and specialized labs	English language provides improvement of skills of every student	Different criteria given the country diversity from the faculty	Workshops give the opportunity to apply learnt knowledge	Not good because the student is not being prepared for his practical phase			
Why choosing a dual- system major?	It enriches your criteria and perspective on education.	Good academic foundations, but they are truly potentialized in the companies	Applying knowledge foments solid knowledge	Newthings can be learnt in the job market and new abilities and aptitudes are developed	It is 100% useful and strategic for future professionals, given that it complements itself and applies the learnt knowledge.	Because nowadays it is fundamental to have work experience	We can learn to prepare business projects which enrichen the student's knowledge	It allows us to deliver ideas to companies and to solve problems based on strategies			
If re-applying, would you choose to go back to Germany? Explain	Yes, in order to apply new business perspectives	Yes, learning from industries so strong such as the german industry, in order to apply what was learned in Ecuador	Yes, for language practicing purposes	Yes, you obtain cultural enrichment	Yes, culture learning takes place and also situation management in a different university	Yes, new perspectives from the faculty is studied	Yes, you expand your contacts bulk	Yes, you strengthen your english skilss			

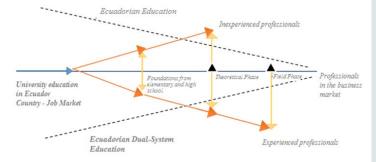
The German students pointed out that the reason to study in Ecuador mainly was the language, since it is a language that is not taught in the universities in their native Country, Ecuador is presented to them as a safe country compared to other countries in Latin America. In addition to this, Ecuador is presented as a key place for young people who are interested in nature, biodiversity by cultures and traditions.

As it is known, the dual system comes from Germany which has several agreements with different countries that offer this same type of education. Coming the Ecuador with the support of a university, and the same pace of studies, allows students to more easily adapt to the country. However, under these premises there are some countries in Latin America that have the same characteristics as Ecuador and are part of the network. Still, the panorama that is presented abroad of Ecuador on its advances, constant changes, creates in the German student an effect of studying the dynamism of the country.

#### **Results**

Figure 4 shows the characteristics associated with higher education that the dual mode features, which currently relates work experience with a competitive job market with minimization of errors in the job, which is why the companies always look to integrate in the team an aspirant with prior knowledge of experience within a job. The dual training allows students to equate the knowledge imparted by teachers in classrooms and its implementation in projects and work activities, giving them an advantage in the work area.

Figure 4: Emergent conceptual model of study modality in Ecuador.



The key secret of the connection to quality success in higher education is dual training. The dual-mode employer shapes the future talents of his organization by conducting short-term training, which does not systematically make decisions but rather seeks out the best options and problem solving decisions. In the future there will be machines developed for operative work. For this reason students should be trained with solid knowledge of the career they chose for their training. Companies see these students as a return on investment, since the benefits provided by these trained students will generate profits given that their educational background is not mechanized but complemented with a training company. Having experienced professionals will produce a quality

job market. At the European Center for Vocational Training, Stephan Winkelmann, President and CEO of Lamborghini (2015) commented:

The Dual Education System Italy DESI (2015) project is part of our corporate social responsibility strategy, which emphasizes vocational training. DESI develops professional competences of young people in social disadvantage through their integration in the organization and culture of a company. Training means gaining a competitive advantage - a benefit for individuals and businesses.

The companies that open their doors to the students allow the country to grow, since the student goes in his / her higher education process, refining his / her knowledge correctly, education is a key factor, and for this reason an impulse must be given in this direction and it opens up the insertion of Students in the job market, which lowers the unemployment rate. The responsibility of the training companies is to develop students' skills since the beginnings of their business practices through the rotation plan which allows the student to plan the learning they will receive during their tenure in the company.

#### **Conclusions**

According to the perception of European students, education in Europe is similar to the Ecuadorean. However, there are positive and negative aspects of education which must be improved to reach an optimal level of education in Ecuador. A priority is the language education of students from other countries because the language must be mastered in order to bring the students together in universities, thus avoiding the unpleasant change of studying methods and language. It is also observed how the cultural dimensions affected the higher education system in its teaching because countries from Latin America tend to have a more collectivist behavior while in countries like Germany the trend is individualism. The requirement of the dual system to which German students were included was positive because they learned technological tools such as office automation and statistical programs. However, there was no coupling in the rhythm that the major handles in terms of time to finish the curriculum, the required grades to pass to the next level, and to study schedules.

Ecuador is a country that is in an educational evolution and competitive with foreign universities since it prepares the student from the first day of class for working life, using technological tools such as office automation, statistical programs, business simulators that complement the theoretical bases of the Student and success int the global job market. Based on the interviews carried out with exchange students, the methodologies of studies given by teachers in the two countries can be observed. The training received and the educational experience they received along with the new culture they perceived resulted in the perception of the quality of education that the interviewees reflected.

Based on the cultural dimensions, we can see the similarity of 3 factors between the two countries, where the scores are very similar, concluding that higher education in Ecuador with dual mode is similar to the dual mode Germany. This results in trained students on foreign competitiveness. Understanding the cultural reality and focusing it on the educational field, it allowed the research to help improve the in-depth understanding of the differentiating factors between what is shown in the classrooms and giving room for searching an integral teaching in which both local or foreign students feel comfortable and satisfied with the education received.

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