

Hard and soft skills requested by the business sector from Financial Engineering professionals

- (es) Habilidades duras y blandas solicitadas por el sector empresarial a profesionales de Ingeniería Financiera
(port) Hard e soft skills solicitadas pelo setor empresarial aos profissionais de Engenharia Financeira

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Ruiz Andia, R., Fernández-Daza, V. M., Fernandez-Arraya, V. H., & Quispe-Oros, N. A. (2025). Habilidades duras y blandas solicitadas por el sector empresarial a profesionales de Ingeniería Financiera. *YUYAY: Estrategias, Metodologías & Didácticas Educativas*, 4(2), 13–38. <https://doi.org/10.59343/yuyay.v4i2.76>

Recepción: 28-09-2024 / Aceptación: 01-11-2024 / Publicación: 31-01-2025



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Abstract

The article, entitled barriers that prevent quality virtual learning in students of the virtual modality of the Bolivian Higher Institute of Technology (ITB), for the realization of this article, it was allowed to work with the students of the Faculty of Transportation and Roads (FATV), in order to determine the main barriers that prevent meaningful learning in students of generation X, Y & Z. Students of these generations are the ones with the highest number of conglomerations in the total student population, which is why andragogical approaches are used that promote the direct appropriation of the knowledge shared in the key ideas of each unit, in order to determine which of these barriers are the ones that prevent their good performance and learning. A descriptive research was carried out on a sample group of 70 Transportation students, which consisted of a 20-question form, which when adding the information obtained based on direct observation identified 4 essential barriers that make meaningful learning impossible in virtual modalities: technological barriers, lack of availability of time, lack of motivation generated by not receiving feedback from the teaching staff and lack of commitment to exploring explicit content for their professional training; This allowed us to obtain a more precise overview of what must be worked on so that virtual education processes are effective in the learning process.

Keywords: *Barriers, learning, virtual education, limitations, FATV*

Resumen

El artículo, titulado barreras que imposibilitan el aprendizaje virtual de calidad, en los estudiantes de la modalidad virtual en el Ecuador para la realización del presente artículo, se permito trabajar con los estudiantes de la Facultad de Transporte y Vialidad (FATV), con la finalidad poder determinar las principales barreras que imposibilitan el aprendizaje significativo en los estudiantes de la generación X, Y & Z. Los estudiantes de estas generaciones son las que tienen mayor número de conglomeración en la población total de alumnos, por lo cual se utiliza enfoques andragógicos que impulsen a la apropiación directa de los conocimientos compartidos en las ideas claves de cada unidad, para llegar a determinar cuáles de estas barreras son las que imposibilitan su buen desempeño y aprendizaje. Se realizó una investigación descriptiva a un grupo muestral de 70 estudiantes de la Transporte. Esta investigación consistió en un formulario de 20 preguntas, las cuales al ir sumando la información obtenida en base a la observación directa de los autores de este artículo científico, se pudo determinar que existen 4 barreras esenciales que imposibilitan el aprendizaje significativo en las modalidades virtuales. Una de estas barreras es la tecnología, otra es la falta disponibilidad de tiempo, la falta de motivación generada al no receptor retroalimentaciones por el cuerpo docente y la falta de compromiso a la exploración de los contenidos explícitos para su formación profesional, esto permitirá obtener un panorama con mayor precisión en la cual se debe de trabajar para que los procesos de educación virtual sean eficaces en el proceso de aprendizaje.

Palabras claves: *Barreras, aprendizaje, educación virtual, limitaciones, FATV..*

YUYAY Vol. 4. N.2

Resumo

O artigo, intitulado barreiras que impossibilitam a aprendizagem virtual de qualidade, em estudantes da modalidade virtual no Equador para esta uma Instituição de Ensino Superior, Instituto Superior Boliviano de Tecnologia (ITB), foi levado para a realização deste artigo, foi permitido trabalhar com os alunos da Faculdade Acadêmica de Transportes e Estradas (FATV). a fim de determinar as principais barreiras que impossibilitam a aprendizagem significativa em alunos da geração X, Y & Z. Os alunos destas gerações são os que apresentam o maior número de conglomeração na população total de alunos, razão pela qual são utilizadas abordagens andragógicas que promovem a apropriação direta do conhecimento partilhado nas ideias-chave de cada unidade, para determinar quais destas barreiras são as que os impossibilitam de ter um bom desempenho e aprender. Foi realizada uma pesquisa descritiva em um grupo amostral de 70 alunos do Departamento de Transportes. Esta pesquisa consistiu em um formulário de 20 questões, que somando as informações obtidas com base na observação direta dos autores deste artigo científico, foi possível determinar que existem 4 barreiras essenciais que impossibilitam a aprendizagem significativa em modalidades virtuais. Uma dessas barreiras é a tecnologia, outra é a falta de disponibilidade de tempo, a falta de motivação gerada por não receber feedback do corpo docente e a falta de compromisso com a exploração de conteúdos explícitos para a sua formação profissional, isso permitirá obter um panorama mais preciso no qual trabalhar para que os processos de educação virtual sejam eficazes no processo de aprendizagem.

Palavras-chave: *Barreiras, aprendizagem, educação virtual, limitações, FATV*

Introduction

The skills and competencies that entrepreneurs demand from professionals in the financial area have been significantly transformed, and even more so in recent years with the accelerated advancement of technology. This transformation is not only focused on technical or hard competencies, but also on soft skills that are essential for professional and organizational success.

Hard skills are those competencies that can be acquired through training and professional experience, they are also specific skills that give way to the performance of activities, tasks or work aimed at achieving objectives and decision-making. (Buxarrais M., 2013).

Soft skills refer to the capabilities that allow a person to develop holistically in different areas, including the ability to work under pressure, adaptability to different environments, skills to receive and learn from criticism, self-confidence and reliability, effective communication, problem solving, critical and analytical thinking, efficient time management, teamwork, proactivity and initiative, curiosity and imagination, willingness to learn, and balance between personal, family, social and work life, among other aspects. (Buxarrais M., 2013).

Chiavenato (2007) points out that work performance is linked to collaborative development, he also indicated that productivity in an institution occurs when the individual has been instilled with positive behaviors towards work, so that he feels committed and identified with the ideals of the institution, thus he defines as characteristics of work performance, commitment, quality at work, teamwork and productivity. (p. 203).

The present study identifies and analyzes the hard and soft skills that entrepreneurs demand from financial professionals in Cercado – Cochabamba, through a descriptive analysis research, it seeks to distinguish the requirements of companies in both the corporate and banking sectors, to achieve the aforementioned objective, data collection instruments were applied to the aforementioned sampling frames, data that after being collected was meticulously analyzed from specialized software. Through this study, it is expected to provide information that contributes to the training and professional development of future financiers, as well as the adaptation and updating of what companies require.

Methodology

The research was carried out from a quantitative approach, for this purpose surveys were used as data collection instruments. Once the data were collected, they were statistically processed using specialized SPSS software.

Sample Design Process

There is a registry of 59,323 companies in the department of Cochabamba, the number of financial intermediation entities that exist in the country was also investigated and according to the Financial System Authority (ASFI) the supervised entities with operating licenses are 69, of which twelve belong to multiple banks, two to SME banks, three housing financial institutions, 41 open and corporate savings and credit cooperatives, two state financial institutions or with a majority stake and nine development financial institutions. To determine the sample size for private companies in the city of Cochabamba, the following proportional sampling formula for finite populations will be used:

$$n = \frac{K^2 N p q}{(N - 1) e^2 + K^2 p q}$$

Where:

n = Sample size to be calculated

K² = Confidence level

N = Population

p = Probability of success

q = Probability of failure

e² = Absolute sampling error

Considering that the number of private companies in the city of Cochabamba is 59,323, we will work with a confidence level of 95% with a significance level of 5%, an absolute error of 9%, a probability of success of 50% and a probability of failure of 50%, this probability is used since there are no studies like the one proposed. For this purpose, the sample size to carry out the research is the same:

Datos:

Tamaño de la población:	59.323
Proporción esperada:	50,000%
Nivel de confianza:	95,0%
Efecto de diseño:	1,0

Resultados:

Precisión (%)	Tamaño de la muestra
1,000	8.266
2,000	2.308
3,000	1.049
4,000	595
5,000	382
6,000	266
7,000	196
8,000	150
9,000	119
10,000	96

Therefore, a total of 119 surveys have been carried out, of which 99 surveys were applied to private companies and 20 surveys to the banking sector in the city of Cochabamba. The chart was obtained and presented in their native language (Spanish).

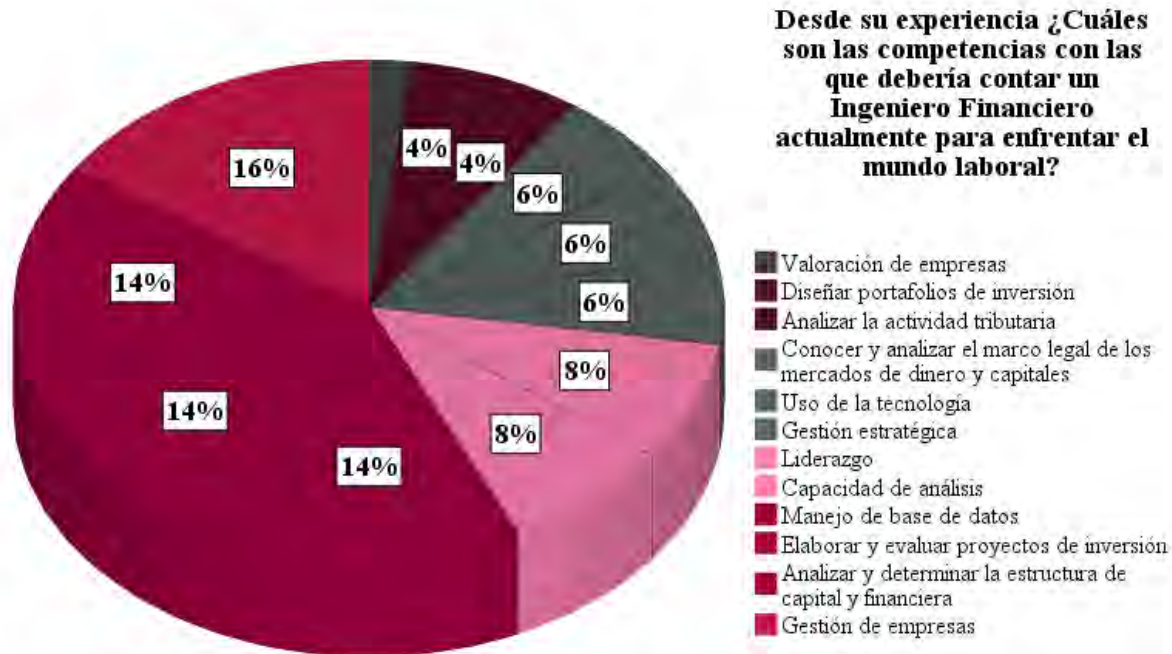
Results and analysis

The following software was used to analyze the perceptions of the private business sector regarding hard and soft skills and job performance in professionals of the Financial Engineering career: Epidat software was used for sample design, Microsoft Forms software was used for the design of the survey, SPSS statistical software was used for tabulation, coding and analysis of the information.

Regarding the development of the fieldwork, surveys were carried out with private sector entrepreneurs in Cochabamba Cercado, segmenting the corporate sphere into the financial sphere, where the majority was banking. Subsequently, the data obtained from the univariate and multivariate analyses were systematized.

After conducting the study, it was observed that, of the total number of respondents, 55% belonged to the male gender and 45% to the female gender. The average age of the business sector of the people surveyed is 35 years old on average. The survey involved private sector companies, both corporate companies and financial intermediation entities.

Figure 1.
 Competencies for a financier – entrepreneur vision



Source: Own elaboration (2024). The chart was obtained and presented in their native language (Spanish).

16% of respondents consider that knowledge in business management is the most important skill for a financier, followed by the management of databases and the ability to evaluate and develop investment projects while analyzing and determining the financial capital structure, both with 14% of the responses.

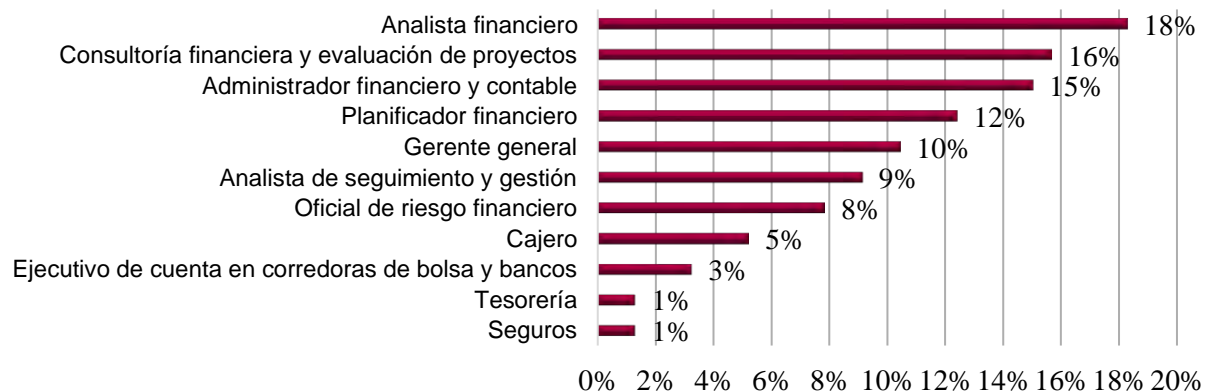
Figure 2.
Competencies for a financier according to banking experts



Source: Own elaboration (2024). The chart was obtained and presented in their native language (Spanish).

According to respondents from the banking sector, a Financial Engineer must possess key competencies such as a solid analytical ability to evaluate financial statements, recent information regarding news and news. In addition, it is essential that they master technological tools and programs such as Python, SQL, and R. They must be proficient in risk management, proactive, and have analytical thinking for decision-making, as well as be able to adapt to changes.

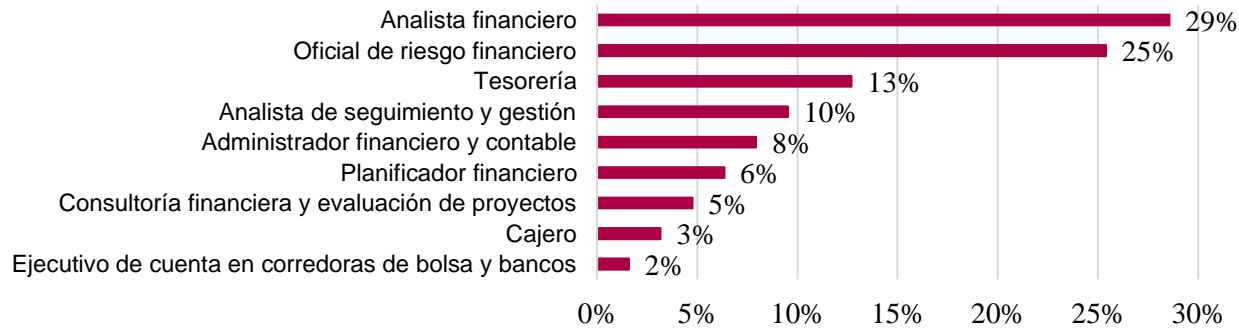
Figure 3.
More erranded jobs



Source: Own elaboration (2024). The chart was obtained and presented in their native language (Spanish).

The jobs most in demand by Financial Engineers, according to respondents who work in the corporate sector are: 18% financial analyst, 16% consulting and project evaluation and 15% financial administrators and accountants.

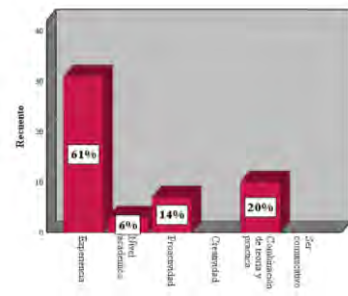
Figure 4.
Most in-demand jobs, banking sector



Source: Own elaboration (2024) The chart was obtained and presented in their native language (Spanish).

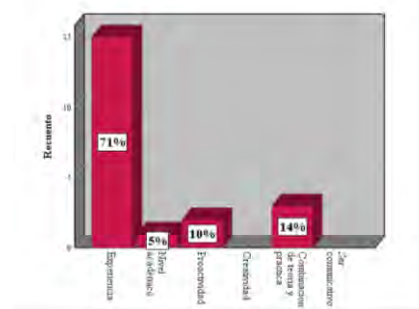
The jobs most in demand by financial engineers, according to the opinion of entrepreneurs working in the banking sector are: 29% financial analyst, 25% financial risk officer and 13% treasury. The jobs most in demand by financial engineers, according to the opinion of entrepreneurs working in the banking sector are: 29% financial analyst, 25% financial risk officer and 13% treasury.

Figure 5.
Senior Manager - Entrepreneurs



Source: Own elaboration (2024)

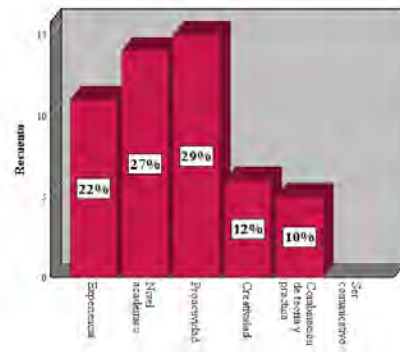
Figure 6.
Senior Manager - Banking



Source: Own elaboration (2024)

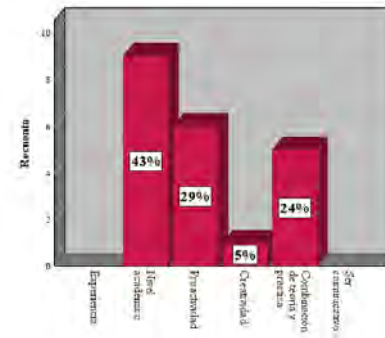
According to Figure 5, what they consider most important in a person who holds the position of senior manager according to entrepreneurs is experience. According to Figure 6, 71% of bankers value experience, followed by the combination of theory and practice.

Figure 7.
Junior Employee - Entrepreneurs



Source: Own elaboration (2024)

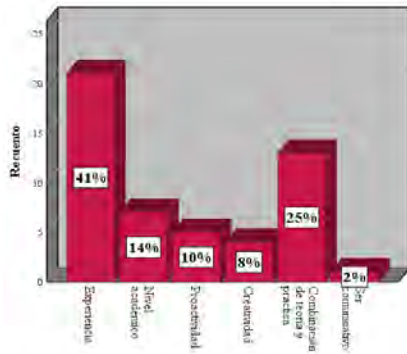
Figure 8.
Junior Clerk - Banking



Source: Own elaboration (2024)

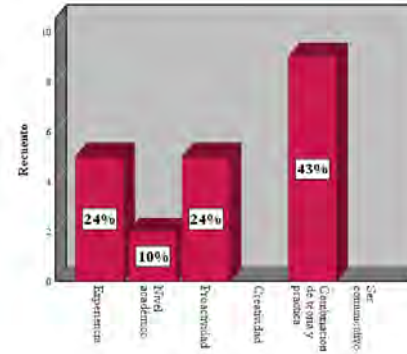
In Figure 7, according to the employers, 29% of respondents consider proactivity to be the most relevant factor for a Junior position, followed by academic level and experience. Figure 8 shows that the opinions of entrepreneurs in the banking sector consider academic level to be more important, followed by proactivity.

Figure 9.
Financial Analyst - Entrepreneurs



Source: Own elaboration (2024)

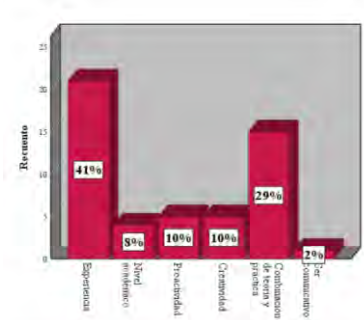
Figure 10.
Financial Analyst - Banking



Source: Own elaboration (2024)

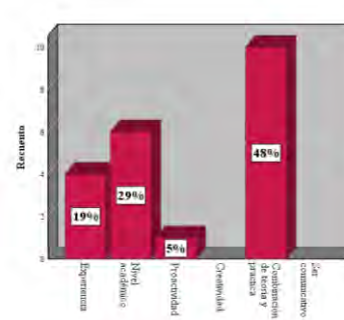
In Figure 9, 41% of respondents consider experience to be the most relevant factor for a person to perform their role as a financial analyst, 25% consider the combination of theory and practice to be crucial. In Figure 10, entrepreneurs in the banking sector consider the combination of theory and practice to be the most relevant factor, followed by experience and academic level respectively, and 10% value proactivity.

Figure 11.
Financial Risk Officer - Entrepreneurs



Source: Own elaboration (2024)

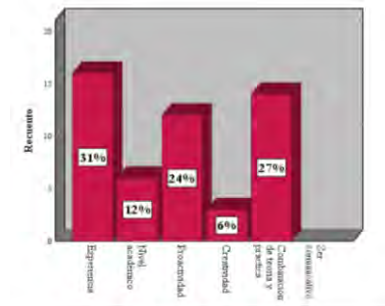
Figure 12.
Financial Risk Officer - Banking



Source: Own elaboration (2024)

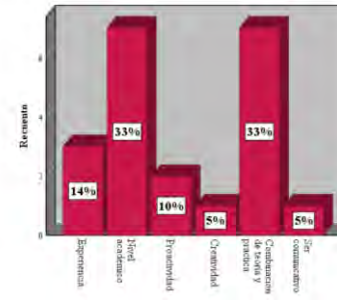
Figure 11 shows that 41% of respondents consider experience to be the most relevant factor for a person to perform their roles as a Financial Risk Officer, 29% the combination of theory and 10% value proactivity and creativity. Figure 12 shows that entrepreneurs in the banking sector consider the combination of theory and practice to be the most relevant factor, 29% who believe that academic level is important, 19% value experience and 5% proactivity.

Figure 13.
Monitoring and Management Analyst-Entrepreneurs



Source: Own elaboration (2024)

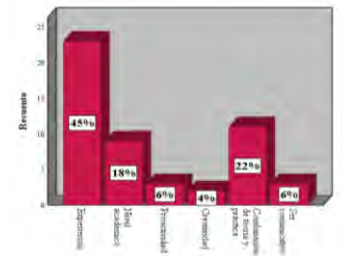
Figure 14.
Monitoring & Management Analyst - Banking



Source: Own elaboration (2024)

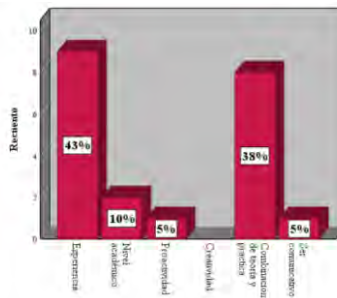
Figure 13 shows that 31% of respondents, from the business sector, consider that experience is the most relevant factor for professionals to work as a monitoring and management analyst, 27% believe that the combination of theory and practice is crucial. In Figure 14, 33% of the banking sector states that the academic level together with the combination of the theoretical and the practical are the most relevant factors.

Figure 15.
Financial Consulting & Project Evaluation-Entrepreneurs



Source: Own elaboration (2024)

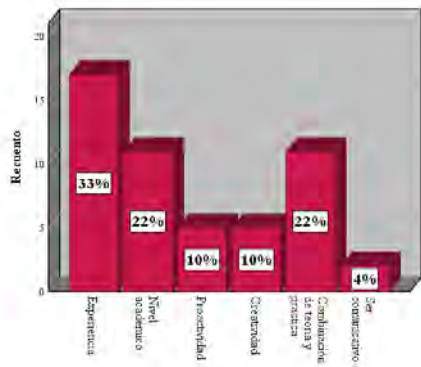
Figure 16.
Financial Consulting & Project Evaluation - Banking



Source: Own elaboration (2024)

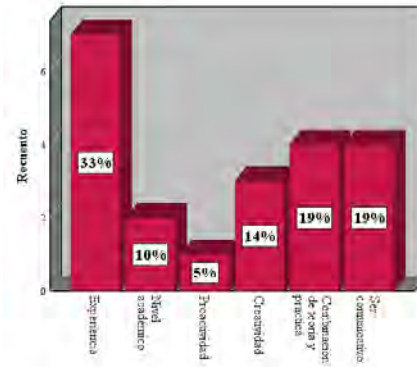
In Figure 15, 45% of respondents consider experience to be the most relevant factor, 22% the combination of theory and practice is crucial and 18% value academic level to work as a financial consultant and project evaluator. In Figure 16, 43% of respondents consider experience to be the most relevant factor, followed by 38% who believe that the combination of theory and practice is crucial, while 10% value academic level and 5% consider proactivity and being communicative, to work as a financial consultant and project evaluator.

Figure 17.
Account Executive at Brokerages and Banks - Entrepreneurs



Source: Own elaboration (2024)

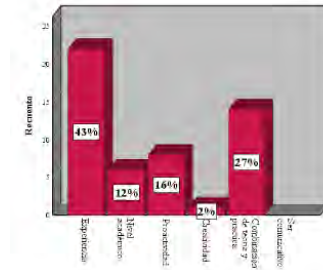
Figure 18.
Account Executive at Brokerages and Banks - Banking



Source: Own elaboration (2024)

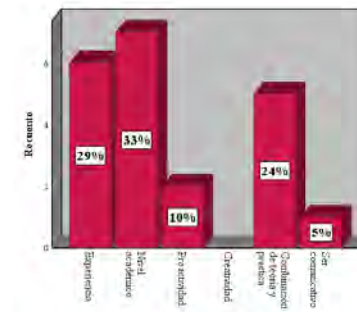
Figure 17 shows that 33% of respondents believe that experience is considered the most relevant factor for a professional to work as an account executive, and 22% say that the combination of theory, practice and academic level is crucial. In Figure 18, 33% of banking entrepreneurs indicate that experience is the most relevant factor, 19% believe that the combination of theory, practice and being communicative is crucial, while 14% value creativity.

Figure 19
Financial and Accounting Administrators - Entrepreneurs



Source: Own elaboration (2024)

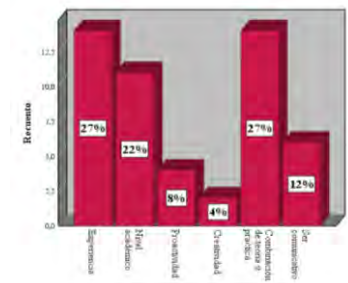
Figure 20
Financial Administrator & Accountant - Banking



Source: Own elaboration (2024)

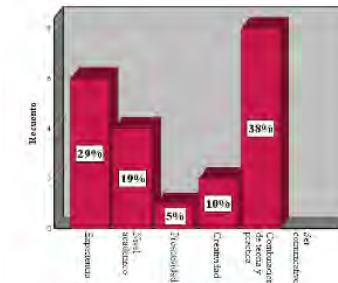
Figure 19 shows that 43% of respondents believe that experience is the most relevant factor for a professional to work as a financial manager, 27% believe that the combination of theory and practice is crucial, and 16% value proactivity. Figure 20, 33% of respondents consider that academic level is the most relevant factor, 29% believe that experience is crucial and 24% value that the person combines theory with practice.

Figure 21
Treasury - Entrepreneurs



Source: Own elaboration (2024)

Figure 22
Treasury - Banking

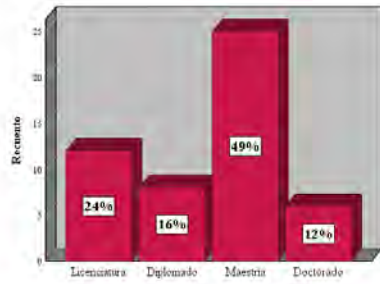


Source: Own elaboration (2024)

In Figure 21, for a person who works in the Treasury area, 27% of respondents consider that experience and the combination of theory and practice are the most relevant factors, followed by 22% who believe that academic level is important. Figure 22 shows that 38% of respondents from the banking sector consider the

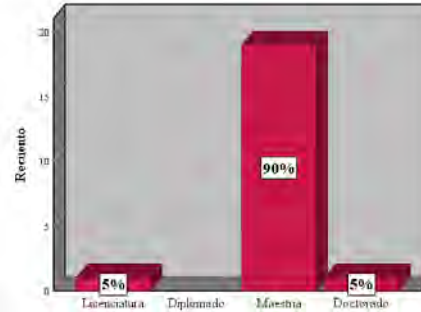
combination of theory and practice as the most relevant factors, followed by 29% who believe that experience is important and 19% value academic level.

Figure 23
Level of Education for a Senior Manager - Entrepreneurs



Source: Own elaboration (2024)

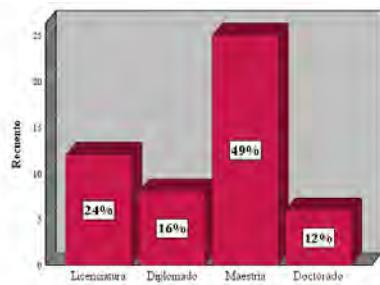
Figure 24
Academic Level - Senior Manager - Banking



Source: Own elaboration (2024)

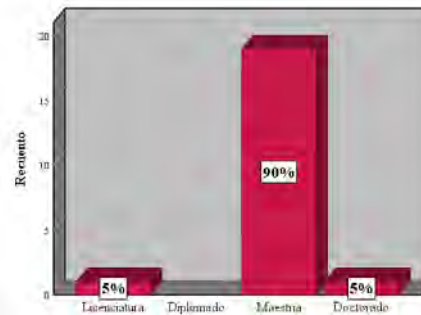
According to Figure 23, 49% of respondents from the business sector believe that it is necessary to have a master's degree, 24% consider that a bachelor's degree is sufficient and 16% believe that a diploma would be adequate. In Figure 24, 90% of respondents from the banking sector believe that it is necessary to have a master's degree, while 5% consider that a bachelor's degree is sufficient, although they recognize that it all depends on the field and the specialization required.

Figure 23
Level of Education for a Senior Manager - Entrepreneurs



Source: Own elaboration (2024)

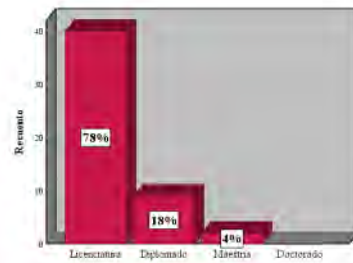
Figure 24
Academic Level - Senior Manager - Banking



Source: Own elaboration (2024)

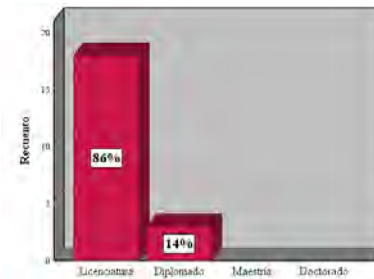
According to Figure 23, 49% of respondents from the business sector believe that it is necessary to have a master's degree, 24% consider that a bachelor's degree is sufficient and 16% believe that a diploma would be adequate. In Figure 24, 90% of respondents from the banking sector believe that it is necessary to have a master's degree, while 5% consider that a bachelor's degree is sufficient, although they recognize that it all depends on the field and the specialization required.

Figure 25
Level of Education for a Junior - Entrepreneurs



Source: Own elaboration (2024)

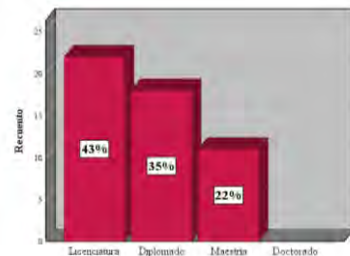
Figure 26
Academic level for a Junior - Banking



Source: Own elaboration (2024)

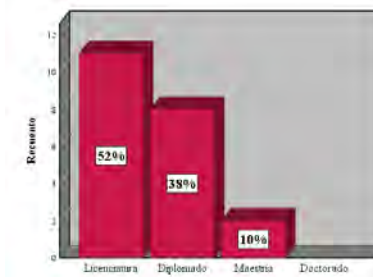
According to Figure 25, 78% of respondents from the business sector consider that a bachelor's degree is sufficient to perform this position, while 18% consider a master's degree. Looking at Figure 26, 86% of the banking sector consider that a bachelor's degree is sufficient to perform this position, while 14% believe that it is necessary to have a master's degree.

Figure 27
Level of Education for a Financial Analyst - Entrepreneurs



Source: Own elaboration (2024)

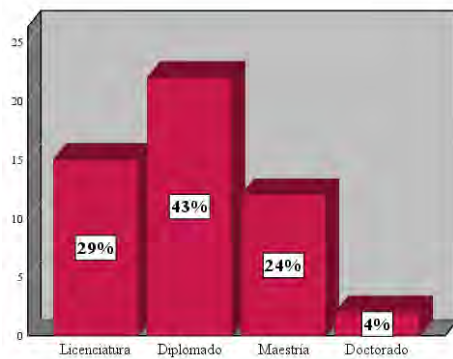
Figure 28
Academic level - financial analyst - Banking



Source: Own elaboration (2024)

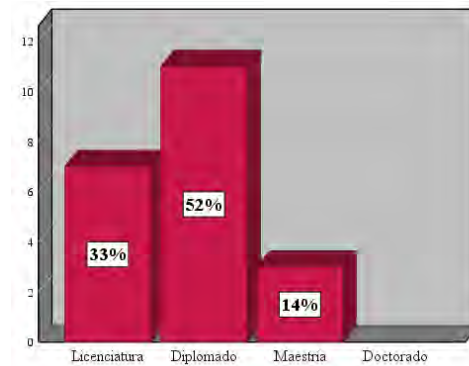
According to Figure 27, 43% of respondents from the business sector consider that a bachelor's degree is sufficient to perform this position, while 35% believe that it is necessary to have a diploma in the area. Looking at Figure 28, 52% of respondents from the banking sector consider that a bachelor's degree is suitable for this position, while 38% believe that it is necessary to have a diploma in the area.

Figure 29
 Academic Level - Financial Risk Officer -
 Entrepreneurs



Source: Own elaboration (2024)

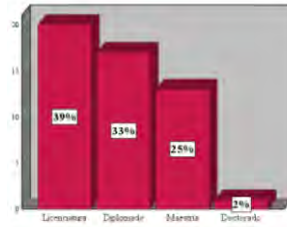
Figure 30
 Academic Level - Financial Risk Officer - Banking



Source: Own elaboration (2024)

According to Figure 29, 43% of the business sector considers that a diploma in the area is suitable for the position, while 29% believe that a bachelor's degree is suitable. In Figure 30, 52% of respondents from the banking sector consider that a diploma in the area is suitable for the position, while 33% say that a bachelor's degree is suitable.

Figure 31
Academic level - Monitoring and management analyst - Entrepreneurs



Source: Own elaboration (2024)

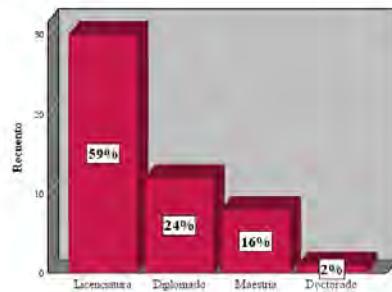
Figure 32
Academic Level - Monitoring and Management Analyst - Banking



Source: Own elaboration (2024)

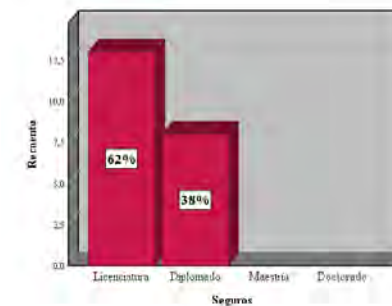
According to Figure 31, 39% of respondents from the business sector consider that a bachelor's degree is sufficient to occupy a position as a monitoring and management analyst, while 33% believe that a diploma is a better option. According to Figure 32, the results of the banking sector, 52% of respondents believe that a diploma is a good option and 48% of entrepreneurs take a bachelor's degree as an optimal choice.

Figure 33
Academic Level – Insurance – Entrepreneurs



Source: Own elaboration (2024)

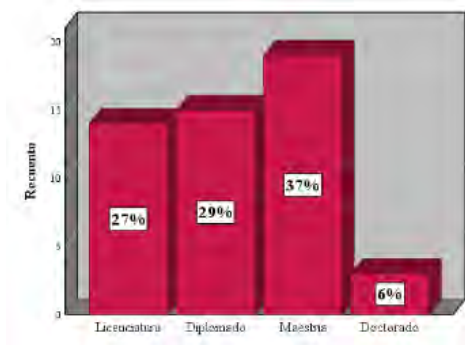
Figure 34
Academic level – Insurance - Banking



Source: Own elaboration (2024)

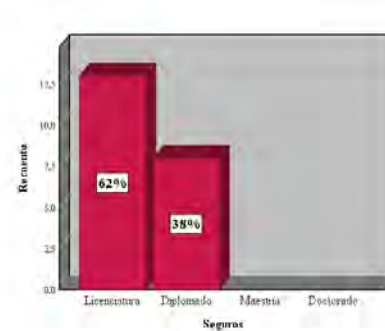
According to Figure 33, 59% of respondents from the business sector consider that a bachelor's degree is sufficient for the insurance area, 24% believe that a diploma is more convenient. According to Figure 34, the results of the banking sector, 62% of respondents consider that a bachelor's degree is suitable for the position, while 38% believe that a diploma is a better option. They also value continuous training and specialization in insurance, which suggests the importance of practical and specific skills.

Figure 35
Academic level - Financial consulting and project evaluation - Entrepreneurs



Source: Own elaboration (2024)

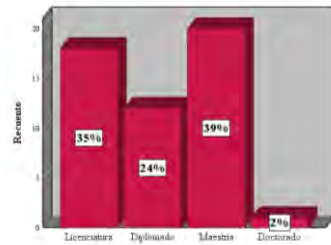
Figure 36
Academic level - Financial consulting and project evaluation - Banking



Source: Own elaboration (2024)

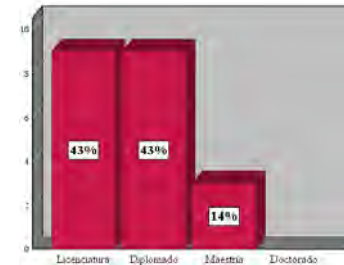
Figure 35 illustrates the opinions of entrepreneurs on the level of education required to occupy a position in financial consulting and project evaluation. 27% of those surveyed believe that a bachelor's degree is enough, 29% think that a diploma is convenient and 37% consider that a master's degree in the area is the optimal choice. According to Figure 36, the results of the banking sector, 43% consider that a master's degree in the area is the right choice and 38% believe that a diploma is a better option.

Figure 37
Academic level - Account executive in stockbrokers and banks - entrepreneurs



Source: Own elaboration (2024)

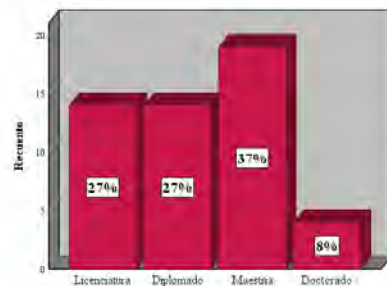
Figure 38
Academic level - Account executive in stockbrokers and banks - Banking



Source: Own elaboration (2024)

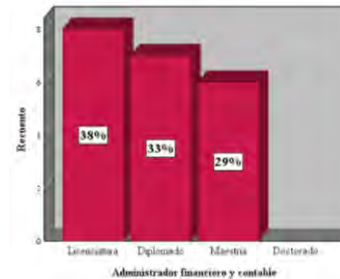
According to Figure 37, 35% of respondents from the business sector consider that a bachelor's degree is sufficient, while 24% believe that a diploma would be ideal. According to Figure 38, Results of the Banking Sector, 43% of respondents consider that a bachelor's degree and a diploma respectively are convenient, while 14% believe that a master's degree in the area is the optimal choice.

Figure 39
Academic Level - Financial and Accounting Administrator



Source: Own elaboration (2024)

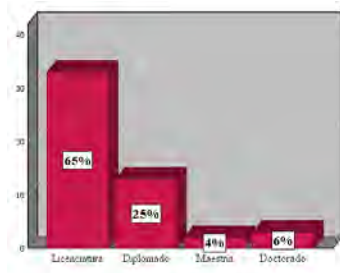
Figure 40
Academic Level - Financial and Accounting Administrator



Source: Own elaboration (2024)

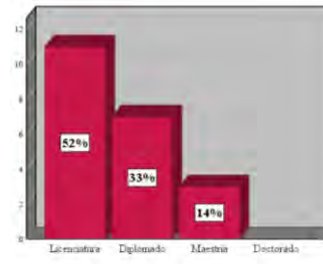
According to Figure 39, 27% of the entrepreneurs surveyed consider that a bachelor's degree is suitable, while 27% believe that a diploma is a better option. According to Figure 40, the results of the banking sector, 38% of those surveyed consider that a bachelor's degree is convenient, while 33% believe that a diploma is another alternative.

Figure 41
Academic level – Treasury – Entrepreneurs



Source: Own elaboration (2024)

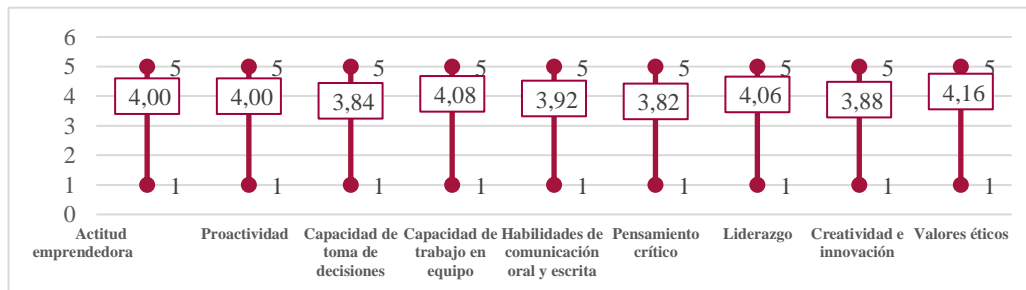
Figure 42
Academic level – Treasury - Banking



Source: Own elaboration (2024)

The results in Figure 41 show that 65% of the employers consider that a bachelor's degree is sufficient for the position of Treasurer, 25% believe that it would be preferable to have a diploma, 6% state that a doctorate would be a suitable alternative. According to Figure 42, the opinion of the Banking sector, 52% of those surveyed consider that having a bachelor's degree is sufficient for the position, while 33% believe that it would be preferable to have a diploma.

Figure 43
From your experience you are asked to qualify the soft skills of engineers - Entrepreneurs

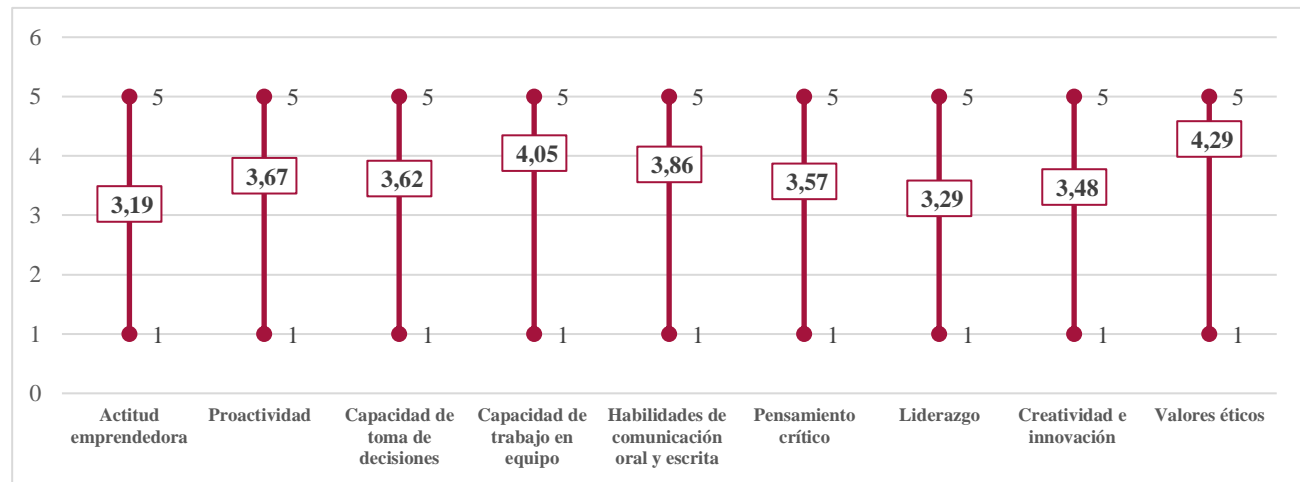


Source: Own elaboration (2024). The chart was obtained and presented in their native language (Spanish).

From the point of view of entrepreneurs, the soft skills most requested by the business side are ethical values, leadership and teamwork.

Figure 44

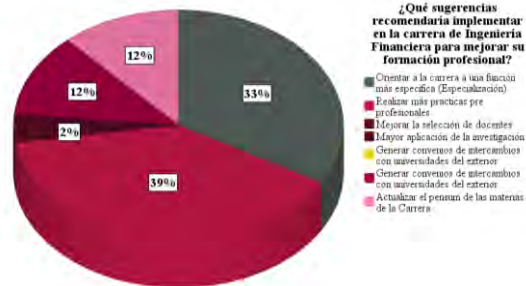
From your experience you are asked to rate the skills of the engineers - Banking



Source: Own elaboration (2024). The chart was obtained and presented in their native language (Spanish).

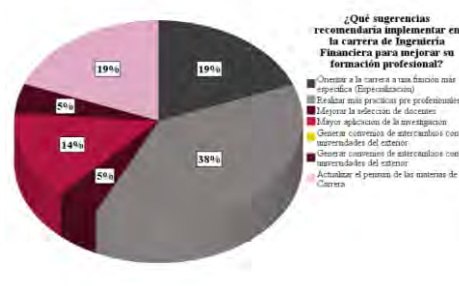
The soft skills most appreciated by banks are: Ethical values, oral and written communication skills and proactivity. Regarding the evaluation of the soft skills of Financial Engineers, it is observed that entrepreneurs rate them on average as important. Skills such as ethical values, teamwork skills, oral and written communication skills, proactivity, critical thinking, creativity and innovation, leadership, and entrepreneurial attitude are especially highlighted.

Figure 45
Suggestions - Entrepreneurs



Source: Own elaboration (2024)

Figure 46
Tips - Banking



Source: Own elaboration (2024)

In Figure 45, 39% of the employers suggest that graduate or graduate students carry out more pre-professional internships, while 33% believe that universities should orient the career to a more specific function, 12% indicate that they should generate exchange agreements and update the curriculum of the career respectively.

In Figure 46, 38% of the banking sector suggest that graduate or graduate students carry out more pre-professional internships, while 19% believe that universities should orient the career to a more specific function and update the curriculum of the subjects, 14% indicate that greater application should be generated to research, 5% indicate improving the selection of teachers and generating international agreements. Among the suggestions, the contribution indicates that content should be updated based on the FRM (Financial Risk Management) and CFA (Chartered Financial Analyst) certifications stands out.

As for the current content suggested by entrepreneurs, the highlighted competencies are: leadership capacity, to lead teams and make strategic decisions, financial management skills, efficient management of financial resources, software knowledge, data analysis, languages, development of soft skills, management of updated information.

Respondents from the banking sector have identified a series of fundamental contents that they consider crucial for a Financial Engineer: financial risks, carrying out more professional internships, introduction of applied econometrics subjects, development of critical thinking, work organization methodologies, business intelligence, big data, local regulations, CFA (Level 1 and 2) and FRM (Level 1). Preparation of business plans.

Conclusions

For the research, they worked with private sector companies, both corporate entities and financial intermediation companies, in the city of Cochabamba Cercado, to obtain information, specifically from high-ranking managers in the respective identities.

Regarding the evaluation of the soft skills of Financial Engineers, it is observed that entrepreneurs rate them on average as important. Skills such as ethical values, teamwork skills, oral and written communication skills, proactivity, critical thinking, creativity and innovation, leadership, and entrepreneurial attitude are among the main ones.

As for the analysis of hard skills, companies in the field suggest the inclusion of specializations, additional courses, a more rigorous selection process, and significant updates in the curriculum can improve the skills and performance of professionals in Financial Engineering. Opinion varies by job type. For managerial positions, a master's degree tends to be required, while for more specific positions, such as analysts and sales executives, a bachelor's degree or diploma may be sufficient.

Positions such as financial analyst, financial consulting and administrator, and accounting are identified as the most demanded by Financial Engineers. It is suggested that essential content should include topics such as financial risks, applied econometrics, critical thinking, work organization methodologies, Business Intelligence, Big Data, and content related to certifications such as FRM and CFA.

References

- Aloy, P. (2015). Método BAPNE realiza labor social con adultos mayores en Venezuela. *Venezuela Sinfónica*.
- Beaumont, P. H. (n.d.). *Financial engineering principles: A unified theory for financial product analysis and valuation*. J. Wiley & Sons.
- Beder, T. S., & Marshall, C. M. (2011). *Financial engineering: The evolution of a profession*. John Wiley & Sons.
- Buxarais, M. (2013). Nuevos valores para una nueva sociedad. Un cambio de paradigma en educación. *Universitat de Barcelona. dialnet.unirioja.es*, 54-65. Recuperado de <https://bit.ly/3viE07a>
- Centro de Estudios para el Desarrollo Laboral y Agrario (CEDLA). (2010). *Transformaciones del sector agropecuario y recursos naturales en Bolivia*. Recuperado de <http://biblioteca.clacso.edu.ar/Bolivia/cedla/20101109105059/AMBIENTAL.pdf>
- Cerrato Reyes, K. M., Argueta, L. R., & Zavala, J. C. (2017). Determinantes de la empleabilidad en el mercado laboral. *Economía y Administración*, 7(1), 21-40. <https://doi.org/10.5377/eya.v7i1.4292>
- Cerrato, K. M., Argueta, L. R., & Zavala, J. C. (2017). Determinantes de la empleabilidad en el mercado laboral. *Economía y Administración*, 7(1), 21-40. Recuperado de <https://doi.org/10.5377/eya.v7i1.4292>

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- Chiavenato, I. (2007). *Administración de recursos humanos* (8th ed.). McGraw-Hill.
- Coca, M. (2015). "Análisis de contexto para la carrera de Ingeniería Comercial de la Universidad Católica San Pablo". In: *Perspectivas*.
- Coca, M. (2015). *Análisis de contexto para la carrera de Ingeniería Comercial de la Universidad Católica San Pablo*. *Perspectivas*.
- Contabilidad para Todos. (2021). *Análisis financiero en las empresas*. Recuperado de <https://contabilidadparatodos.com/libro-analisis-financiero-en-las-empresas/>
- Dess, G. G., & Lumpkin, G. T. (2020). *Strategic management: Creating competitive advantages* (10th ed.). McGraw-Hill Education.
- Dess, G. G., & Lumpkin, G. T. (2020). *Strategic Management: Creating Competitive Advantages* (10th ed.). McGraw-Hill Education.
- Estatuto Orgánico Univalle. (2016). "Estatuto orgánico" Cochabamba, Bolivia: Universidad del Valle.
- Gitman, L. J. (2012). *Principios de administración financiera con CD*. Pearson Education.
- Ludeña, A. (2005). "La formación de competencias laborales". Perú: Caplab.
- Ludeña, A. (2005). *La formación de competencias laborales*. Caplab.
- Nieto Ortiz, J. (2020). *Análisis de las competencias transversales en la formación profesional de Administración y Finanzas desde la óptica de la empleabilidad en España*. *Avances en Supervisión Educativa*, (33). <https://doi.org/10.23824/ase.v0i33.669>
- Nieto Ortiz, J., & Cacheiro González, M. L. (2021). *La evaluación de las competencias en la formación profesional desde un enfoque basado en los resultados de aprendizaje*. *Revista Internacional de Organizaciones*, (27), 173-196. <https://doi.org/10.17345/rio27.173-196>
- Paez Advincula Rafael Roosell (2018). *Grado de importancia de las finanzas y costos en el sector empresarial*. *Revista Industrial Data*, 21(2), <https://doi.org/10.15381/idata.v21i2.15609>
- Ruiz, R. (2021, October). *Competencias profesionales demandadas por el sector empresarial privado en el área de marketing para la carrera de Ing. comercial de la Universidad del Valle [Master's thesis]*. Universidad Católica Boliviana, Cochabamba.
- Tuning América Latina. (2007). "Reflexiones y perspectivas de la Educación Superior en América Latina".
- Van Horne, J. C., & Wachowicz, J. M. (2010). *Fundamentos de administración financiera* (13th ed.). Pearson Educación.
- Zegarra, J. (2019). "Guía de plan de estudios". Perú: PUCP.

