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A MODEL OF KNOWLEDGE MANAGEMENT AND CULTURAL INTELLIGENCE TO REDUCE TALENT DEFICIT IN PERU: A COMPARATIVE STUDY WITH GERMANY

UM MODELO DE GESTÃO DO CONHECIMENTO E INTELIGÊNCIA CULTURAL PARA REDUZIR O DÉFICIT DE TALENTOS NO PERÚ: UM ESTUDO COMPARATIVO COM A ALEMANHA

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ABSTRACT

This paper raises the discussion of the importance to create relevant knowledge and experience by developing the Culture Intelligence - CI of Peruvian students and has the follow objectives: i) to propose a model that can capture the relationship between culture, knowledge and intelligence and ii) to provide qualitative evidence of its effectiveness to reduce brain drain.

In order to explain the impact of CI on Knowledge Management- KM and Organizational Intelligence - OI this work explores the development of a CI model based on KM and OI (CKI model) and change the “culture of student’s dependence” and therefore reduce the talent deficit in Perú.

The CKI model is constructed based on the results of 35 interviews in two Peruvian Universities and one German University and

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empirically tests 3 hypotheses through Structural Equation Modelling.

The main conclusion is that Cultural Intelligence impacts maturity and democracy and therefore it would be very important to build a more robust Exchange program than the current Latin American Alianza del Pacifico Program, in partnership with the European Erasmus program.

Keywords: brain drain, cultural intelligence, Industry 4.0, knowledge management, national culture, organizational intelligence.

RESUMO

Este artigo levanta a discussão sobre a importância de criar conhecimento e experiência relevantes através do desenvolvimento da Inteligência Cultural - IC dos estudantes peruanos e tem os seguintes objetivos: i) propor um modelo que possa capturar a relação entre cultura, conhecimento e inteligência e ii) fornecer evidências qualitativas de sua efetividade para reduzir a fuga de cérebros.

Para explicar o impacto da IC na Gestão do Conhecimento (GC) e na Inteligência Organizacional (IO), este trabalho explora o desenvolvimento de um modelo de IC baseado na GC e na IO (modelo CCI) e muda a "cultura de dependência do aluno" e, portanto, reduz o déficit de talentos no Perú.

O modelo CCI é construído com base nos resultados de 35 entrevistas em duas universidades peruanas e uma universidade alemã e testa empiricamente 3 hipóteses através da Modelagem de Equações Estruturais.

A principal conclusão é que a Inteligência Cultural impacta a maturidade e a democracia e então seria muito importante a construção de um programa de Intercambio mais robusto que o atual Programa Latino Americano Alianza del Pacifico, em parceria com o programa Europeu Erasmus.

Palavras-chave: fuga de cérebros, inteligência cultural, Indústria 4.0, gestão do conhecimento, cultura nacional, inteligência organizacional.

INTRODUCTION

Peru ranked 82nd among 134 countries in the 2021 global talent competitiveness ranking, despite Peru being one of the participating countries in the Pacific Alliance Student Exchange Program.

In line with the ex-chancellor of Germany, Angela Merkel, this work found that the multiculturalism along with some innovations of Industry 4.0 leads to economic growth.

As a result, Merkel (2015) noted that the government's goal should be to facilitate the founding of new companies in the IT sector. "State support programs can only close the gap to jobs in the long term," she said.

The challenge is in preparing people to the era of Industry 4.0 and therefore the level of maturity of the students play a very important role. Even though examples of entrepreneurship education through university–industry collaboration can be seen in several universities in diverse countries (Etzkowitz & Leydesdorff, 2000; Barr et al., 2009; Janssen et al., 2007; Meyer et al., 2011; Lundqvist & Williams-Middleton, 2013), collaborative education between university and industry has not been sufficiently studied to offer clear model and practices to foster effective knowledge exchange and then creation and application of the new knowledge between these two groups.

Therefore, this article proposes the Culture – Knowledge – Intelligence model (CKI) to understand of the high impact of Cultural Intelligence on Knowledge Management and Organizational Intelligence, and in consequence the importance of the balance knowledge and experience.

This article is structured as follows. In addition to this introduction and the conclusions, section 1 describes cultural intelligence as a tool to reduce the brain drain in Perú. Section 2 presents the model of Cultural Intelligence, Knowledge Management and Organizational Intelligence combining the various theoretical elements gathered throughout the previous sections.

1. CULTURAL INTELLIGENCE AS A TOOL TO REDUCE THE BRAIN DRAIN.

Brain drain is generally defined as the departure of well-educated people and/or highly skilled workers (e.g. Docquier, 2014). The Cambridge dictionary classifies brain drain as, “the situation in which large numbers of educated and very skilled people leave their own country to live and work in another one where the pay and conditions are better”

Some studies state that brain drain is a threat to the entire community, as needed workers leave (Mackey and Liang, 2012; Sampson, 2013). In effect, brain drain poses a challenge to the economic growth of developing countries, affecting human development overall (Okoye, 2016).

Looking at the general trends of brain drain within the European Union, it is possible to identify a pattern of migration from Southern and Eastern Europe toward the Western and Northern Europe, especially Germany, after the 2008 economic crisis. As Giousmpasoglou and Koniordos (2017) report, the number of young people coming from the EU who moved to Germany for their studies increased from 14,100 in 2007 to 16,837 in 2009 and to 21,324 in 2010. Moreover, in 2011, the third and fourth largest groups of students immigrating to Germany in order to study at universities were Bulgarian (7,500) and Polish students (7,500). Furthermore 4,500 Spanish, 4,300 Italian and about 3,100 Romanian students moved to Germany for their studies (Düll 2013).

Kahn and Oghenetega (2021) found that some countries encourage foreign postgraduates to remain in the host country, and fine-tune immigration policy to that end (George et al., 2012; Group of Eight Australia, 2014; Hercog, 2008). Where the local stock of skill is deemed inadequate, positive immigration policy is instituted, as for example the European Union’s Lisbon Agenda which was intended to result in brain gain for Europe. The third dimension of mobility is brain circulation, where a student acquires new skills and then returns home. Academic exchange, as for example in the Marie Skłodowska-Curie programme of the European Union, supports brain circulation (EU, 2020).

In Portugal, a decree-law created the salary premium to be awarded to young people who complete higher education and stay to work in Portugal. The maximum amount to be returned will be up to 697 euros for each year of work for integrated bachelor's and master's degrees and up to 1,500 euros for master's degrees."

The Decree-law No. 134/2023 has "the dual objective of rewarding the pursuit of higher education and contributing to the increase in income of qualified young people working in the country.

According to data from the Portuguese Public Administration, INE - National Institute of Statistics, there are 107,598 Africans living in Portugal, with the vast majority living in the regions of Lisbon (64,403) and Setúbal (16,746), even though the number of Brazilians is much higher (204,694, 29.3% of total immigrants).

Around 20 thousand students from Portuguese-speaking African countries were enrolled in Portuguese higher education in the 2021/22 academic year, an increase of 170% in five years, to which mainly Guinean students contributed.

According to data from the Ministry of Science, Technology and Higher Education (MCTES), the total number of students from Portuguese-speaking African countries (PALOP) enrolled in Portugal last academic year was 19,930, compared to just 7,355 in 2016/17. . In the 2019-2020 academic year, Guineans already made up 32% of PALOP students in Portuguese higher education institutions.

Doutor and Alves (2020) searched achievements and academic challenges of PALOP students in higher education in Portugal. Through biographical interviews they found that African students emphasize the increase of responsibility, maturity and autonomy in learning and also in relation to their families. However, students face with a different system of teaching, lack of support structures, lack of Portuguese language proficiency, difficulty in adopting a method of study and lack of understanding of the Portuguese context in some curricular units (Doutor & Alves, 2020).

Kahn and Oghenetega (2021) explain that the MOTHS - the Mobility

of the Highly Skilled - is a multidimensional process, including brain drain, brain gain, brain circulation and, of course, knowledge exchange. As to the importance of foreign country study, Kritz (2015) estimates that 5.8% of Africa's enrolled university students go abroad to further their studies, the highest such proportion of outward mobility in the world.

The MOTHS study was conducted over the 4 years 2016–2019 and, despite numerous obstacles, was able to develop a robust methodology to track and trace doctoral graduates through the complete cycle from country of origin to host university and future employment (Kahn et al., 2019).

This study has demonstrated the power of the track and trace method, which links origins and destinations. In contrast to the official perception, the MOTHS project provides evidence that study in South Africa does not lead to a brain drain out of Africa (Kahn and Oghenetega, 2021).

By 2050, Africa is expected to host the largest and youngest workforce on Earth (Brooks et al., 2014).

Kahn and Oghenetega (2021) hold that this apparent demographic dividend presents many challenges, including environmental sustainability, health security, skills development and employment opportunity. The challenges occur in the context of low economic development, weak institutions, historic dependencies and backlogs, the same problems of Portugal due to the incapacity to create programs of knowledge-experience exchange with Germany and the difficulties to educate their ex-colonies in Portuguese language.

Boncea (2015) highlights that the third phase of research on brain drain (mid 1990s) brings in a new approach consisting in a possible beneficial effect of the phenomenon on donor countries. Return migration, diaspora option and remittances constitute, under specific circumstances, possible gains for the country of origin. The attractiveness of migration perspective foster the investment in education among the population in the sending country, the “beneficial brain drain” (Beine et al., 2001:277) depending on the percentage of highly skilled that actually emigrate.

Return migration is one of the sources of brain gain: the highly skilled migrants return home and apply the knowledge and skills acquired during their stay abroad (Docquier, 2006, Stark and Fan, 2007). The return migration is determined by the technological progress in the country of origin, which offers the access to adequate infrastructure for applying the knowledge.

Félix Keesing and Alfred Kroeber (1949) agree that there is no correlation between genetics and culture, that is, any newborn, regardless of where it was born, will absorb the culture in which it grows. Kroeber goes further and states that man only differs from animals thanks to culture. For him, man is a being that is above his organic limitations, culture is a cumulative process, that is, man accumulates experiences and, therefore, culture.

Cultural intelligence refers to a general set of capabilities relevant to situations characterized by cultural diversity. Emotional intelligence therefore differs from cultural intelligence because it focuses on the general ability to perceive and manage emotions regardless of the cultural context (Ang et al., 2007).

Culture has also an important role in creating conditions for learning with internal and external environments.

The results confirm the information presented in the table 1 and conclude that the Germans have a higher orientation to the future in comparison to Perú.

National Culture Dimensions	Germany	Perú
Future Orientation	high	low
Uncertainty avoidance	high	low
Performance orientation	high	low
In-group collectivism	low	high
Self-protective leadership	low	high

Table 1. National culture dimensions in Germany and Perú (Globe, 2004)

The reasoning behind the dimensions of NC found by Hofstede (1980, 1991) and House (1999, 2004) is based on the fact that national culture affects organizational and social behaviors that are persistent over time, influencing the way that people act in a certain situation. (Schein, 1985) and can also influence within the organization and areas of commitment to organizational goals, values, and norms (Deal & Kennedy, 1982).

The short-term culture, identified also in 1991 by Hofstede as the main characteristic of Latin countries, is the main reason for difficulties in integrating the three pillars of intelligence (strategy, prediction and action) in Peruvian government. The culture of “putting out fires” is a result of the difficulty of creating relevant knowledge to predict events and develop a strategy for government action.

On the other side, German society, in the research by Brodbeck and Frese (2002), received a low score of human orientation. This leads to a formal way to behave in the workplace.

However, Germans have the highest level of cultural intelligence, given the fact that they usually travel around the world, even before starting the university, exchanging knowledge and learning from different cultures through comparison. Cultural intelligence presupposes high levels of maturity to join other cultures and learn from them.

The most well-established measure that reflects the theoretical assumptions of the Cultural Intelligence model is the Cultural Intelligence Scale (CQS; Ang et al., 2007). This 20-item instrument was recently considered one of the most validated measures of intercultural competence (Matsumoto and Hwang, 2013).

According to Greishel et.al (2021), validation of a German version of the CQS has been pending for some time. This is surprising given that German-speaking countries have become increasingly culturally diverse. For example, 21.2 million inhabitants of Germany have a migration background (Statistisches Bundesamt, 2019), which makes intercultural competence an important prerequisite in areas such as career counseling and teaching. Almost all 475 participants in this investigation spoke a language other than German (97%) (Greischel et. Al, 2021).

Cultural intelligence has a strong impact on the processes of creation and application of knowledge. This occurs because by being connected to

other cultures, you are also connected to other ways of thinking and acting, which increases the ability to create relevant knowledge and apply it collectively, given the greater integration into the new community when the first cultural barriers are overcome.

Learning with other assumptions, beliefs and values provides maturity to transform complexity into simplicity, as in the case of Germans who know several languages and cultures before starting university and therefore develop a high capacity to undertake business and are today one of the countries that receive the most people due to the phenomenon known as "brain drain" due to the lack of opportunities in the country of origin and the diaspora due to conflicts of various kinds, including wars. House et al. (2004), the need for a better understanding of cultural influences on leadership and organizational practices has never been greater.

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On the other side, German society, in the research by Brodbeck and Frese (2002), received a low score of trust in other people. This leads to a formal way to behave in public and sometimes in the workplace. However, Germans have the highest level of cultural intelligence, given the fact that they usually travel around the world, even before starting the university, exchanging knowledge and learning from different cultures through comparison. Cultural intelligence, unlike other types of intelligence, presupposes high levels of independence and maturity to join other cultures and learn from them.

The extremes, as is the case of the opposing cultures of Perú and Germany, are never good solutions. A solution to the impasse to find and develop a medium culture between the opposing cultures of Germany and Perú would demonstrate that the medium-term orientation is better than short- or long-term orientation for attaining best results.

In summary, all cultures have advantages and disadvantages, and

therefore, the search for more effective and sustainable results, people and governments should seek a process of learning by comparison and collaboration with other cultures to develop and integrate different intelligence.

Endes (2015) holds that Erasmus Program in Europe is a student exchange program carried out within the frame of the agreements between higher education institutions of European Union countries and the candidate countries to provide the outgoing students with new abilities and different experiences.

By encouraging the higher education institutions to cooperate with each other, Erasmus Exchange Program aims at allowing students to study abroad and to recognize European countries and cultures, contributing to the strengthening of communication and cooperation between countries; developing and popularizing of European standards in education; improving the quality of higher education. This Program also aims at raising the equipped individuals who will fulfill the expectations of business world and the universities which provide qualified higher education services (Duman ,2001; National Agency, 2005).

UNESCO (2018) holds that all levels and types of learning to provide quality education and foster sustainable human development should be in place in the intersection of education and business – learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society.

2. METHODOLOGY

In this study, the relationships between the variables (hypotheses) will be tested empirically using structural equation modeling (SEM). SEM is a technique that combines elements of multiple regression and factor analysis that allows the researcher not only to evaluate quite complex interrelated dependence relationships but also to incorporate at the same time the effects of measurement error in the structural coefficients.

There are two approaches to estimating the parameters of a SEM (types of SEM techniques): the covariance-based approach (CEB-SEM) (e.g., LISREL) and the variance-based approach (PLS-SEM) (e.g., path of

partial least squares).

Due to its prediction orientation, PLS-SEM is the preferred method when the research goal is theory development and prediction (Hair et al., 2011). Furthermore, Henseler et al. (2009) maintain that the sample required (to achieve the same statistical power) for the CFA-PLS is smaller than for the CB-SEM, and in the PLS-PM there is no assumption of normality of the variables.

PLS is a family of alternating least squares algorithms, which extend canonical correlation and principal component analysis (Henseler and Sarstedt, 2012).

According to Schreiber et al. (2006), SEM, compared to confirmatory factor analysis (CFA), expands the possibility of relationships between latent variables and encompasses two components:

- (1) a measurement model (essentially the CFA); and
- (2) a structural model.

To give greater credibility to the analysis of the literature review and the proposed model, interviews were also conducted.

According to Miller and Glassner (2004) interviews are designed and executed to understand and give voice to the experiences, behaviors and attitudes of participants in a non-threatening, confidential and non-evaluative manner.

3. A MODEL OF CULTURAL INTELLIGENCE, KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL INTELLIGENCE

This research empirically tests three hypotheses (Table 2)

Data collection

After a wide range review of theoretical and empirical research and survey methods, this research adopted a web survey to obtain input from targeted respondents and achieve the objectives of this research project. The use of key informants from organizations for data collection has been a popular method in many research contexts (Huber and Power, 1985). This research relies on a study performed on two Universities in Perú and one University in Germany, conducting semi-structured interviews, 30

questions across 3 dimensions (Emotional Intelligence, Cultural Intelligence, and Spiritual Intelligence). In total 35 interviews with students were conducted.

Interviews are particularly useful for getting the story behind a participant's experiences. The interviewer can pursue in-depth information around the topic (McNamara,1999).

We conducted interviews on one-on-one basis and compared and contrasted the results ourselves, avoiding focus groups due to their elevated potential for acquiescence bias (Schaffer and Riordan 2003). The culture - knowledge - intelligence model (CKI) is presented in Figure 2.

Hypotheses	Sources	Results and gaps to be filled
H1. CI influences KM positively	De Vita (2001), Kennedy (2002) and Tweed and Ledman (2002) suggested that by influencing the way individuals perceive, organize and process information, the way they communicate with others and the way they understand, organize and generate knowledge and solve problems, culture is inextricably limited to learning approaches and preferences.	SUPPORTED
H2. CI influences OI positively	Akgun et at. (2007) argue that OI is an everyday activity that is cognitively distributed and demonstrated by people's behavior, their culture and their organizational routines.	SUPPORTED
H3. KM influences OI positively	The active management of knowledge is critical to enabling organizational performance enhancements, problem-solving and decision-making (Liebowitz, 2001)	SUPPORTED

Table 2 - Hypotheses in CKI model

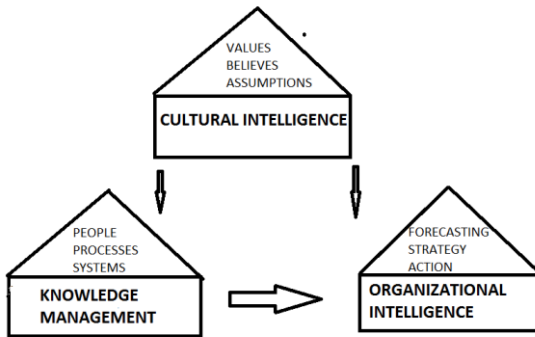


Figure 2. The CKI model (own elaboration)

The CKI model shows that Cultural Intelligence impacts KM and Organizational Intelligence - OI. Furthermore, KM impacts OI.

Data analysis

The evaluation of the reflective measurement model has the following elements:

- Internal consistency reliability: Composite reliability should be higher than 0.701 (in exploratory research, 0.60 to 0.70 is considered acceptable).
- Convergent validity: The average variance extracted (AVE) should be higher than 0.50 (Chin, 1998; Hair et al., 2005).
- Discriminant validity: Indicators with high loads (less than 0.7) in their latent variables (LV) and low loads in other LV (cross-load) indicate discriminant validity (Chin, 1998); Correlations between the latent variables are smaller than the square root of AVE (Fornell and Larcker, 1981).

Table 3 shows the composite reliability and alpha values for the three dimensions of CKI model.

Internal consistency is a method of reliability in which we judge how well items on a test that are designed to measure the same construct produce similar results (Struwig, M., Struwig, F.W., & Stead, G.B., 2001) John and Benet-Martinez (2000) explain that Convergent validity and discriminant validity are commonly regarded as ways to assess the construct validity of a measurement procedure and Discriminant validity helps to establish construct validity by demonstrating that the construct you are interested in (e.g., anger) is different from other constructs that might be present in your study (e.g., depression).

Cronbach's alpha is a way of assessing reliability by comparing the amount of shared variance, or covariance, among the items making up an instrument to the amount of overall variance. The idea is that if the instrument is reliable, there should be a great deal of covariance among the items relative to the variance (Collins, 2007).

	CI	KM	OI
Composite reliability	0,88	0,84	0,81
Cronbach's alpha	0,72	0,87	0,69

Table 3. Composite reliability and alpha in the CKI model

All VLs (first and second orders) showed AVE greater than 50 per cent, which meets the criteria of Chin (1998) and Hair et al. (2005) for the indication of convergent validity.

The second criteria states that an indicator's loading with its associated latent construct should be higher than its loadings with all the remaining constructs (i.e. the cross-loadings). Indicators with high loads (less than 0.7) in their LV and low loads in other LV (cross-load) indicate discriminant validity (Chin, 1998). The cross-loading are presented in Table 4.

The discriminant validity analysis revealed that most indicators show adequate discriminant validity, indicating that the concepts are evaluated by respondents as representing different aspects of the phenomenon. Figures 3 and 4 present the relationships among the model's constructs (path coefficients) of the structural model for Perú and Germany, respectively.

	CI	KM	OI
CI1	0,876	0,319	0,280
CI2	0,739	0,332	0,360
CI3	0,798	0,409	0,530
CI4	0,753	0,278	0,460
KM1	0,473	0,798	0,521
KM2	0,504	0,786	0,642
KM3	0,319	0,663	0,440
KM4	0,435	0,715	0,470
KM5	0,433	0,766	0,511
KM6	0,543	0,804	0,233
KM7	0,474	0,720	0,448
KM8	0,339	0,841	0,581
OI1	0,493	0,354	0,889
OI2	0,553	0,459	0,681
OI3	0,385	0,266	0,797
OI4	0,443	0,384	0,780
OI5	0,421	0,398	0,717
OI6	0,295	0,479	0,786
OI7	0,372	0,565	0,932
OI8	0,531	0,507	0,791

Table 4- Cross Loadings

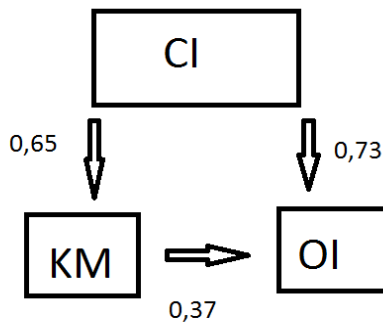


Figure 3 – Path Coefficients for Perú

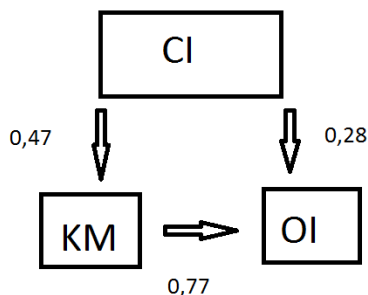


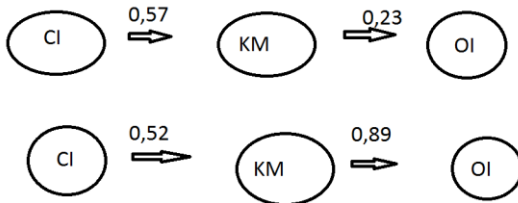
Figure 4 – Path coefficients for Germany

By analyzing Figures 3 (Perú - B) and 4 (Germany- G), it is possible to conclude that: In Perú and Germany, CI has a positive influence on KM (B=0,65 and G=0,47) and OI (B=0,43 and G=0,28), while KM has a positive influence on OI (B=0,47 and G=0,77).

Cultural Intelligence are fundamental to explain changes in practices of KM (R2 Perú: 0.34 and R2 Germany: 0.45) and in OI (R2 Perú: 0.65 and R2 Germany: 0.68).

If the influence of CI on OI is removed, then it is possible to conclude, analyzing Figures 7 (Perú) and 8 (Germany), that:

- In Perú, CI is responsible for 36 per cent of changes in KM, and KM is responsible for 49 per cent of changes in OI.
- In Germany, CI is responsible for 46 per cent of changes in KM, and KM is responsible for 63 per cent of changes in OI.



Figures 5 and 6- Path coefficients without the influence of CI on OI (Perú and Germany respectively).

4. RESULTS AND DISCUSSION

The impact of culture on intelligence is much higher in Perú (0,73) than in Germany (0,28). This is related to the fact that German culture, in opposition to Perú, is future- and performance-orientated, getting information from facts, books and statistics, instead of being people-oriented, getting the first-hand (oral) information. Besides that, the high level of uncertainty avoidance of German people impact their intelligence, without considering the interference of the intermediate variable (Knowledge).

Analyzing the figures 3 and 4, although the relationship between culture and knowledge has presented the direct effect with the higher structural load in both countries (Perú:0.65 and Germany: 0.47), the relationship between CI and OI was much higher in Perú (0.73) than in Germany (0.28), revealing that CI has less impact on OI in Germany than in Perú. This means that in opposition to Germany, in Perú, the OI is more influenced by culture (0,73) than by knowledge (0,37), since Peruvians have several difficulties to apply knowledge based on the lack of habit of reading.

This is even clearer when the direct influence of culture on intelligence is eliminated of the analysis (figures 5 and 6).

Analyzing the figures 5 and 6, in Perú KM is responsible for 23% of changes in OI, while in Germany, KM is responsible for 89 per cent of changes in OI.

In line with the previous literature, the results of this study suggest that the development of an organizational culture supports the application of KM practices (Davenport and Prusak, 2000; Nonaka and Takeuchi, 1995; Gold et al., 2001; Janz and Prasarnphanic, 2003; Lee and Choi, 2003; Donate and Guadamillas, 2010).

Caloghirou et al. (2004) support this conclusion when affirming that the availability of knowledge will increase the ability of people to search, recognize and present a problem as well as assimilate and use new knowledge for problem-solving.

In the interview about Cultural Intelligence, the great majority of Peruvians students answered that they share feelings and problems with friends in face to face conversations, indicating the impact of culture on the implicit knowledge. They take the easiest path to enjoy life in the present and help others to do the same. Due to the lack of habit of reading and the culture of speaking only Spanish, Peruvians students are not motivated to study abroad, their level of experience is too low and also their self-awareness. Even though they appear to pay attention to a visitor's views, they reject ideas that require them to leave their comfort zone in Perú.

Most of Peruvians and Germans students agreed that culture impact the process of creation and sharing knowledge, thus Hypothesis 1 is supported.

Peruvians agree with the importance to explore foreign cultures, a form of risk-taking and cross-cultural adjustment, to change culture and reach maturity, the entrepreneurship mind.

Interviews with participants demonstrated that Germans have more knowledge of technical matters and they emphasized their experiences of other cultures as critical to their decisions.

Thus affirming Hypothesis 2.

The levels of English language skills in Germany are much higher in comparison to students of Peruvian Universities, which helps them to understand the world. In contrast there are few international universities in Perú that welcome foreign students. Peruvians are not confident that they can get accustomed to the shopping conditions in a different culture, since their culture is isolated from the rest of the world.

On the other hand, In Germany there are also formal meetings with industry representatives, Government bodies, etc. This indicates that Knowledge Management positively supports the strategy and action thus lending support to Hypothesis 3.

In the interview about Knowledge Management with students from both countries it was clear that in

In opposition to the two universities in Perú, in the German University (Freie) there is a formal and disciplined process for " environment exam, this is, a systematic review of the University environment to identify key trends, opportunities and threats. Because of these competences, students from Freie University are successful in using the knowledge to make predictions and therefore better strategies and actions.

The learning of new believes, values, assumptions, traditions, resilience (cultural intelligence), impact the culture of sharing.

The sharing of information is higher in Perú, but the application of knowledge, due to cultural and historic facts, is higher in Germany.

After the Second World War, families, companies and the German government came together to apply the Cultural Intelligence model in Germany, enabling young people to get to know other cultures before starting university and thus be able to deal with cultural diversity, comparing beliefs, values and assumptions and then they could develop an entrepreneurial mind to rebuild Germany.

Curricula for teacher training should incorporate and promote factors such as openness to intercultural interaction and intercultural learning, readiness to recognize and utilize multiculturalism and cultural diversity as a learning resource (Petrović, 2006) and also create international students exchange programs (Petrović & Zlatković, 2009), such as ERASMUS PROGRAM in Europe.

One solution to reduce the high brain drain and economic crises in Perú should be the interference of the government and university's leaders by opening more possibilities for student exchange programs. A very good example is the DAAD Program. The German Academic Exchange Service (DAAD) is an organization that promotes the exchange of students, teachers and researchers. It is the largest institution financing academic and scientific mobility. They are a non-profit association made up of 241 higher education institutions and 104 student representations in Germany. DAAD offers around 250 scholarship and research support programs, operates in more than 60 countries and supports more than 100,000 exchange students (German and foreign) annually. Since its founding in 1925, DAAD has benefited approximately 2.6 million people. Additionally, in Perú the government could open new public universities and promote campaigns to incentive people to study. Even in the poorer countries in South America such as Bolivia and Peru there are important student exchange program. A good example is the Student and academic mobility program of the "Alianza del Pacífico".

In Mexico, for example, the Pacific Alliance Program Platform offers scholarships to carry out an academic exchange at the undergraduate level, for an academic period, as well as for doctorates and teaching internships, for periods ranging from three weeks to 6 months. It is a program that is developed in an area of strict reciprocity, defined in a Regulation. 400 scholarships will be awarded (100 per country), which will be offered according to the following details: 69 for undergraduate students in professional modality, 6 for students in technical and technological careers, 25 for doctoral students, researchers and guest professors.

This study tries to motivate the parents and professors, and also the government, from Perú to recognize the importance of cultural differences to reach maturity.

Cultural differences should be recognized and addressed in creativity training where participants from different cultures have an equal chance to share their perspectives and experiences on creativity and innovation (Tang and Werner, 2017).

A student with high level of experience and resilience has more willing to apply what he/she learned in another culture (experience) and after back to his/her home country with cultural skills and intelligence (knowledge in action) to make the difference. By the time that the students are living abroad they can participate of mentoring activities and also best practices and lesson learned to help Perú in reducing the brain drain and enhance the agriculture sector.

In conclusion, Cultural Intelligence influences intention to contribute knowledge and experience in one KM program positively. This KM program is based on three practices: lessons learned, best practices and mentoring.

5. DISCUSSION OF INTERVIEW RESULTS

Interviews in Perú

The four students of the Industrial Engineering degree, second cycle, explained the following:

Currently there is no interest in doing an exchange to study in another country because they prefer community life at the University to the cultural diversity of a study program in another country. They say that one day they would like to leave Peru to learn other things and they regret that many scientists do not return after their experience outside of Peru. When asked about the negative aspects of the exchange program, since they agreed with all the positive points of Cultural Intelligence, one of them responded that it depends on each person's personality, but in the end, they will learn something, they will consider what is fair and good in the other University in another country. In Industrial Engineering classes there is a lot of talk about globalization, the evolution of industries, and world trade. So if they know the industries and market of another country, they can come to work in that country and learn for a while and then come back and apply in Peru. They say they would return to Peru after a period of study at another university, and perhaps work in Peru, out of gratitude and the opportunity they received. But they highlighted that the decision to return depends a lot on the support received and they complained that there is a lot of bureaucracy and sometimes due to lack of a paper or document, students

lose their scholarship. Continuing with cultural intelligence, they also point out that meritocracy can be discriminatory since few people know about scholarships in other Latin American countries.

In the Security Engineering interview, with 5 fifth cycle students, they say that the countries that participate in the Pacific Alliance Exchange Program are Mexico, Peru, Colombia, Venezuela and Ecuador.

This information is still not true.

The Student and Academic Mobility Platform, currently led by Peru, is a scholarship program of the Pacific Alliance whose purpose is to contribute to the formation of human capital and academic integration in Chile, Colombia, Mexico and Peru. In this way, the platform supports those selected to take subjects or carry out academic activities for a semester in Higher Education Institutions (HEIs) in the four countries linked to the program. The areas considered eligible to carry out studies are; business, finance, international trade, public administration, political science, tourism, economics, international relations, environment and climate change, innovation, science and technology, engineering.

In fact, Security Engineering students complain that there is not much information about the Alianza del Pacifico program, but they would like to know how other people live, especially traditions and food. They would like to go to Mexico because it is the largest country with the Spanish language, but they say that with regular degrees they cannot access the program. They also want scholarships in the United States, Canada and Korea. They study ISO45001 a lot and would like to bring proposals to change the regulations and that is why experience abroad is very valuable and if they were almost sure that they would not return to Peru unless they could apply what they learned, without difficulties. They read only 1 hour a day and say that the education system is very poor. The books are not enough and they ask for an Agronomy laboratory, thinking that access to education could be different in another country. They say that if the language and culture of the other country is different from Peru, the learning will be greater. They even say that countries that have gone through wars, like Germany and Japan, they can learn more. They say that Cultural Intelligence impacts democracy to the extent that with a greater vision of the world there is a greater desire to change, to participate, to

contribute to the economy and to see things correctly. They say that they spend more or less 5 hours a day on their mobile phone, in particular YouTube, Facebook and WhatsApp.

Four students studying Anthropology, when asked about the impact of Cultural Intelligence at work, such as leadership, strategy, planning, project execution, they say that the impact is great given the enrichment of knowing another culture, and perhaps other ways of learning and teaching, other content, access to more books, and perhaps another language. They would like to see the distance between universities and companies reduced so that they can have practical experience even before obtaining the degree. They say that the ideal is not only to know one country, but several and see which one could help Peru the most. They are concerned about analyzing which one would be the best because other countries have different realities in comparison to Peru and they do not know if which one they would learn more to apply in Peru, given the different contexts and different needs. If they could choose, they would like England or France, but due to the difficulty of the language they would prefer Spain. Since there is no exchange program with Europe, they think of Perú because it is the strongest economy and has a very similar language. They know that German culture is very different and they would like to get to know it, but they talk about the language barrier.

A student studying Archeology, 6th cycle, said that she would only be interested in applying for a scholarship from the Pacific Alliance Program if the course proposal was interesting to enrich her studies. She says that she has already been researching Ecuador and Mexico, but she does not know that Ecuador is not part of the Pacific Alliance Program.

She says that knowing the cultures of countries, even nearby ones, helps to understand different human behaviors. She even says that staying in South America initially would be the best to be able to open up a little and not be scared and cause stress by a change of habits and assumptions that are too sudden and strong. Her boyfriend, a 6th cycle Anthropology student, says that if he could apply for a scholarship from the Pacific Alliance Program, it would be in the future, and he would choose Chile or Bolivia (he does not know that Bolivia is not part of the program) because he is interested in training of companies in those two countries. However,

he states that the scholarships would be better for Europe and Asia, in particular China for its economic power after Mao's dictatorship and Japan for wanting to understand how they influence societies after the second war, being economically destroyed. He says that Latin Americans are very influenced by social networks and with a lot of information it becomes more difficult to filter and understand. They say that Cultural Intelligence provides greater political awareness and thus helps democracy, but the government is concerned about students staying in another country and that is why there are few scholarships. They say that the Pacific Alliance program has a very short period, from 6 months to a year, with round-trip tickets, to prevent students from staying in another country.

Student of Digital Anthropology, she says that she would be interested in a medium-term exchange program, and since he is almost graduating, most likely in the Master's degree. He would like to understand the process of socialization outside the comfort zone with possibilities for ideas and perspectives to understand things. This student states that traveling generates new knowledge by understanding other people's perspectives to apply them.

He says that Cultural Intelligence impacts democracy due to the greater experience and critical spirit that is obtained in a democratic system, sometimes better than Peru, and he says that Peru has a social system with many distractions for young people.

The other Anthropology student states that a higher level of social capital provided by Cultural Intelligence leads to a greater interest in political participation. According to him, the process of cultural comparison leads to a change that drives political activism. Learn about other realities or perhaps reinforce learning about the local reality from new perspectives. He says he would prefer Mexico if he had the choice, given the similarities, including the language because Peruvians are not used to speaking English and says the culture is highly influenced by the global north (Western knowledge) and cultural intelligence will help filter experiences lived and knowledge learned in another country. with greater possibility of applying, it in Peru.

Two students of Philosophy think that cultural intelligence is important not only for a career as a philosopher, but also to strengthen democracy in

Peru, even to understand Russian and American interests on the continent and in the country itself. They made it very clear that there is no interest in doing an exchange at the moment and they have no plans to leave Peru because they like dialogue, friendships and activities outside the classroom. He says that neither the home nor the host university pays the costs, but rather the problem is more with the requirements, such as degree level.

Two students of Political Science, 8th cycle, highlight that Cultural Intelligence is necessary to understand global geopolitics, but they have no interest in leaving their comfort zone, even when they are about to finish the course. They emphasize that exchange programs should be given more publicity.

Two Business Administration students attest to the importance of Cultural Intelligence for opening and maintaining businesses. They said that understanding other beliefs, values, assumptions and traditions (culture) helps develop common sense, patience, humility and the ability to analyze, interpret and even make decisions/applications. Still, they are not interested in any exchange program at the Master's level or speaking another language or living in another culture.

Two Architecture students highlighted that they are very interested in studying at another university because Architecture is a branch of knowledge that requires continuous training. They prefer to study in Latin American countries for language reasons. They do not know well the courses offered in the Pacific Program or the DAAD Program. They totally agree with the relationship between Cultural Intelligence and the analysis and interpretation of content.

Interviews in Germany

Since Germany is a student host country, foreign students were interviewed who said they were in Germany thanks to study programs such as Erasmus and DAAD.

They say they really like Freie University and living in Germany, having the opportunity to access the knowledge and intelligence of a developed country. They recognize the importance of this experience for their future in their home country.

6. CONCLUSIONS

Past studies have indicated university-industry collaboration is an effective approach to entrepreneurial training because it can realize the benefits of the combining university theory with practical experience. There are barriers to industries in gaining academic knowledge and for students to gain practical experience. The objectives of this study were: i) to propose a model that can capture the relationship between culture, knowledge and intelligence and ii) to provide qualitative evidence of its effectiveness to reduce brain drain. Thus the CKI model provides a framework for universities and industries to develop their plan for exchanging knowledge and experience along with motivating and entrainment among students.

The authors recommend further research on a larger scale to gain a deeper understanding the interactions between the variables of the CKI Model, especially the relationship between culture and knowledge in enhancing intelligence.

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