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**ESCUELA DE POSGRADO**



**Transfer of Knowledge from Universities to Organizations in the  
Ecuadorian Context**

**TESIS PARA OBTENER EL GRADO DE DOCTOR EN  
ADMINISTRACIÓN ESTRATÉGICA DE EMPRESAS**

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## Dedication

This work is dedicated to the entire educational community so that we can look for alternatives on how to strengthen the ties between universities, students and organizations.



## **Acknowledgements**

I thank all my family, my wise parents and siblings who supported me at all times, my beloved husband and my beautiful daughters for their understanding and the sacrifices they made so that I could continue with this academic project, and a very special thanks to my advisor Dr. Ivan De La Vega.



## Abstract

The present research examines the influence of absorptive capacity and learning motivation on the process of knowledge acquisition in students from higher education institutions and subsequently evaluate its effect on knowledge transfer in companies where students work. Additionally, we study the possible moderating effect of students' social skills and the level of labor autonomy they enjoy in their working environment, which are ideal for improving knowledge transfer conditions in the context of teleworking. This study starts from the positivist philosophy to causally describe the relationship between the constructs and variables that describe the processes of obtaining and transferring knowledge. The research is developed with a quantitative methodology that is executed through the descriptive analysis of the data and the application of statistical models to justify inferences. A non-experimental sampling design of correlational type was used. According to the results obtained, the coefficient of determination  $R^2$  of the model was 0.643 for knowledge acquisition and 0.6551 for knowledge transfer. According to the results obtained from the Blindfolding estimation, the value of  $Q^2$  is 0.568 for knowledge transfer. With this, it can be concluded that knowledge acquisition has a high predictive power on knowledge transfer. Also, it can be concluded that knowledge absorption capacity and learning motivation, as reflective constructs, have a significant effect on knowledge acquisition, as well as knowledge acquisition has a significant effect on knowledge transfer, as well as the significant relationship between the variables of labor autonomy and social skills between the acquisition and transfer of knowledge.

**Keywords:** Transfer of Knowledge, absorptive capacity, learning motivation, knowledge acquisition, labor autonomy and social skill

## Resumen Ejecutivo

La presente investigación examina la influencia de la capacidad de absorción y la motivación por el aprendizaje en el proceso de adquisición de conocimiento en estudiantes de instituciones de educación superior y posteriormente evalúa su efecto en la transferencia de conocimiento en las empresas donde laboran los estudiantes.

Adicionalmente, se estudia el posible efecto moderador de las habilidades sociales de los estudiantes y el nivel de autonomía laboral que disfrutaban en su entorno laboral, ideales para mejorar las condiciones de transferencia de conocimiento en el contexto del teletrabajo. Este estudio parte de la filosofía positivista para describir causalmente la relación entre los constructos y las variables que describen los procesos de adquisición y transferencia del conocimiento. La investigación se desarrolla con una metodología cuantitativa que se ejecuta mediante el análisis descriptivo de los datos y la aplicación de modelos estadísticos para justificar inferencias. Se utilizó un diseño de muestreo no experimental de tipo correlacional. De acuerdo con los resultados obtenidos, el coeficiente de determinación  $R^2$  del modelo fue de 0.643 para adquisición de conocimiento y 0.6551 para transferencia de conocimiento. Según los resultados obtenidos de la estimación Blindfolding, el valor de  $Q^2$  es 0.568 para transferencia de conocimiento. Con esto, se puede concluir que la adquisición de conocimiento tiene un alto poder predictivo sobre la transferencia de conocimiento. Asimismo, se puede concluir que la capacidad de absorción de conocimiento y la motivación de aprendizaje, como constructos reflexivos, tienen un efecto significativo en la adquisición de conocimiento, así como la adquisición de conocimiento tiene un efecto significativo en la transferencia de conocimiento, así como la relación significativa entre las variables de trabajo autonomía y habilidades sociales entre la adquisición y transferencia de conocimientos.

**Palabras clave:** Transferencia de Conocimientos, capacidad de absorción, motivación de aprendizaje, adquisición de conocimientos, autonomía laboral y habilidades sociales.

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## Introduction

This thesis is structured in two Chapters. The first Chapter presents the research paper accepted for publication (see Appendix A), which is required to complete the degree of Doctor en Administración Estratégica de Empresas granted by the Pontificia Universidad Católica del Perú through its graduate school in business management, CENTRUM PUCP. The research paper is entitled *Transfer of Knowledge from Universities to Organizations in the Ecuadorian context* and was accepted for publication by the journal *Measuring Business Excellence*. The second Chapter includes the main conclusions and recommendations of the thesis. Therefore, Chapter 1 of this thesis includes the research paper entitled *Transfer of Knowledge from Universities to Organizations in the Ecuadorian context* which was accepted for publication by *Measuring Business Excellence* on April 22, 2022 (see Appendix A, letter of acceptance or message accepting the paper). This journal is part of the Scopus and Web of Science, in quartile 2.

The present research examines the influence of absorptive capacity and learning motivation on the process of knowledge acquisition in students from higher education institutions and subsequently evaluate its effect on knowledge transfer in companies where students work. Additionally, we study the possible moderating effect of students' social skills and the level of labor autonomy they enjoy in their working environment, which are ideal for improving knowledge transfer conditions in the context of teleworking.

While it is true that the literature on university-business linkages is not a recent topic, little has been developed regarding the role of universities in knowledge transfer (Perkmann et al., 2013; Marulanda et al., 2019). On the other hand, these works have a priority focus on STEM-type scientific, technological and mathematical disciplines, while knowledge transfer in non-STEM disciplines in business contexts is an area of scarce study (Perkmann et al., 2013; Tho & Trang, 2015). Today, universities have become centres that promote the creation



and transfer of knowledge between universities, industries and the government (Paoloni et al., 2019; Shi et al., 2020; Zunda et al., 2020). Under the personalisation strategy, in-service training students maintain constant interaction with others in the various environments in which they perform (Raza et al., 2018). In this way, internationalisation of knowledge is achieved through active learning and socialisation of knowledge through direct interaction with others in organisational settings (Suseno & Pinnington, 2018; Shashi et al., 2022).

Similarly, considering students as intermediary agents of knowledge transfer between organisations and universities is a topic that is at an early stage and requires further analysis (Tho & Trang, 2015; Wang et al., 2020). In this regard, work studying the role of students in knowledge transfer has been carried out in developed countries such as the United Kingdom, the United States and other European regions (Ankrah et al., 2013; Hewitt-Dundas, 2012; Urbano & Guerrero, 2013); and also in other developing economies such as Vietnam, Malasia, Pakistán, Brasil, etc. (Pletsch & Zonatto, 2018; Raza et al., 2018; Sadiq Sohail & Daud, 2009; N. Tho, 2017; N. D. Tho & Trang, 2015). Therefore, Latin American literature is still scarce and in general no study, so far, takes as a unit of analysis the undergraduate or graduate students of universities in the process of knowledge transfer from university to business.

In order to answer the questions and fulfil the objective of the study, we propose a conceptual model based on the AMO model, which has its origin in the high performance work systems of human resources practices management (Chang et al., 2012). For the study of knowledge transfer, the strategy of personalization is used, which implies a social interaction either physically or through technological connections of the in-service training students of private higher education institutes located in the main cities of Ecuador: Guayaquil, Quito and Cuenca. This work focusses on this type of students, since they are supposed to be part of an organization, therefore, the application and use of new knowledge is more intentional and can be carried out in their daily activities (Lee & Jung, 2018). To make

objective decisions for hypothesis testing and to improve the interpretation of the regression coefficients, it is suggested to evaluate the significance of the exogenous variables of the model by evaluating the  $p$ -value of the relationships. For this purpose, SmartPLS version 3 allows estimating the model by bootstrapping, with which the values for the t-Student test for each indicator can be obtained. By means of the structural model estimation by means of the PLS algorithm and bootstrapping with five thousand subsamples, it was possible to confirm that the knowledge transfers of part-time students of higher education institutions in Ecuador who work full time is significantly and positively explained by the acquisition of knowledge, with a significance level of .05. After confirming the hypotheses of the structural model, the predictive quality of the estimated model was evaluated. For this purpose, the coefficient of determination  $R^2$  was evaluated, which is a measure of the predictive capacity of the exogenous variables on the endogenous variables and corresponds to the square of the correlations between the exogenous variables with the endogenous variables of the model. According to the results obtained, the coefficient of determination  $R^2$  of the model was 0.643 for knowledge acquisition and 0.6551 for knowledge transfer, in part-time students in higher education institutions in Ecuador and working full time.

Following the analysis of  $R^2$  and  $f^2$  in order to evaluate the predictive relevance of the model, the Stone-Geisser's  $Q^2$  test was performed. In structural equation models, the  $Q^2$  models, the  $Q^2$  value evaluates the predictive relevance of the paths of the structural model to the endogenous structural model to the endogenous variables (Hair et al., 2012). Values of  $Q^2$  of .02, .15 and .35 indicate how the exogenous constructs have low, medium, and high predictive power predictive power on a certain endogenous construct. The Stone-Geisser's  $Q^2$  value of Stone-Geisser can be obtained by the Blindfolding procedure, in which the predictive relevance of an exogenous construct is predictive relevance of an exogenous construct on an endogenous latent variable (Kwong & Kay, 2013). According to the results obtained from the Blindfolding estimation, the value of  $Q^2$  is 0.568 for knowledge transfer. With this, it can be

concluded that knowledge acquisition has a high predictive power on knowledge transfer, in part-time students studying in higher education institutions in Ecuador and working full time.

With the results obtained, it can be concluded that knowledge absorption capacity and learning motivation, as reflective constructs, have a significant effect on knowledge acquisition, as well as knowledge acquisition has a significant effect on knowledge transfer, in part-time students, of the administrative area, studying in higher education institutions in Ecuador and working full time, as well as the significant relationship between the variables of labor autonomy and social skills between the acquisition and transfer of knowledge, it is also evident that the variables of labor autonomy and social skills are significantly related.

Chapter 2 includes conclusions and recommendations. It also includes the theoretical and practical implications of this research. Therefore, this study contributes to the literature in different ways. First, this research is a pioneer in Ecuador for the study of knowledge transfer, in administrative and business areas, between universities and companies that places the student in service as the main channel. Secondly, it complements the previous literature since the selected unit of analysis, graduate students, has more experience, confidence and dedication in the application of knowledge, as well as the level of studies in undergraduate degrees has an influence on their absorption capacity and this in turn on the knowledge acquisition. Thirdly, several factors that impact the acquisition of and the process of knowledge transfer between companies and higher education institutions are studied. Finally, this considers a new factor that would facilitate the process of knowledge transfer from the perspective of social skills of the student himself in service under the modality of telework.

First, from a theoretical perspective, the study identifies that knowledge absorption capacity and learning motivation help in knowledge acquisition and knowledge transfer in the companies where they work. Which supports previous studies where it was confirmed that students' absorptive capacities to recognize and understand new knowledge are fundamental

in the knowledge acquisition process (Scaringella & Burtschell, 2017; Yu et al., 2021), and that although absorptive capacity is important for knowledge acquisition, the process of knowledge attainment might be more complex in the absence of motivation (Rusly et al., 2015). On the other hand, the variables labor autonomy and social skills did not highlight their role as moderators between the acquisition and transfer of knowledge, which could be due to the fact that the study was applied in the midst of the pandemic caused by COVID-19, where 52.21% of the respondents were teleworking and being a new work modality imposed in Ecuador, it could have affected the perception of labor autonomy and social skills in an environment mediated by technology, lack of knowledge of the teleworking technique and connectivity problems.

From a practical perspective, the results contribute to the three agents involved in knowledge transfer: in-service training students, educational institutions, and organizations. In-service training students can have a greater understanding of the skills they need to improve their learning and application of knowledge. Educational institutions will have a better understanding of and approach to developing competencies in their students. While, organizations will be able to identify relevant factors in knowledge transfer and even for the context of teleworking, create ideal conditions for knowledge flow and maintain a commitment to take advantage of this cooperation.

Additionally, the findings of this research provide the research departments of the universities, which in the Ecuadorian context, have the role of transferring knowledge and / or technology to the community in general, the new role that students have in the transfer process and that at the same time has work experience, so that they are taken into account in research projects. In addition, this research provides academic staff with the factors that are determining factors for the motivation of learning and the acquisition of knowledge in students so that they can consider them within the pedagogical model, curricular design and study techniques in academic proposals.

## Chapter I: The Research Article

The research article, entitled Transfer of Knowledge from Universities to Organizations in the Ecuadorian context was accepted on April 22, 2022 by the journal *Measuring Business Excellence*, published by Emerald Publishing, ISSN: 1368-3047. This journal is classified as a Scopus Q2, and is published in Association with the Performance Management Association Measuring Business Excellence (MBE). Below is the full accepted article.

### **Transfer of Knowledge from Universities to Organizations in the Ecuadorian context**

#### **Abstract**

**Purpose** – This research seeks to examine the influence of absorptive capacity and learning motivation in the process of knowledge acquisition in students of higher education institutions and subsequently evaluate its effect on the transfer of knowledge in the companies where students work, and the possible moderating effect of students' social skills and the level of work autonomy.

**Design/methodology/approach** - The research design is non-experimental, cross-sectional correlational-causal, with a quantitative approach and the data collected are from primary sources. The variables autonomy and social skills are used on the perceptions of students in continuing education in programs related to third or fourth level business and administration careers in universities in Ecuador.

**Findings** – With the results obtained, it can be concluded that knowledge absorption capacity and learning motivation, as reflective constructs, have a significant effect on knowledge acquisition, as well as knowledge acquisition has a significant effect on transfer of knowledge, in part-time students, of the administrative area, studying in higher education institutions in Ecuador and working full time.

**Originality/value** - This study identifies the significant relationship between the variables of job autonomy and social skills and between the acquisition and transfer of knowledge. In addition, it is evident that the variables of job autonomy and social skills are significantly related.

*Keywords: Transfer of Knowledge, absorptive capacity, learning motivation, knowledge acquisition, labor autonomy and social skill*

#### **Introduction**

While it is true that the literature on university-business linkages is not a recent topic, little has been developed regarding the role of universities in transfer of knowledge (Perkmann et al., 2013; Marulanda et al., 2019). On the other hand, these works have a

priority focus on STEM-type scientific, technological and mathematical disciplines, while transfer of knowledge in non-STEM disciplines in business contexts is an area of scarce study (Perkmann et al., 2013; Tho & Trang, 2015). Today, universities have become centers that promote the creation and transfer of knowledge between universities, industries and the government (Paoloni et al., 2019; Shi et al., 2020; Zunda et al., 2020; Dip, 2021). Under the personalization strategy, in-service training students maintain constant interaction with others in the various environments in which they perform (Raza et al., 2018). In this way, internationalization of knowledge is achieved through active learning and socialization of knowledge through direct interaction with others in organizational settings (Suseno & Pinnington, 2018). From a practical point of view, Vesperi et al. (2021) mentioned that academic knowledge has become a strategic resource for sectors that are driven by natural rather than human rhythms. For this reason, those responsible for the transfer of academic knowledge and entrepreneurs are called upon to encourage the introduction of new knowledge within organizations in order to survive and compete in the marketplace.

Similarly, considering students as intermediary agents of knowledge transfer between organizations and universities is a topic that is at an early stage and requires further analysis (Tho & Trang, 2015; Wang et al., 2019). In this regard, work studying the role of students in transfer of knowledge has been carried out in developed countries such as the United Kingdom, the United States and other European regions (Ankrah et al., 2013; Hewitt-Dundas, 2012; Urbano & Guerrero, 2013); and also in other developing economies such as Vietnam, Malasia, Pakistan, Brazil, etc. (Pletsch & Zonatto, 2018; Raza et al., 2018; Sadiq Sohail & Daud, 2009; Tho, 2017; Tho & Trang, 2015). Therefore, Latin American literature is still scarce and in general no study, so far, takes as a unit of analysis the undergraduate students of universities in the process of knowledge transfer from university to business.

The study contributes to the strengthening of the theory following a deductive logic, since it starts from a literature review to deduce and understand the relationship between the

factors studied (Saunders et al., 2016). With the purpose of establishing the factors involved in the influence of absorptive capacity and learning motivation in the process of knowledge acquisition in students of prestigious private institutions of higher education, and subsequently evaluate their effect on the transfer of knowledge in the companies where the students work. Additionally, the possible moderating effect of students' social skills and the level of work autonomy they enjoy in their workplace is studied.

### **Theoretical Background**

This study compiles several theoretical perspectives that converge to create an appropriate conceptual model, among them: (a) knowledge management, theories of university-industry collaboration, (c) human resource management, (d) motivation, (e) learning organizations and (f) theories of dynamic capabilities. Academics recognize two types of knowledge: explicit and tacit (Levallet & Chan, 2019). Explicit knowledge is that which can be clearly captured, stored and accessed through manuals and physical or digital documents (Ellis & Roeber, 2018). On the other hand, tacit knowledge comprises individual mental models that include paradigms, beliefs and points of view, as well as specific knowledge such as skills and abilities (Terhorst et al., 2018).

Levallet and Chan (2019) mentioned that the difference between these two types of knowledge lies in the ability to share it effectively. These authors believe that explicit knowledge lies in facts, rules or policies that can be written down and shared without discussion, while tacit knowledge is in people's minds and its transfer requires contact (Levallet & Chan, 2019). Nonaka (1994) established two elements present in tacit knowledge that include technical and cognitive aspects. The technical element of tacit knowledge refers to the specific knowledge an individual has, while the cognitive elements capture the mental models with which people guide their path in the world. Subsequently, Leonard and Insch (2005) added a third element that alludes to the social dimension of tacit knowledge. This

third aspect includes the area of social interaction and arises from the fact that people mostly act in social contexts (Leonard & Insch, 2005).

From this perspective, the transfer of tacit knowledge is considered the most important part of knowledge management (Guo et al., 2018). However, this knowledge transfer is a process of interaction from a source to a receiver, so that this receiver acquires and uses this knowledge for his or her benefit (Chang et al., 2012).

The socialization of knowledge through direct contact is considered a convenient technique for sharing information (Dingler & Enkel, 2016). However, given the increasing need and popularity of distance work, it is emphasized that knowledge can be shared among people by other means such as electronic communication (Leung & Zhang, 2017). In this way, information technologies are strategic tools to share information in a reliable and effective way (Kim, 2017).

In this study, the sources of knowledge correspond to the institutions of higher education and as a recipient of knowledge transfer to the business community, making reference to the collaborative interaction between university and industry (Tho & Trang, 2015). This process is carried out through in-service training students, an informal channel that is little documented but functional and practical according to various authors (Raza et al., 2018; N. Tho, 2017).

The university-industry collaborative theories have as main objective to promote the transfer of knowledge through the interaction between any part of the educational system and the industry (Bekkers & Bodas Freitas, 2008). Since its inception, this collaborative relationship has become the means to increase the stock of knowledge of the organizations (Cricelli & Grimaldi, 2010).

In recent years, there has been a significant increase in the study of the results of the interaction between industry and science (Goel et al., 2017). This increase arises due to the various pressures facing both the business sector and universities. Companies constantly face



challenges due to the imminent technological advance, the increase in global competitiveness and the shorter life cycles of products (Bstieler et al., 2017). For their part, universities are challenged to constantly create new knowledge and the pressures of rising costs and funding problems have increased the need to seek relationships with businesses that allow them to take the lead in different areas (Calcagnini et al., 2016).

In the collaborative context, interactions between universities and the productive sector are also carried out through the participation of students, being part of a process that allows companies to share risks and benefits (Toro et al., 2016). In this regard, the literature starts with a model called AMO that identifies an individual's abilities, motivations and opportunities and their effect on performance (Tho, 2017). This model is part of the human resources management systems that highlights the role of employees as a source of value creation for companies (Chang et al., 2012).

In the same vein, academics introduce the concept of dynamic capabilities by considering the absorptive capacity of students as a background to the acquisition and transfer of knowledge (Tho, 2017; Tho & Trang, 2015). Absorptive capacity is a concept generally applied at the organizational level by Cohen and Levinthal (1990). Under the structure of the AMO model, CA comprises a cognitive skill that allows students to learn effectively when studying at their universities and also allows them to apply their acquired knowledge in the work environment.

Moreover, the model includes the learning motivation of the students. This motivation refers to the students' willingness to perform academic activities (Di Serio et al., 2013). Since, students with high learning motivation are more likely to capture effective learning strategies that facilitate the knowledge acquisition from their educational institutions (Vandergoot et al., 2018). In turn, the learning motivations of students have the power to increase the performance of each individual in the organization where they work (Menges et al., 2017).

Under the context of distance work, there are several factors that can affect knowledge transfer due to less social interaction and less contact with the organization (Meroño, 2016). In light of this, information technologies provide new methods of virtual communication where social skills are needed to facilitate communication with customers, partners, suppliers, co-workers, among others (Lieke et al., 2012). On the other hand, it has been shown that teleworking provides the worker with a sense of autonomy and control over tasks in the work environment (Masuda et al., 2017). In turn, this perception of labor autonomy can improve the conditions of the in-service training student for the application and transfer of knowledge.

Research on knowledge transfer between higher education institutions and companies, considering in-service training students as a transfer channel, has not been widely developed. Generally, the studies that have been developed take as reference the AMO model, Abilities-Motivation-Opportunity, which emerges as a response to the need to find a set of practices, in the human resources environment, that allows to improve the performance.

In the context of university-industry relations, the authors agree that knowledge acquisition is an indispensable precedent for knowledge transfer. The models vary according to the variables that describe the acquisition of knowledge such as: motivation in learning, absorptive capacity, intrinsic motivation, innovative culture, psychological resistance, perceived functional value; and also because of other variables that directly and indirectly describe the transfer of knowledge.

The present research proposes a more complete model that evaluates the knowledge acquired and the transfer of knowledge. The model presented considers the effect generated by social skills, one of the current skills most demanded by companies; labor autonomy to evaluate its direct impact with the transfer of knowledge and indirectly in its moderating role between acquired knowledge and knowledge transfer. The analysis of these variables is important since they are skills and faculties necessary for adaptation under the modality of telework.

The literature review has identified several studies that explain the process of knowledge transfer in the context of university-business collaboration, however, it remains an area of study underdeveloped. The AMO model has been frequently applied in the business context and has recently been the basis for studies regarding knowledge transfer. In Appendix A, a brief summary of the current study represented in the consistency matrix is presented. Based on the AMO model, it is considered that capacity, motivation and opportunities are determining factors to obtain successful results in performance, in this specific case knowledge transfer. Under this model, based on the human resources management systems, this study recognizes the key role of the collaborators in the creation of value for the companies.

With regard to social skills, the literature suggests the effect that this competence may have in the study context. Several authors recommend that the relationship between the knowledge acquired and the transfer should be addressed by integrating other moderating variables such as the individual characteristics of the students (Demortier et al., 2014; Kehoe & Wright, 2013). By virtue of this, this study raised, as a new contribution to previous studies, the possibility of the positive effect generated by the acquired knowledge on the transfer of knowledge is stronger as the student has higher levels of social skills.

### **Hypothesis**

The present investigation will seek to contrast the hypotheses derived from the relationships proposed in the literature. In the transfer of knowledge from the university to industry, academics suggest a direct effect of knowledge acquisition, while the literature differs in the dimensions that could contribute to the process of obtaining knowledge (Raza et al., 2018; Tho, 2017). However, after a vast theoretical review, the following hypotheses are established that correspond to the defined conceptual model:

$H_1$ : Absorptive capacity has a positive effect on knowledge acquisition

$H_2$ : Motivation in learning has a positive effect on knowledge acquisition

There are various sources to gain information, the writing recommends a few factors that emphatically influence this cycle. Lichtenthaler (2016) examined the connection between information procurement and absorptive limit. Since, absorptive limit alludes to an individual's capacity to secure, absorb, change and adventure new information in the business activity (Zahra & George, 2002). Understudies' absorptive abilities to perceive and see new information are basic during the time spent information securing (Scaringella & Burtschell, 2017).

Since, procured information requests absorption into the current information base; therefore, a person's earlier information, aptitudes, and understanding influence their capacity to partake in the information securing measure (Sarala et al., 2016). Albeit absorptive limit is significant for information procurement, the way toward acquiring information could be more unpredictable without inspiration (Rusly et al., 2015). The writing has indicated how understudies' absorptive limit and learning inspiration are basic to powerful learning results (Lane et al., 2001).

### *H<sub>3</sub>: Knowledge acquisition has a positive effect on knowledge transfer*

The cycle of information move includes a few sections, including beneficiaries and wellsprings of information (Tangaraja et al., 2016). Under the focal point of this examination, advanced education organizations go about as the wellspring of data, organizations as the beneficiaries and in-administration preparing understudies are the channels. Argote and Fahrenkopf (2016) highlighted the importance of identifying and possessing relevant knowledge in order to execute a successful knowledge transfer.

The knowledge and skills acquired reflect the capacity of the students (Tho & Trang, 2015). Students' perception of the skills they acquire is important to the effectiveness of knowledge transfer (Howard et al., 2018). Several studies have found that knowledge acquired from educational institutions is a precursor to knowledge transfer (Raza et al., 2018; Tho, 2017; Tho & Trang, 2015). In the AMO framework, students are agents who acquire the knowledge

provided by the educational institution, and the level of knowledge acquired plays a fundamental role in helping the agents and students who work to improve their performance (Blumberg & Pringle, 1982; Cohen & Levinthal, 1990). Tho and Trang (2015) suggested that increasing the level of knowledge acquired by students increases the probability that this new knowledge will be applied in companies; that is, there will be higher levels of knowledge transfer between educational institutions and companies, which generates a better performance of the three agents involved.

*H<sub>4</sub>*: Social skills have a positive effect on knowledge transfer

*H<sub>5</sub>*: Labor autonomy has a positive effect on knowledge transfer

Labor autonomy generates opportunities for workers to apply new and valuable knowledge provided by external sources, in the context of the study educational institutions, in the work they do in companies (Tho, 2017). Therefore, labor autonomy plays an important role in strengthening and improving the knowledge acquisition and its subsequent transfer (Raza et al., 2018).

Additionally, to deepen the results of the structural model estimation, moderating variables will be included in the conceptual model. According to the review of the literature, the following proposals were made:

*H<sub>6</sub>*: Social skills positively moderate the relationship between knowledge acquisition and knowledge transfer

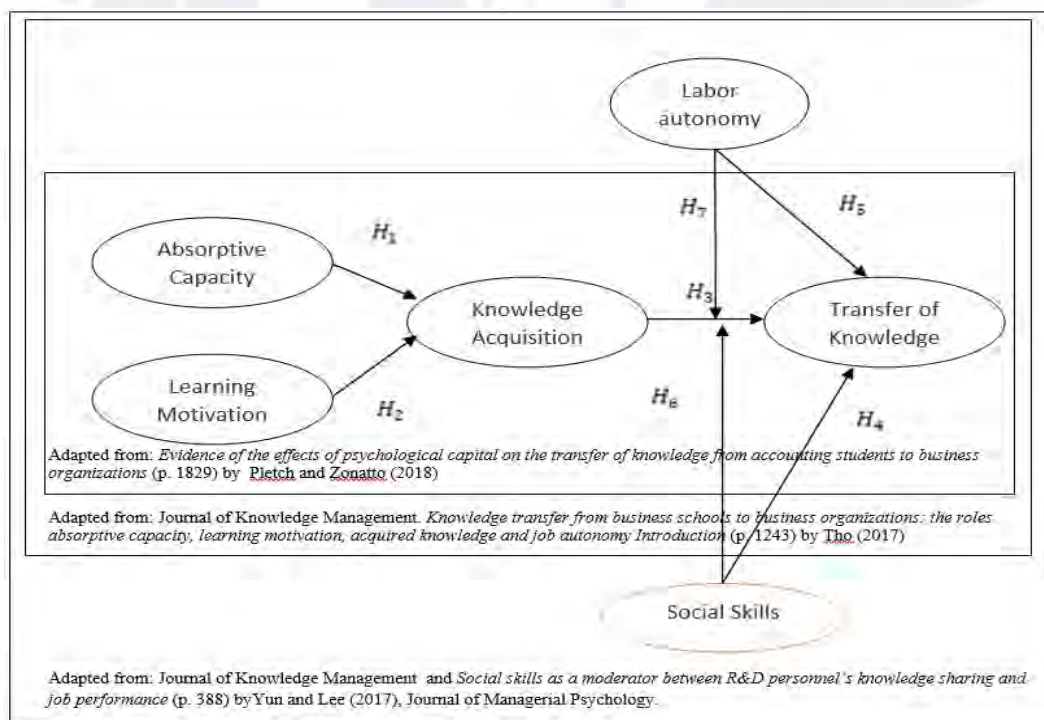
The literature does not delve into the influence of social skills on the level of knowledge transfer in the university-industrial context. Several authors have suggested a possible relationship (Raza et al., 2018). Levy and Reiche (2018) demonstrated how the social skills of their employees have a significant positive effect towards the effectiveness of knowledge transfer in multinationals. Thus, it is believed that a student's confidence, respect, and friendship, which are products of social skills, can cause a higher level of knowledge transfer.

$H_7$ : Labor autonomy positively moderates the relationship between knowledge acquisition and knowledge transfer.

The role of labor autonomy has also been verified by previous research in knowledge transfer and related areas. For example, Tho (2017) confirmed the existence of a positive effect on the impact of acquired knowledge on knowledge transfer. In a similar context, Llopis and Foss (2016) found that labor autonomy positively moderates the impact of the cooperative climate and the transfer of knowledge among employees. Volmer and Niessen (2012) found that labor autonomy positively moderates the relationship between the quality of leader-member interaction and creative participation at work.

**Figure 1**

*Conceptual model of the research*



With the aim of contributing to the literature on knowledge transfer, this study evaluates the impact of learning absorptive capacities and learning motivation on the knowledge acquisition by in-service training students and in turn their relationship with knowledge transfer in business environments. However, due to the multiplicity of factors that

may affect this relationship including the context of teleworking, certain variables such as social skills and labor autonomy that in-service training students possess are included to assess their effect on knowledge transfer.

### **Methodology**

The present study departs from positivist philosophy to causally describe the relationship between constructs and variables that describe the processes of knowledge elicitation and transfer (Saunders et al., 2016). The research is developed with a quantitative methodology that is executed by descriptive analysis of data and application of statistical models to justify inferences (Usakli & Kucukergin, 2018). A correlational non-experimental sampling design was used, since the study variables will not be manipulated and describe the current situation of absorptive capacity and learning motivation, their influence on the process of knowledge acquisition and their effect on knowledge transfer. The study contributes to the strengthening of the theory following a deductive logic, since it starts from a literature review to deduce and understand the relationship between the studied factors (Saunders et al., 2016). In order to answer the research questions and hypotheses, the perception of students of prestigious private higher education institutions, according to the Top 10 of the Quacquarelli Symonds Ranking (2020), who are studying an undergraduate or graduate program in administrative areas and are working, is collected.

To obtain the data for the variables used in the study, the instrument proposed by Tho (2017) was used, and for social skills as a moderating variable, the factors proposed by Yun and Lee (2017) were used, composed in total of 28 questions that evaluate the relevant factors of this study, will be evaluated through Likert scales from 1 to 5, where 1 represents total disagreement with the given premise and 5 is indicative of total agreement. A pilot test was developed to evaluate the structure of the questionnaire, its relevance and comprehension of the questions in order to reduce errors in data collection (Stutz et al., 2017). Subsequently, the questionnaire was sent to the selected sample through the QuestioPro platform. The first parts

of the survey set out the necessary indications, the informed consent and the purpose of the research. For the descriptive analysis of the information collected in the survey, the Confirmatory Factor Analysis and the estimation of the Structural Equation Model, the SmartPLS software was applied, which allows estimating path models with unobservable variables using the partial least squares statistical technique (Kumar & Purani, 2018).

## **Results**

In Ecuador, business education and administration has been the field of study with the highest number of students enrolled, representing 26.67% of total enrollment in third and fourth level programs (Senescyt, 2018).

The instrument was sent by e-mail through the QuestionPro tool, with a total of 1,401 responses, of which 544 students completed it satisfactorily, and were therefore considered the sample for this study, with a confidence level of 0.95%.

For the data collection process, a measurement instrument will be built using constructs that have been used in previous works, so its reliability and validity should be evaluated for little studied contexts in the area of knowledge transfer (Flake et al., 2017). Prior to the application of the survey, content validation will be carried out by means of interviews with experts who will evaluate the criteria of understanding, appropriateness and coherence of the items with respect to their factors (Oliveira et al., 2016; Tsangaris et al., 2017). The six constructs that will be examined in this study are (a) absorptive capacity; (b) learning motivation; (c) knowledge acquisition; (d) labor autonomy; (e) social skills; and (f) knowledge transfer.

The results of the quantitative research are as follows: In terms of general information on the students who participated in the research, 71.690% were male and 28.310% were female, as shown in Table 3. In terms of age, 22.980% were between 26 and 40 years of age, while only 7.350% were under 25 years of age. The 46.140% are married and 38% have two children. In relation to academic training, it can be seen that 88.420% of the students are



studying a graduate program, and 11.580% an undergraduate degree; 79.960% have completed more than 50% of their program of studies, due to the pandemic, all are receiving their classes virtually and 79.960% of the students have completed more than 50% of their program of studies. 92.100% of the students who participated in the study are currently working, while 7.900% are not; 86.760% stated that they are working as employees while 9.190% are self-employed and 4.040% have another type of employment relationship. Table 1 summarizes the demographic profile of the 544 in-service university students.

**Table 1**

*Demographic profile of the respondents*

Sample (n = 544)	Frequency	Percent	Valid Percent	Cumulative Percent
<i>Genre</i>				
Male	390	71,690%	71,690%	71,690%
Female	154	28,310%	28,310%	100,00%
<i>Ranks/Age</i>				
18 - 25	40	7,350%	7,350%	7,350%
26 - 30	65	11,950%	11,950%	19,300%
31 - 35	107	19,670%	19,670%	38,970%
26 - 40	125	22,980%	22,980%	61,950%
41 - 45	92	16,910%	16,910%	78,860%
46 - more	115	21,140%	21,140%	100,00%
<i>Marital Status</i>				
Single	193	35,480%	35,480%	35,480%
Married	251	46,140%	46,140%	81,620%
Divorced	53	9,740%	9,740%	91,360%
Unmarried	39	7,170%	7,170%	98,530%
other	8	1,470%	1,470%	100,00%
<i>Number of children</i>				
1	124	30,620%	30,620%	30,620%
2	154	38,020%	38,020%	68,640%
3	91	22,470%	22,470%	91,110%
4 or more	36	8,890%	8,890%	100,00%
<i>Level of education</i>				
Degree course	63	11,580%	11,580%	11,580%

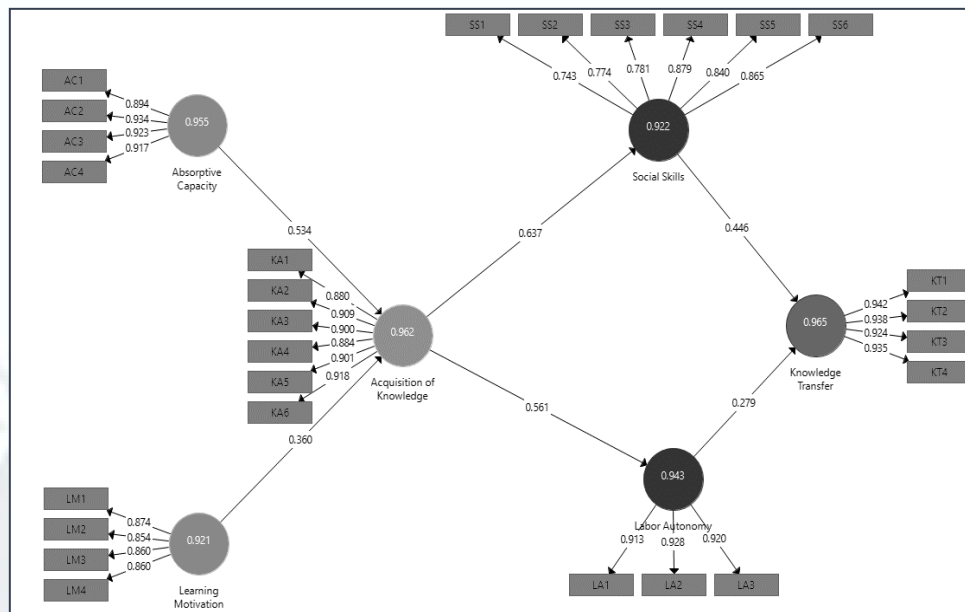
Postgraduate	481	88,420%	88,420%	100,00%
<i>Program progress</i>				
Less than 50% of its program progress	69	12,680%	12,680%	12,680%
Equal to 50% of program progress	40	7,350%	7,350%	20,040%
More than 50% of program progress	435	79,960%	79,960%	100,00%
<i>Modality of studies</i>				
Face-to-face	70	12,870%	12,870%	12,870%
Face-to-face with virtualized classes	127	23,350%	23,350%	36,210%
Blended	9	1,650%	1,650%	37,870%
Distance	36	6,620%	6,620%	44,490%
On-line	302	55,510%	55,510%	100,00%
<i>Currently working</i>				
Yes	501	92,100%	92,100%	92,100%
No	43	7,900%	7,900%	100,00%
<i>Type of labor relationship</i>				
Dependent	472	86,760%	86,760%	86,760%
Independent	50	9,190%	9,190%	95,960%
Other	22	4,040%	4,040%	100,00%
<i>Work modality</i>				
On-site at the institution's offices	102	18,750%	18,750%	18,750%
On-site at the institution's offices and/or off-site (e.g. visiting clients)	22	4,040%	4,040%	22,790%
Telework (working from home)	284	52,210%	52,210%	75,000%
Mixed (Face-to-face and Telework)	136	25,000%	25,000%	100,00%

For the evaluation of internal consistency, by means of Cronbach's alpha coefficient and composite reliability, a critical value of 0.700 has been taken as a commonly accepted value in social science research (Kline, 2011). Internal consistency values lower than 0.700 evidence a low level of reliability, while values higher than 0.950 would evidence redundancy

since the observable variables of the factor would be measuring the same phenomenon (Hair et al., 2019). Figure 2 shows the specification of the measurement model.

**Figure 2**

Measurement model estimation



From the results obtained, all the factors had a composite reliability greater than 0.921, which is considered a good internal consistency. while all factors had a Cronbach's Alpha coefficient greater than 0.885, which is considered as a good internal consistency. This shows that the factors used in the model have an acceptable internal reliability according to the criteria of Kline (2011). Table 2 presents the results of the calculation of construct reliability by Cronbach's alpha, composite reliability and variances extracted from the initial measurement model.

**Table 2**

*Reliability of Constructs and Extracted Variances*

Dimensions	Cronbach's Alpha	Composite Reliability	Variance Extracted Average
Absorption Capacity (AC)	0.937	0.955	0.841

Learning Motivation (LM)	0.885	0.921	0.743
Knowledge acquisition (KA)	0.952	0.962	0.808
Knowledge Transfer (KT)	0.952	0.965	0.874
Labor Autonomy (LA)	0.910	0.943	0.847
Social Skills (SS)	0.898	0.922	<b>0.665</b>

We proceeded to evaluate the factor loadings of the reflective constructs, obtaining as a result that all are higher than 0.743, above the minimum acceptable according to the criteria of Chion and Charles (2016), considered as acceptable levels in studies where the structure of factorials that have been tested in previous studies are confirmed.

According to the data obtained, the discriminant validity of the factors of the model according to the cross-loadings and Fornell and Larcker criteria is confirmed. Table 3 presents the discriminant validity analysis following the Fornell and Larcker criterion.

**Table 3**

*Validez Discriminant Fornell-Larcker Criterion*

Dimensions	Absorptive Capacity	Knowledge acquisition	Knowledge Transfer	Labor Autonomy	Learning Motivation	Social Skills
Absorptive Capacity	0.917					
Knowledge acquisition	0.748	0.899				
Knowledge Transfer	0.674	0.801	0.935			
Labor Autonomy	0.481	0.561	0.509	0.920		
Learning Motivation	0.593	0.677	0.592	0.511	0.862	
Social Skills	0.563	0.637	0.590	0.515	0.542	0.815

The estimation of the structural model, by means of SmartPLS, allows obtaining standardized regression coefficients with values between -1 and 1. The values of standardized coefficients with values close to zero are not statistically significant, while for Hair et al.

(2019) the values of the regression loadings with values greater than 0.200 significantly explain the endogenous variables.

To make objective decisions for hypothesis testing and to improve the interpretation of the regression coefficients, it is suggested to evaluate the significance of the exogenous variables of the model by evaluating the  $p$ -value of the relationships. For this purpose, SmartPLS version 3 allows estimating the model by bootstrapping, with which the values for the t-Student test for each indicator can be obtained.

By means of the structural model estimation by using the PLS algorithm and bootstrapping with five thousand subsamples, it was possible to confirm that the knowledge transfers of part-time students at private higher education institutions in Ecuador who work full time is significantly and positively explained by the knowledge acquisition, with a significance level of 0.050. Table 4 presents the results of the estimation of the structural model by bootstrapping.

**Table 4**

*Bootstrapping Model Estimation*

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Statistics t (/STDEV )	$p$ -value
Absorptive Capacity -> Knowledge acquisition	0.534	0.537	0.053	10.053	0.000
Knowledge acquisition -> Knowledge Transfer	0.692	0.693	0.070	9.937	0.000
Knowledge acquisition -> Labor Autonomy	0.560	0.558	0.048	11.597	0.000
Knowledge acquisition -> Social Skills	0.637	0.634	0.057	11.200	0.000
Labor Autonomy -> Knowledge Transfer	0.059	0.057	0.041	1.434	0.152
Learning Motivation -> Knowledge acquisition	0.360	0.355	0.050	7.132	0.000
Social Skills -> Knowledge Transfer	0.119	0.119	0.060	1.988	0.047

Note: \*\*  $p > .05$ . Estimation with five thousand subsamples

After confirming the hypotheses of the structural model, the predictive quality of the estimated model was evaluated. For this purpose, the coefficient of determination  $R^2$  was evaluated, which is a measure of the predictive capacity of the exogenous variables on the endogenous variables and corresponds to the square of the correlations between the exogenous variables with the endogenous variables of the model. According to the results obtained, the coefficient of determination  $R^2$  of the model was 0.643 for knowledge acquisition and 0.655 for knowledge transfer, in part-time students in private higher education institutions in Ecuador and working full time. as evidenced in Table 5.

**Table 5**

*Quality criteria  $R^2$*

	R-square	Adjusted R-Squared
Knowledge acquisition	0,643	0,641
Knowledge Transfer	0,655	0,653
Labor Autonomy	0,314	0,313
Social Skills	0,405	0,404

The literature suggests not to evaluate the quality of a model solely based on the coefficient of determination  $R^2$ , since  $R^2$  could be improved by including other variables to the model, which would affect its parsimony (Hair et al., 2012). Therefore, it is recommended to analyze other statistics for the evaluation of the quality of the model, among which is the size effect  $f^2$ , the predictive relevance  $Q^2$ .

**Table 6**

*Quality criteria  $F^2$*

	Absorptive Capacity	Knowledge acquisition	Knowledge Transfer	Labor Autonomy	Learning Motivation	Social Skills
Absorptive Capacity		0,517				
Knowledge acquisition			0,724	0,458		0,682
Knowledge Transfer						

Labor Autonomy		0,005
Learning Motivation	0,235	
Social Skills		0.015

With the results obtained, shown in the table above, it can be concluded that knowledge absorption capacity and learning motivation, as reflective constructs, have a significant effect on knowledge acquisition, as well as knowledge acquisition has a significant effect on knowledge transfer, in part-time students studying in higher education institutions in Ecuador and working full time. The conclusions of the first five hypotheses raised in the research are detailed below:

*H<sub>1</sub>*: Absorptive capacity has a positive effect on knowledge acquisition

The hypothesis is accepted; there is evidence that absorptive capacity has a significant effect on knowledge acquisition. This finding is consistent with previous research where students' absorptive abilities to recognize and comprehend new knowledge are considered fundamental in the knowledge acquisition process (Scaringella & Burtschell, 2017), because, acquired knowledge demands its assimilation into the current knowledge base; consequently, a person's prior knowledge, skills, and understanding affect his or her ability to engage in the knowledge acquisition process (Sarala et al., 2016).

*H<sub>2</sub>*: Motivation in learning has a positive effect on knowledge acquisition

The hypothesis is accepted, there is evidence that learning motivation has a significant effect on knowledge acquisition, to a lesser degree than absorptive capacity, but it is still significant. This finding confirms the theory of Lane et al., (2001) and Rusly et al., (2015) where they point out that students' absorptive capacity and learning motivation are essential to achieve effective learning outcomes, and that the process of knowledge attainment might be more complex in the absence of motivation.

*H<sub>3</sub>*: Knowledge acquisition has a positive effect on knowledge transfer

The hypothesis is accepted; there is evidence that knowledge acquisition has a significant effect on knowledge transfer. which supports what is stated mentioned in previous research, where it is stated that acquired knowledge and skills reflect students' ability (Tho & Trang, 2015). Students' perception of the skills they acquire is important for the effectiveness of knowledge transfer (Howard et al., 2018). Knowledge acquired from educational institutions is an antecedent of knowledge transfer (Raza et al., 2018; Tho, 2017; Tho & Trang, 2015).

$H_4$ : Social skills have a positive effect on knowledge transfer

The hypothesis is accepted, and there is evidence that social skills have a significant, although small, effect on knowledge transfer. This finding confirms the suggestion of a possible relationship by authors Raza et al. (2018), as well as Levy and Reiche (2018) demonstrated how the soft skills of their employees have a significant positive effect towards the effectiveness of knowledge transfer in multinationals.

$H_5$ : Labor autonomy has a positive effect on knowledge transfer

The hypothesis is accepted, and there is evidence that labor autonomy has a significant, albeit small, effect on knowledge transfer. This finding confirms what Tho (2017) stated, a work environment with autonomy provides employees with the opportunity to apply new and valuable knowledge to their work. In this way, students of the educational institution, who work while preparing, are more likely to apply the new knowledge acquired in the current job (Raza et al., 2018). Consequently, it promotes an effective knowledge transfer between the educational institution and partner companies.

Following the analysis of  $R^2$  and  $f^2$  in order to evaluate the predictive relevance of the model, the Stone-Geisser's  $Q^2$  test was performed. In structural equation models, the  $Q^2$  models, the  $Q^2$  value evaluates the predictive relevance of the paths of the structural model to the endogenous structural model to the endogenous variables (Hair et al., 2019). Values of  $Q^2$  of 0.020, 0.150 and 0.350 indicate how the exogenous constructs have low, medium, and high



predictive power on a certain endogenous construct. The Stone-Geisser's  $Q^2$  value of Stone-Geisser can be obtained by the Blindfolding procedure, in which the predictive relevance of an exogenous construct is predictive relevance of an exogenous construct on an endogenous latent variable (Kwong & Kay, 2013).

According to the results obtained from the Blindfolding estimation, the value of  $Q^2$  is 0.568 for knowledge transfer. With this, it can be concluded that knowledge acquisition has a high predictive power on knowledge transfer, in part-time students studying in private higher education institutions in Ecuador and working full time, as indicated in the following table:

**Table 7**

*Predictive relevance  $Q^2$*

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Absorptive Capacity	2.176.000	2.176.000	
Knowledge acquisition	3.264.000	1.586.976	0.514
Knowledge Transfer	2.176.000	940.478	0.568
Labor Autonomy	1.632.000	1.206.112	0.261
Learning Motivation	2.176.000	2.176.000	
Social Skills	3.264.000	2.397.070	0.266

In order to evaluate the heterogeneity of the knowledge transfer model, moderating variables have been included to explore the intensity of the relationships between exogenous and endogenous factors. The moderating variables that have been included in this study are: (a) Job Autonomy; and (b) Social Skills. Next, the effect of each of the moderating variables in the model will be analyzed.

#### **Moderating effect of social skills and labor autonomy**

The moderating effect of the social skills and labor autonomy variables between knowledge acquisition and knowledge transfer was evaluated. Job autonomy and social skills were considered as moderating variables, since it has been proven that both factors have an

interactive effect in relation to job performance, as well as the previous factors, the measurement based on perception questions was chosen. Job autonomy was measured based on three items from a study proposed by Hackman and Oldham (1980), which has been used in several studies and has demonstrated reliability and validity. On the other hand, although the literature offers multidimensional concepts to assess social skills, the unidimensional approach was chosen in accordance with the other constructs of the model. Six questions were used to capture the level of empathy, communication skills, recognition of others' traits and adjustment of behaviors in various social situations.

It was found that the variables social skills and labor autonomy do not have a significant effect on the relationship between knowledge acquisition and knowledge transfer in students who work part time and study full time in administrative careers in private higher education institutions in Ecuador; therefore hypothesis  $H_6$  and  $H_7$  are rejected, the Table 8 shows the results of the estimation of the model that includes the moderating effect of the social skills and labor autonomy variables. In addition, absorption capabilities significantly improve knowledge transfer.

**Table 8**

*Moderating effect of the variables social skills and labor autonomy*

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Statistics t ( O/STDEV )	p-Value
Absorptive Capacity -> Knowledge acquisition	0.534	0.536	0.054	9.919	0.000
Knowledge acquisition -> Knowledge Transfer	0.652	0.656	0.078	8.385	0.000
Knowledge acquisition -> Labor Autonomy	0.560	0.559	0.049	11.422	0.000
Knowledge acquisition -> Social Skills	0.637	0.634	0.056	11.401	0.000
<b>Moderator Effect 1 -&gt; Knowledge Transfer</b>	<b>-0.011</b>	<b>-0.023</b>	<b>0.039</b>	<b>0.272</b>	<b>0.786</b>
<b>Moderator Effect 2 -&gt; Knowledge Transfer</b>	<b>-0.031</b>	<b>-0.013</b>	<b>0.056</b>	<b>0.566</b>	<b>0.571</b>

Labor Autonomy -> Knowledge Transfer	0.052	0.046	0.040	1.299	0.194
Learning Motivation -> Knowledge acquisition	0.360	0.356	0.051	7.082	0.000
Social Skills -> Knowledge Transfer	0.102	0.106	0.051	2.017	0.044

## Discussion

Considering students as intermediary agents of knowledge transfer between organizations and universities is a topic that is at an early stage and requires further analysis (Tho & Trang, 2015), which is why this study is pioneer in Ecuador, where students were considered as a channel and at the same time as a source of knowledge transfer from universities, where they study part-time, to companies where they work full-time, where some determinants of this type of knowledge transfer were considered, as well as several theoretical perspectives that converge to create an adequate conceptual model, among them: (a) knowledge management, university-industry collaboration theories, (c) human resource management and (d) dynamic capabilities theories.

Based on the AMO Model, this study proposed that both absorptive capacity and learning motivation in students will enhance the knowledge acquired in the universities where they study; then, the knowledge acquired by students together with their absorptive capacity and learning motivation will influence their knowledge transfer from the universities to the companies where they work. Additionally, job autonomy and social skills play a moderating role in the relationship between acquired knowledge and knowledge transfer.

The results of the study, based on a data set collected from a sample of 544 undergraduate and graduate business students from private universities in Ecuador, revealed that absorptive capacity and learning motivation underlie the knowledge acquired by students, and acquired knowledge is a determinant of knowledge transfer, it was also found that the variables social skills and job autonomy do not have a significant effect on the relationship between knowledge acquisition and knowledge transfer. These findings offer a number of

implications for theory, research and practice. In terms of theory and research, this study addresses a new channel in knowledge transfer such as students in service training from universities studying part-time to companies where they work full-time, which has not been fully investigated in previous research work.

First, from a theoretical perspective, the study identifies that knowledge absorption capacity and learning motivation help in knowledge acquisition and knowledge transfer in the companies where they work, which supports previous studies where it was confirmed that students' absorptive capacities to recognize and understand new knowledge are fundamental in the knowledge acquisition process (Scaringella & Burtschell, 2017), and that although absorptive capacity is important for knowledge acquisition, the process of knowledge attainment might be more complex in the absence of motivation (Rusly et al., 2015). On the other hand, the variables labor autonomy and social skills did not highlight their role as moderators between the acquisition and transfer of knowledge, which could be due to the fact that the study was applied in the midst of the pandemic caused by COVID-19, where 52.21% of the respondents were teleworking and being a new work modality imposed in Ecuador, it could have affected the perception of labor autonomy and social skills in an environment mediated by technology, lack of knowledge of the teleworking technique and connectivity problems.

In terms of practice, the findings of this study point to the participating parties, including the source (universities), the recipient (organizations) and the channel (students, from the business area, in-service training), in the process of transferring information, knowledge to recognize their role in the course of action. The findings suggest that in-service training students can play the role of a channel and source of knowledge transfer from universities to organizations. To facilitate this type of knowledge transfer, universities must first recognize that in-service training students are full-time employees and part-time students and that they will directly apply the acquired knowledge to their daily tasks in their

workplaces where they have the opportunity to use new and novel knowledge to their daily tasks. Therefore, universities must design and implement appropriate study programs to help students acquire knowledge that can be applicable in their jobs, as well as study in depth what motivates them in their learning process.

On the other hand, companies must recognize that their collaborators who study part-time provide and apply new knowledge in their daily tasks, so they must study the factors that can facilitate this transfer of knowledge, but at the same time policies or guidelines that allow highlighting, enhancing and congratulating the application of this process.

## **Conclusion**

The main objective of the present research was to examine the influence of absorptive capacity and learning motivation on the process of knowledge acquisition in students of higher education institutions and, subsequently, its effect on knowledge transfer in the companies where the students work was evaluated. In addition, the variables of students' social skills and the level of work autonomy they enjoy in their work environment, which are suitable for improving the conditions of knowledge transfer in the context of teleworking, were included; thanks to the literature review and the methodology applied, the objective was achieved.

With the results obtained, it can be concluded that knowledge absorption capacity and learning motivation, as reflective constructs, have a significant effect on knowledge acquisition, as well as knowledge acquisition has a significant effect on knowledge transfer, in part-time students, of the administrative area, studying in private higher education institutions in Ecuador and working full time, as well as the significant relationship between the variables of labor autonomy and social skills between the acquisition and transfer of knowledge; it is also evident that the variables of labor autonomy and social skills are significantly related.

Therefore, this study contributes to the literature in different ways. First, this research is a pioneer in Ecuador for the study of knowledge transfer, in administrative and business areas, between universities and companies that places the student in service as the main channel. Secondly, it complements the previous literature since the selected unit of analysis, graduate students, has more experience, confidence and dedication in the application of knowledge, as well as the level of studies in undergraduate degrees has an influence on their absorption capacity and this in turn on the knowledge acquisition. Thirdly, several factors that impact the acquisition of and the process of knowledge transfer between companies and higher education institutions are studied. Finally, this considers a new factor that would facilitate the process of knowledge transfer from the perspective of social skills of the student himself or herself in service under the modality of telework.

From a practical perspective, the results contribute to the three agents involved in knowledge transfer: in-service training students, educational institutions and organizations. In-service training students can have a greater understanding of the skills they need to improve their learning and application of knowledge. Educational institutions will have a better understanding of and approach to developing competencies in their students, while, organizations will be able to identify relevant factors in knowledge transfer and even for the context of teleworking, create ideal conditions for knowledge flow and maintain a commitment to take advantage of this cooperation.

Additionally, the findings of this research provide the research departments of the universities, which in the Ecuadorian context, have the role of transferring knowledge and / or technology to the community in general, the new role that students have in the transfer process and that at the same time has work experience, so that they are taken into account in research projects. In addition, this research provides academic staff with the factors that are determining factors for the motivation of learning and the acquisition of knowledge in

students so that they can consider them within the pedagogical model, curricular design and study techniques in academic proposals.

### **Limitations**

A limitation is that the study does not assess other characteristics related to the parties involved, higher education institutions and business organizations, which may contribute to the effective process of knowledge transfer. For example, teaching and learning methods that directly affect students' knowledge acquisition and also organizational characteristics such as organizational culture and work climate. In addition, there is no specification of the effectiveness of knowledge transfer according to the economic activity and size of the companies. No public universities were included in the study.

### **Recommendations**

It is recommended that institutions with similar teaching techniques such as case studies and collaborative activities, be considered for future research. It is also recommended to apply the study to graduate students and see if there is a relationship between the perception of those who have already received the service and how it impacted the process of knowledge transfer in their work environment; they could provide another point of view in relation to students who have not yet completed their studies. It is also suggested to apply the same study to students in other areas of specialization.

For future lines of research, we suggest conducting follow-up studies, in order to detect changes in the environment or new factors to consider, as well as including the variable of study techniques as a moderator between the acquisition and transfer of knowledge and variables that provide information on the characteristics of the companies where the students work to try to determine if they also influence the transfer of knowledge.

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## Chapter II. Conclusions and Recommendations

### Conclusions

The main objective of the present research was to examine the influence of absorptive capacity and learning motivation on the process of knowledge acquisition in students of higher education institutions and, subsequently, its effect on knowledge transfer in the companies where the students work was evaluated. In addition, the variables of students' social skills and the level of work autonomy they enjoy in their work environment, which are suitable for improving the conditions of knowledge transfer in the context of teleworking, were included, thanks to the literature review and the methodology applied, the objective was achieved.

To make objective decisions for hypothesis testing and to improve the interpretation of the regression coefficients, it is suggested to evaluate the significance of the exogenous variables of the model by evaluating the *p-value* of the relationships. For this purpose, SmartPLS version 3 allows estimating the model by bootstrapping, with which the values for the t-Student test for each indicator can be obtained. By means of the structural model estimation by means of the PLS algorithm and bootstrapping with five thousand subsamples, it was possible to confirm that the knowledge transfers of part-time students of higher education institutions in Ecuador who work full time is significantly and positively explained by the acquisition of knowledge, with a significance level of .05. After confirming the hypotheses of the structural model, the predictive quality of the estimated model was evaluated. For this purpose, the coefficient of determination  $R^2$  was evaluated, which is a measure of the predictive capacity of the exogenous variables on the endogenous variables and corresponds to the square of the correlations between the exogenous variables with the endogenous variables of the model. According to the results obtained, the coefficient of determination  $R^2$  of the model was 0.643 for knowledge acquisition and 0.6551 for

knowledge transfer, in part-time students in higher education institutions in Ecuador and working full time.

Following the analysis of  $R^2$  and  $f^2$  in order to evaluate the predictive relevance of the model, the Stone-Geisser's  $Q^2$  test was performed. In structural equation models, the  $Q^2$  value evaluates the predictive relevance of the paths of the structural model to the endogenous structural model to the endogenous variables (Hair et al., 2012). Values of  $Q^2$  of .02, .15 and .35 indicate how the exogenous constructs have low, medium, and high predictive power on a certain endogenous construct. The Stone-Geisser's  $Q^2$  value of Stone-Geisser can be obtained by the Blindfolding procedure, in which the predictive relevance of an exogenous construct is predictive relevance of an exogenous construct on an endogenous latent variable (Kwong & Kay, 2013). According to the results obtained from the Blindfolding estimation, the value of  $Q^2$  is 0.568 for knowledge transfer. With this, it can be concluded that knowledge acquisition has a high predictive power on knowledge transfer, in part-time students studying in higher education institutions in Ecuador and working full time.

With the results obtained, it can be concluded that knowledge absorption capacity and learning motivation, as reflective constructs, have a significant effect on knowledge acquisition, as well as knowledge acquisition has a significant effect on knowledge transfer, in part-time students, of the administrative area, studying in higher education institutions in Ecuador and working full time, as well as the significant relationship between the variables of labour autonomy and social skills between the acquisition and transfer of knowledge, it is also evident that the variables of labour autonomy and social skills are significantly related.

Therefore, this study contributes to the literature in different ways. First, this research is a pioneer in Ecuador for the study of knowledge transfer, in administrative and business areas, between universities and companies that places the student in service as the main channel. Secondly, it complements the previous literature since the selected unit of analysis, graduate students, has more experience, confidence and dedication in the application of knowledge, as

well as the level of studies in undergraduate degrees has an influence on their absorption capacity and this in turn on the knowledge acquisition. Thirdly, several factors that impact the acquisition of and the process of knowledge transfer between companies and higher education institutions are studied. Finally, this considers a new factor that would facilitate the process of knowledge transfer from the perspective of social skills of the student himself in service under the modality of telework.

From a practical perspective, the results contribute to the three agents involved in knowledge transfer: in-service training students, educational institutions, and organizations. In-service training students can have a greater understanding of the skills they need to improve their learning and application of knowledge. Educational institutions will have a better understanding of and approach to developing competencies in their students. While, organizations will be able to identify relevant factors in knowledge transfer and even for the context of teleworking, create ideal conditions for knowledge flow and maintain a commitment to take advantage of this cooperation.

Additionally, the findings of this research provide the research departments of the universities, which in the Ecuadorian context, have the role of transferring knowledge and / or technology to the community in general, the new role that students have in the transfer process and that at the same time has work experience, so that they are taken into account in research projects. In addition, this research provides academic staff with the factors that are determining factors for the motivation of learning and the acquisition of knowledge in students so that they can consider them within the pedagogical model, curricular design and study techniques in academic proposals.

### **Implications**

An important limitation is that the study does not assess other characteristics related to the parties involved, higher education institutions and business organizations, that may contribute to the effective process of knowledge transfer. For example, teaching and learning

methods that directly affect students' knowledge acquisition and also organisational characteristics, such as organisational culture and work climate. In addition, there is no specification of the effectiveness of knowledge transfer according to the economic activity and size of the companies. No public universities were included in the study.

### **Recommendations**

It is recommended that institutions with similar teaching techniques, such as case studies, collaborative activities, be considered for future research. It is also recommended to apply the study to graduate students and see if there is a relationship between the perception of those who have already received the service and how it impacted the process of knowledge transfer in their work environment, they could provide another point of view in relation to students who have not yet completed their studies.

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## Appendices

### Appendix A. letter of acceptance or message accepting the paper

ScholarOne Manuscripts - Google Chrome  
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### Measuring Business Excellence

**Decision Letter (MBE-07-2021-0097.R1)**

**From:** schiuma@lum.it  
**To:** mayra.vega@pucp.edu.pe, idelavega@pucp.edu.pe  
**CC:**  
**Subject:** Measuring Business Excellence - Decision on Manuscript ID MBE-07-2021-0097.R1  
**Body:** 22-Apr-2022

Dear Vega Chica, Mayra Liuviana; De la Vega Hernández, Iván

It is a pleasure to accept your manuscript MBE-07-2021-0097.R1, entitled "Transfer of Knowledge from Universities to Organizations in the Ecuadorian context" in its current form for publication in Measuring Business Excellence. Please note, no further changes can be made to your manuscript.

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Thank you for your contribution. On behalf of the Editors of Measuring Business Excellence, we look forward to your continued contributions to the Journal.

Yours sincerely  
 Prof. Giovanni SCHIUMA  
 Editor, Measuring Business Excellence  
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**Date Sent:** 22-Apr-2022

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