Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

https://doi.org/10.23913/ride.v10i20.646

Artículos Científicos

Análisis comparativo de competencias emprendedoras entre estudiantes de la UABC

Comparative Analysis Among UABC Students of Entrepreneurial Skills

Análise comparativa entre estudantes da UABC de habilidades empreendedoras

Edgar Armando Chávez Moreno
Universidad Autónoma de Baja California, México
gared74mx@uabc.edu.mx
https://orcid.org/0000-0002-9305-3595

Resumen

Este estudio descriptivo, no experimental y no paramétrico muestra los resultados obtenidos a partir de un test que mide 14 competencias emprendedoras aplicado a estudiantes de la Escuela de Ciencias de la Ingeniería y Tecnología (Ecitec) de la Universidad Autónoma de Baja California (UABC) durante los ciclos 2017-2 y 2018-1. Dicho test, creado por la Confederación Española de Asociaciones de Jóvenes Empresarios (Ceaje), se aplicó con el objetivo de analizar comparativamente las respuestas de los alumnos de ambos ciclos de las carreras de Bioingeniería, Industrial y Mecatrónica, a partir del supuesto de que no muchos estudiantes de universidades públicas están interesados en llevar a cabo proyectos de emprendimiento (Westhead y Solesvik, 2016). La muestra por conveniencia estuvo compuesta por 106 sujetos de estudio. El análisis y procesamiento estadístico se llevaron a cabo con apoyo del *software* SPSS 17.0; para el contraste de hipótesis se empleó la prueba de Friedman. Los resultados indican que no hay diferencias significativas en las competencias emprendedoras entre los participantes de ambos ciclos. Como parte de las conclusiones, se evidencia la escasa investigación orientada hacia el papel que juegan las instituciones de educación superior en el fomento y motivación en los estudiantes para emprender ideas de negocio que detonen en nuevas empresas.

Palabras clave: administración, compañía, competencias emprendedoras, negocio, universitarios.

Abstract

This descriptive, non-experimental and non-parametric study shows the results obtained from a test that measures 14 entrepreneurial competences applied to students of the Escuela de Ciencias de la Ingeniería y Tecnología (ECITEC) of the Universidad Autónoma de Baja California (UABC) during 2017-2 and 2018-1 cycles. This test of the entrepreneurial profile, created by the Spanish Confederation of Associations of Young Entrepreneurs (CEAJE), was applied with the objective of carrying out a comparative analysis between both cycles of university students in the careers of Bioengineering, Industrial Engineering and Mechatronics Engineering, from the assumption that not many students from public universities are interested in carrying out entrepreneurship projects (Westhead and Solesvik, 2016). The sample for convenience was composed of 106 study subjects. The analysis and statistical processing were carried out with support of SPSS 17.0; for the hypothesis test using, the Friedman test was used. The results indicate no significant differences in entrepreneurial competencies between students of both cycles. And as part of the conclusions, the little research oriented towards the role played by the institutions of higher education in the promotion and motivation towards the students to undertake business ideas that detonate in new companies is highlighted.

Keywords: management, company, entrepreneurial skills, business, university students.

Resumo

Este estudo descritivo, não experimental e não paramétrico mostra os resultados obtidos em um teste que mede 14 habilidades empreendedoras aplicadas a estudantes da Escola de Ciências e Tecnologia de Engenharia (Ecitec) da Universidade Autônoma da Baja California (UABC) durante os ciclos 2017-2 e 2018-1. Este teste, criado pela Confederação Espanhola de Associações de Jovens Empresários (Ceaje), foi aplicado com o objetivo de analisar comparativamente as respostas dos alunos de ambos os ciclos dos cursos de Bioengenharia, Industrial e Mecatrônica, supondo que não muitos estudantes universitários públicos estão interessados em realizar projetos de empreendedorismo (Westhead e Solesvik, 2016). A amostra de conveniência consistiu em 106 sujeitos do estudo. A análise estatística e o processamento foram realizados com o apoio do software SPSS 17.0; Para o teste de hipótese, foi utilizado o

teste de Friedman. Os resultados indicam que não há diferenças significativas nas habilidades empreendedoras entre os participantes dos dois ciclos. Como parte das conclusões, a escassa pesquisa orientada para o papel que as instituições de ensino superior desempenham na promoção e motivação dos estudantes para empreender idéias de negócios que detonam em novas empresas são evidentes.

Palavras-chave: administração, empresa, habilidades empreendedoras, negócios, estudantes universitários.

Fecha Recepción: Diciembre 2019 **Fecha Aceptación:** Abril 2020

Introduction

Today there is a lot of diffusion about entrepreneurship and its influence on the growth of a country (Aparicio, Urbano and Audretsch, 2015; Bell, 2015; Obschonka, Hakkarainen, Lonka and Salmela, 2017). However, despite this dissemination, there is still no perceived sufficient effort to promote this issue in public universities, since, following Edwards, García, Sánchez, Quesada and Amara (2015), little or no interest is reflected in promote in university students the entrepreneurial skills necessary to carry out undertakings.

On the other hand, there are certain conditions that demonstrate some advances regarding entrepreneurship in universities (Premand, Brodmann, Almeida and Barouni, 2016). In this vein, Gallegos, Grandet and Ramírez (2014, cited in González, Torres and Tinoco, 2017) mention that in Mexico there are 328 higher education institutions that manage a business incubation scheme and that, in a certain way, is related to your study plans. Although González et al. (2017) emphasize that it is not only about implementing a study plan and an entrepreneurship model in HEIs, but also that it is necessary to identify the factors that trigger the impulses to materialize business ideas in university students.

Taking into account the above, this research seeks to measure in a timely manner the level of entrepreneurial competences that exist in students of the engineering area at the School of Engineering Sciences and Technology (Ecitec) of the Autonomous University of Baja California (UABC) . This with the aim, on the one hand, of reviewing the entrepreneurial potential that the members of said university niche have, and, on the other, of finding if there is a direct relationship between the results obtained and the business plans carried out in the field of Entrepreneurship, which is part of the curriculum of engineering affiliated to Ecitec at UABC.

Entrepreneurial skills

Cabana, Cortes, Plaza, Castillo and Álvarez (2013), Based on a sample made up of 389 students from traditional and private universities, technical training institutes and technical training centers, they identified four dimensions that define the entrepreneurial profile of higher education students: 1) attributes of the entrepreneur, 2) interpersonal skills, 3) risk capacities and 4) entrepreneurial attitude. It should be noted that the evidence of performance of this study was the percentage of students who came to undertake a business project. Furthermore, these dimensions are subdivided into entrepreneurial skills, which are shown in Table 1.

Tabla 1. Competencias emprendedoras

Atributos del emprendedor: • Identificación de oportunidades • Proactividad • Creatividad • Visión • Habilidades administrativas	Capacidades interpersonales: • Liderazgo • Trabajo en equipo • Adaptabilidad • Comunicación • Participación
Capacidades frente al riesgo: • Confianza • Sentido del riesgo	Actitud del emprendedor: • Constancia • Motivación • Pasión • Compromiso

Fuente: Cabana *et al*. (2013)

Morris, Webb, Fu and Singhal (2013), for their part, they used the Delphi methodology to prepare a list of entrepreneurial skills, taking as reference two samples, on the one hand, a group of 20 experienced entrepreneurs, and on the other hand, a group of 20 academics with experience in teaching entrepreneurship issues. The profile of the entrepreneurs was based on the fact that their company had at least 100 workers in the industrial, technological, manufacturing and service areas, while the profile of the academics required that the participants have at least 10 years of experience in teaching entrepreneurship topics and, additionally, they will have academic production related to the topic in question. From the above, the following entrepreneurial skills were identified:

1) Recognition of opportunities: the ability to perceive changing conditions or possibilities not seen in the environment that represent potential sources of profit or returns.

2) Opportunity Assessment: The ability to assess opportunities to accurately determine their viability.

3) Risk management / mitigation: initiate actions that reduce the probability of a risk or reduce the impact if the risk occurs.

4) Transmission of a motivating vision: the ability to conceive the image of an organization in the future.

5) Tenacity / perseverance: the ability to sustain actions to meet goals and the energy necessary to confront difficulties and obstacles.

6) Creative problem solving / imagination: the ability to relate previously unrelated objects or variables to produce novel and useful results.

7) Access to resources: the skills necessary to use resources that are not necessarily their own.

8) Guerrilla skills: the ability to take advantage of the environment to use it in an unconventional way and at a low cost.

9) Value creation: the capabilities to develop new products, services and business models that generate income that exceeds its costs and produces sufficient benefits for the user.

10) Staying focused and adaptability: the ability to find a balance between the emphasis on meeting goals and the strategic direction of the organization.

11) Endurance: the ability to manage stress and problems and to recover from adverse results.

12) Self-confidence: the ability to maintain a sense of self-confidence.

13) Build and use networks: the skills to interact socially and establish relationships with others who can help (Morris *et al.*, 2013).

On the other hand, Plumly et al. (2008) found the following entrepreneurial skills in university students:

1) Application of analytical skills and real business intelligence to solve problems and make decisions.

2) Verbal and written communication in order to write and present a business and marketing plan or procedure manuals.

3) Verbal communication and persuasion before potential strategic allies.

4) Application of negotiation skills to obtain financial resources.

5) Effective teamwork to achieve results.

6) Search and obtain information related to legal matters such as permits and licenses.

7) Use of creative thought processes to solve business issues such as logistics.

In addition to these works, there are other investigations (Brixiova, Ncube and Bicaba, 2014; Espíritu and Sastre, 2007; Huggins and Thompson, 2015; Kolstad and Wiig, 2015) that emphasize that additional factors must be considered that have an indirect impact on Entrepreneurial competencies identified in university students, for example, certain sociodemographic conditions and other skills that influence people's behavior, particularly that of those who decide to undertake a business project. These sociodemographic conditions are: age, sex, area of development, family business background, and previous experience. And they also measured some psychological characteristics: need for achievement, internal control, tolerance of ambiguity and risk appetite.

Other research efforts further measured the influence of educational programs that include entrepreneurship issues on their graduates (Kucel, Róbert, Buil and Masferrer, 2016; Sánchez, 2013). In particular, Sánchez (2013) identified the following entrepreneurial skills: 1) self-confidence, 2) proactivity, 3) risk taking and 4) the intention of self-employment. In addition, he managed to identify the intention to start an entrepreneurship project from having received training in entrepreneurship issues.

Finally, Armanios, Eesley, Li and Eisenhardt (2017) refer to the role that some government institutions have in linking the resources of private initiative with entrepreneurs who require capital to start their business idea in emerging countries, which It leads them to develop other conviction skills to obtain these resources.

Methodology

Materials and method

The present study is descriptive, non-experimental and non-parametric, and was carried out at the Ecitec facilities of the UABC. This work is the product of the application of the measuring instrument of the entrepreneurial skills model, which was taken from the website of the Spanish Confederation of Associations of Young Entrepreneurs (Ceaje); Its goal is to identify the entrepreneurial profile that exists in university students who developed a business plan in the field of Entrepreneurship in the careers of Bioengineering, Industrial Engineering and Mechatronics Engineering in the 2017-2 and 2018-1 cycles. For this, once the test was applied, the Friedman statistical test was performed in order to test the hypothesis.

Ceaje skills model

1) Leadership: ability to set goals, monitor and guide and motivate others to achieve them, creating an environment based on mutual trust and personal / professional development.

2) Tolerance of uncertainty: ability to adapt and work in different and varied situations, without clear or defined, changing conditions.

3) Resource management (planning and organization): ability to organize and establish the action plans necessary to achieve the objectives set with the available resources (technical, financial and human).

4) Negotiation: ability to resolve conflicts of interest, reach satisfactory agreements for both parties and create a collaborative environment in which lasting commitments are established to strengthen the relationship.

5) Creativity: ability to devise new and different approaches and solutions to solve problems or situations required by clients or the segment of the economy in which they operate.

6) Teamwork: ability to foster an environment of collaboration, communication and trust among the members of your team or with partners, stimulating them towards achieving common goals.

7) Risk management: shows the courage and courage necessary to dare, dare, play in risky scenarios. Make appropriate decisions in situations of great responsibility and high degree of uncertainty.

8) Business vision: ability to detect and generate opportunities, interpret variations in market trends and recognize the dangers and external forces that affect the competitiveness and effectiveness of the business.

9) Need for independence (autonomy): ability to make their own decisions and take responsibility for the results achieved, whether favorable or unfavorable, without thinking of guilty or benefactors.

10) Problem solving: ability to provide feasible solutions to current and foreseeable customer problems that respond to their needs and objectives.

11) Communication: ability to effectively transmit your own ideas, intentions, knowledge, information, etc., to ask questions, understand others and listen actively to carry out a purpose.

12) Learning ability (self-criticism): ability to frequently and deeply evaluate one's behavior and its context, unlearn and look at what was considered safe from another perspective and make improvements in behavior based on the analysis of previous experiences.

13) Orientation to results: predisposition to act with a clear interest in achieving the objectives set, setting challenging goals above the standards, improving and maintaining high levels of performance.

14) Proactivity: ability to act in advance, showing interest and concern to satisfy the needs of clients (internal / external), and anticipating others with their actions.

This model was identified and used on the CEAJE website, as explained in the previous paragraph, and the instrument is attached at the end.

Sample Description

The sample consisted of 106 study subjects, who took the Entrepreneurship course at the Ecitec of the UABC during the 2017-2 and 2018-1 cycles

Application procedure

For the application of the measurement instrument, the leading researcher and professor of the Entrepreneurship course uploaded a link to the test with instructions to the study subjects in a Blackboard forum, and with a deadline for delivery during the course delivery in the cycles 2017-2 and 2018-1. It is noteworthy that 100% response was obtained by the study subjects.

Subjects of study

Students taking the subject of Entrepreneurship from three educational programs in the engineering area (Bioengineering, Mechatronics and Industrial), who were officially registered during the 2017-2 and 2018-1 cycles and developed the business plan.

Objective

Analyze and make a comparison between the 2017-2 and 2018-1 cycles in the level of entrepreneurial skills of the students of the three engineering education programs already mentioned.

Hypothesis

H0: There is a significant level of equal entrepreneurial competencies among the students of the 2017-2 and 2018-1 cycles who study the subject of Entrepreneurship in the educational programs of Bioengineering, Industrial Engineering and Mechatronics Engineering of the Ecitec of the UABC.

H1: There is no significant level of entrepreneurial competencies equal among the students of the 2017-2 and 2018-1 cycles who study the subject of Entrepreneurship in the educational programs of Bioengineering, Industrial engineering and Mechatronics engineering at UABC Ecitec.

Sample determination

The sample was made up of 106 engineering students who studied Entrepreneurship at Ecitec during the 2017-2 and 2018-1 cycles, as shown in Table 2.

Tabla 2. Sujetos de estudio

	Población	**Muestra**
Total de sujetos de estudio	106	106

Fuente: Elaboración propia

Measuring instrument

The proposed measurement instrument was taken from the test to measure the entrepreneurial profile, directly from the official Ceaje site (http://www.ajeimpulsa.es/formulario/test_evaluacion). The instrument is attached as an annex at the end of the article.

Results

Descriptive statistics by gender of the study subject

To identify the gender classification, the following coding was performed: 1 = Male, 2 = Female and 3 = No answer.

Tabla 3. Género del sujeto de estudio de los ciclos 2017-2 y 2018-1

Género	**Frecuencia 2017-2**	**Porcentaje (%) 2017-2**	**Frecuencia 2018-1**	**Porcentaje (%) 2018-1**
Masculino	33	75	45	72.6
Femenino	11	25	17	27.4
Total	44	100	62	100

Fuente: Elaboración propia

As observed in Table 3, there is a considerable difference in favor of the male gender (70% or more) of the participants in this study, which means that for every 10 university students in these educational programs (Industrial, Mechatronics and Bioengineering) 7 are of the masculine gender and 3 are of the feminine, which, although the distance between one and the other seems a lot, is not so in the area of engineering, since in Mexico only 8% of the female population chooses to study engineering. Undoubtedly, it should be mentioned, it represents a potential for the empowerment of university students in the subject of entrepreneurship.

Descriptive statistics by educational program of the study subject

To identify the classification of the educational program, it was coded as follows: 1 = Bioengineering, 2 = Mechatronics Engineer and 3 = Industrial Engineer.

Tabla 4. Programa educativo del sujeto de estudio: ciclo 2017-2 versus ciclo 2018-1

Programa educativo	**Frecuencia 2017-2**	**Porcentaje (%) 2017-2**	**Frecuencia 2018-1**	**Porcentaje (%) 2018-1**
Bioingeniería	20	45.5	24	38.7
Ing. Mecatrónica	12	27.3	33	53.2
Ing. Industrial	12	27.3	5	8.1
Total	44	100	62	100

Fuente: Elaboración propia

As seen in Table 4, the Bioengineering and Mechatronics groups have just over 70% of the study subjects in both 2017-2 and 2018-1 cycles. The aforementioned may be due, to a certain extent, to the high enrollment that both programs have compared to Industrial, which may have repercussions in more technological undertakings, due to the profile that these careers

present at the Ecitec of the UABC; Or, create synergies and teams with the three profiles that allow generating more complete business ideas.

Tabla 5. Media obtenida de competencias emprendedoras: ciclo 2017-2 versus ciclo 2018-1

Programa educativo	Media 2017-2	Media 2018-1
Bioingeniería	3.97	4.05
Ing. Industrial	3.85	4.13
Ing. en Mecatrónica	3.87	3.81

Fuente: Elaboración propia

With the help of Table 5, it can be identified that the educational program that obtained the best score in entrepreneurial skills in both cycles was Industrial Engineering, with 4.13 points of 5.0, which was given in the 2018-1 cycle; while the educational program with the lowest score was Mechatronics Engineering, with 3.81 points out of 5.0, present in the same cycle, 2018-1. However, the difference in scores between the three educational programs is minimal and very close to 4 = Almost always (61-80). This reflects, according to the Ceaje model on which this study is based, a sufficient level of entrepreneurial skills in the three educational programs, with the potential to achieve entrepreneurial excellence, that is, level 5 = Always (81-100). These results show that, although it is true that there is entrepreneurial potential in the students of the Ecitec of the UABC, these levels of competence have not been sufficient to detonate technology-based projects.

Descriptive statistics of entrepreneurial skills in the study subjects

To identify the level of entrepreneurial skills, the following coding was carried out: 1 = Never (0-20), 2 = Almost never (21-40), 3 = Frequently (41-60), 4 = Almost always (61- 80), 5 = Always (81-100) and 6 = No answer.

Tabla 6. Competencias emprendedoras: ciclo 2017-2 versus ciclo 2018-1

	2017-2				2018-1			
Ítem	**N**	**Media**	**Mín.**	**Máx.**	**N**	**Media**	**Mín.**	**Máx.**
C1. Liderazgo	44	4.16	3.00	5.00	62	4.09	3.00	5.00
C2. Tolerancia a la incertidumbre	44	4.14	2.00	5.00	62	3.77	2.00	5.00
C3. Gestión de recursos (planificación y organización)	44	3.52	1.00	5.00	62	3.97	3.00	5.00
C4. Negociación	44	3.75	2.00	5.00	62	3.77	2.00	5.00
C5. Creatividad	44	4.02	2.00	5.00	62	4.09	2.00	5.00
C6. Trabajo en equipo	44	4.14	3.00	5.00	62	4.12	2.00	5.00
C7. Gestión del riesgo	44	3.98	2.00	5.00	62	3.73	2.00	5.00
C8. Visión de negocio	44	3.52	1.00	5.00	62	3.94	1.00	5.00
C9. Necesidad de independencia (autonomía)	44	4.05	2.00	5.00	62	4.13	2.00	5.00
C10. Resolución de problemas	44	3.80	2.00	5.00	62	3.87	2.00	5.00
C11. Comunicación	44	4.30	2.00	5.00	62	4.15	2.00	5.00
C12. Capacidad de aprendizaje (autocrítica)	44	3.93	2.00	5.00	62	3.94	3.00	5.00
C13. Orientación a resultados	44	3.84	2.00	5.00	62	3.68	2.00	5.00
C14. Proactividad	44	3.59	1.00	5.00	62	3.76	1.00	5.00

Fuente: Elaboración propia

Table 6 shows that the most far-reaching entrepreneurial competence among the three educational programs is C11. Communication, obtained in the 2017-2 cycle and with a value of 4.30, passing the threshold of four points on the scale of the Ceaje model. While the shortest range is C3. Resource management (planning and organization), also presented in the 2017-2 cycle, with just 3.52, that is, without reaching a competent level in this particular entrepreneurial competence, following the scale of the Ceaje. On the other hand, the skills that decreased between the 2017-2 and 2018-1 cycle are: C1. Leadership, C2. Uncertainty tolerance, C6. Teamwork, C7. Risk management, C11. Communication and C13. Orientation to results. While

those where an increase is reflected between one cycle and another are the following: C3. Resource management (planning and organization), C4. Negotiation, C5. Creativity, C8. Business vision, C9. Need for independence (autonomy), C10. Troubleshooting, C12. Learning ability (self-criticism) and C14. Proactivity. That is: 57% of the 14 entrepreneurial skills increased, while 43% decreased between the 2017-2 and 2018-1 cycle.

Testing the hypothesis

Tabla 7. Contrastación de la hipótesis, prueba de Friedman

Hipótesis	**Resultados**	**Observación**
H0: Existe un nivel significativo de competencias emprendedoras igual entre los estudiantes de los ciclos 2017-2 y 2018-1 que cursan la materia de Emprendimiento en los programas educativos de Bioingeniería, ingeniería Industrial e ingeniería Mecatrónica de la Ecitec de la UABC.	Se acepta por ser mayor a 0.05.	Se observa que, al obtener un valor de 0.717 en la prueba de Friedman, existe un valor significativo mayor a 0.05 que justifica la igualdad de competencias emprendedoras en los tres programas educativos (Bioingeniería, ingeniería Industrial e ingeniería Mecatrónica) de la Ecitec de la UABC durante los ciclos 2017-2 y 2018-1.

Fuente: Elaboración propia

Table 7 shows that when performing the Friedman test a value of 0.717 was obtained, that is, greater than 0.05, so there is a significant value that justifies the equality of entrepreneurial skills in the three educational programs in question during the 2017-2 and 2018-1 cycles, as could be seen in the descriptive statistics presented in Tables 3, 4, 5 and 6.

Discussion

Undoubtedly, it is important to have indicators that show the degree of progress in fostering the entrepreneurial spirit and entrepreneurial skills in the students who study the subject of Entrepreneurship within the educational programs of the engineering area of Ecitec; additional indicators, of course, to the individual grades of each of the students. This is due to the fact that the results obtained here coincide with little or no interest in promoting the entrepreneurial competencies necessary in university students to carry out ventures (Edwards et al., 2015)

The limitations of the present study fall mainly on the short time it took for the teacher to do this, due to the administrative burden within the faculty where it was carried out.

On the other hand, the strengths of the study are the experience on the part of the researcher, as well as the facilities provided by the faculty to be able to apply the instruments to the study subjects, which reinforces the approach of Morris et al. (2013), who, it is worth remembering, used the Delphi methodology to identify a series of entrepreneurial skills, taking into consideration two sample groups, one of them made up of academics with experience in teaching entrepreneurship topics.

The results of the study reflect a constant on the issue of measuring entrepreneurial skills between both cycles in engineering students, confirming the findings of other studies (Kucel et al., 2016; Sánchez, 2013).

Finally, one of the weaknesses identified was the lack of additional resources to carry out a comparative study between the different faculties of the UABC and thus reach a larger sample of study subjects.

Conclusions

The best developed entrepreneurial skills in students, according to the results of this study, were the following: leadership, creativity, teamwork and communication. It is important to maintain this level achieved through other types of activities in addition to those already carried out at Ecitec.

The entrepreneurial competences with the lowest level identified in the students, again following the results of the instrument used here, were the following: resource management and proactivity. This represents a challenge for the university, since these are two competencies that can not only help them in the subject of entrepreneurship, but also in their academic performance.

On the other hand, Friedman's test confirms what was stated in the hypothesis by defining that there is equality between the three participating study programs, with an average level of 4 (61-80), according to the scale of the entrepreneurial competencies model of the Ceaje.

Researchers and those interested in carrying out comparative studies in other universities or other countries are invited to join forces and thus achieve a more comprehensive diagnosis, where other variables are considered that allow measuring the level of entrepreneurial skills that lead to the creation of new Business.

References

Aparicio, A., Urbano, D. and Audretsch, D. (2015). Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. *Technological Forecasting & Social Change*, *102*, 45-61.

Armanios, D., Eesley, C., Li, J. and Eisenhardt, K. (2017). How entrepreneurs leverage institutional intermediaries in emerging economies to acquire public resources. *Strategic Management Journal*, *38*(7), 1373-1390.

Bell, R. (2015). Developing the Next Generation of Entrepreneurs: Giving Students the Opportunity to Gain Experience and Thrive. *The International Journal of Management Education*, *13*(1), 37-47.

Brixiova, Z., Ncube, M. and Bicaba, Z. (2014). Skills and youth entrepreneurship in Africa: Analysis with evidence from Swaziland. William Davidson Institute Working Paper No. 1077. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2445001.

Cabana R., Cortes, I., Plaza, D., Castillo, M. y Álvarez, A. (2013). Análisis de las capacidades emprendedoras potenciales y efectivas en alumnos de centros de educación superior. *Journal of Technology Management & Innovation*, *8*(1), 65-74.

Edwards, M., García, A., Sánchez, M., Quesada, H. and Amara, N. (2015). Disentangling competences: Interrelationships on creativity, innovation and entrepreneurship. *Thinking Skills and Creativity*, *16*, 27-39.

Espíritu, R. y Sastre, M. (2007). La actitud emprendedora durante la vida académica de los estudiantes universitarios. *Cuadernos de Estudios Empresariales*, (17), 95-116.

González, R, Torres., V. y Tinoco, M. (2017). Análisis empírico de los determinantes del emprendimiento en estudiantes universitarios: El caso de la Universidad de Colima en México. *Economía y Sociedad*, *21*(36),43-59.

Huggins, R. and Thompson, P. (2015). Local entrepreneurial resilience and culture: the role of social values in fostering economic recovery. *Cambridge Journal of Regions, Economy and Society*, *8*(2), 313-330.

Kolstad, I. and Wiig, A. (2015). Education and entrepreneurial success. *Small Business Economy*, *44*(4), 783-796.

Kucel, A., Róbert, P., Buil, M. and Masferrer, N. (2016). Entrepreneurial Skills and Education-Job Matching of Higher Education Graduates. *European Journal of Education*, *51*(1), 73-89.

Morris, M., Webb, J., Fu, J. and Singhal, S. (2013). A Competency-Based Perspective on Entrepreneurship Education: Conceptual and Empirical Insights. *Journal of Small Business Management, 51*(3), 352-369.

Obschonka, M., Hakkarainen, K., Lonka, K. y Salmela-Aro, K. (2017). Entrepreneurship as a twenty-first century skill: entrepreneurial alertness and intention in the transition to adulthood. *Small Business Economy*, *48*, 487-501.

Plumly, L., Marshall, L., Eastman, J., Iyer, R., Stanley, K. and Boatwright, J. (2008) Developing Entrepreneurial Competencies: A Student Business. *Journal of Entrepreneurship Education*, *11*, 17-26.

Premand, P., Brodmann, S., Almeida, R. and Barouni, M. (2016). Entrepreneurship Education and Entry into Self-Employment Among University Graduates. *World Development*, *77*, 311-327.

Sánchez, J. (2013). The Impact of an Entrepreneurship Education Program on Entrepreneurial Competencies and Intention. *Journal of Small Business Management, 51*(3), 447-465.

Westhead, P. and Solesvik, M., Z. (2016). Entrepreneurship education and entrepreneurial intention: Do female students benefit? *International Small Business Journal*, *34*(8), 979-1003.

Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

Appendant

Prueba de evaluación de competencias para el emprendimiento

The objective of this self-assessment questionnaire is to provide you with information about your level of competence development as an entrepreneur. Competencies are individual abilities to carry out a task. These competencies are manifested through behaviors. For this reason, in this questionnaire, you will find a series of behaviors on which you will have to pronounce. Specifically, you must reflect the extent to which it performs these behaviors. As a result, it is not intended to provide information about your way of being but about the areas of competence in which you could improve through learning.

This information will allow you to:

- Reflect on your strengths and weaknesses in relation to your current situation as an entrepreneur.
- Acquire a greater commitment to the development of your capabilities that will result in a better performance of your current activity as an entrepreneur.
- Identify in a later application the improvements produced in your level of competence development. In other words, the level of development obtained in this first evaluation can be compared with that obtained in subsequent evaluations.

To the extent that you answer with sincerity, you will be able to obtain a better perception of your level of competence development that allows you to establish a training itinerary tailored to your needs. To answer this questionnaire, you must be in your daily work behavior.

Instructions: Mark with an “X” the column that best expresses your opinion.

Scale:

1. **Never have this behavior / way of thinking**
2. **Have I ever had this behavior / mindset**
3. **Sometimes I have this behavior / way of thinking**
4. **This behavior / way of thinking is frequent in me**
5. **I always behave this way**

	1	2	3	4	5
1. Ante un problema estudio y analizo con detenimiento las ventajas e inconvenientes de las diferentes alternativas de resolución del mismo y anticipo los posibles efectos de utilizar diferentes soluciones o decisiones.					
2. Mi principal objetivo siempre es que se alcancen los objetivos marcados y cuando veo que no se van a conseguir en los plazos previstos muestro mi desagrado a mis colaboradores señalando los puntos débiles para que los corrijan.					
3. Verifico que los demás comprenden lo que quiero transmitir, adapto mi lenguaje verbal y no verbal a las características del interlocutor al que me dirijo, y logro ponerme en su lugar evitando las ideas preconcebidas y los juicios.					
4. Me mantengo informado de los cambios que se producen en mi sector, intentando identificar personas que me puedan ayudar a alcanzar mis objetivos y manteniendo con ellos contactos informales pero constantes.					
5. Al realizar la planificación del trabajo siempre tengo en cuenta las tendencias de desarrollo y factores que puedan afectar a la utilización futura de los recursos.					
6. Afronto los riesgos con serenidad, manteniendo un alto desempeño ante situaciones complejas o problemáticas y cumpliendo, a pesar de los imprevistos, con los objetivos propuestos.					
7. Normalmente escucho con atención nuevas ideas sobre cómo realizar mi trabajo, estimulo el diálogo sobre la innovación y refuerzo las aportaciones en este sentido.					
8. Me preocupo por mantenerme actualizado respecto a conocimientos técnicos en mi sector y realizo esfuerzos por cambiar de hábitos y adoptar nuevos procedimientos y herramientas de trabajo.					
9. Me resulta difícil ver posibilidades de actuación efectivas cuando no hay unas pautas claramente establecidas, prefiero los entornos laborables estables porque las situaciones de ambigüedad e incertidumbre me pueden llegar a paralizar.					
10. Me planteo estrategias personales y acciones pertinentes que suponen					

añadir valor tanto a mi persona como a mi desarrollo profesional.					
11. La forma de asegurar el cumplimiento de objetivos es realizar una planificación a corto-medio plazo aunque, con este espacio de tiempo no suelo disponer de los recursos necesarios para realizar el trabajo.					
12. Desarrollo mis actividades en el tiempo previsto logrando los objetivos fijados y alcanzando las metas en las fechas establecidas porque aún en circunstancias de alta presión, me mantengo firme en lo que hago.					
13. Cuando llego a un acuerdo, me quedo con la sensación de que una de las dos partes no ha obtenido el mismo beneficio que la otra.					
14. Al realizar mi trabajo tengo en cuenta los objetivos del grupo, aunque no en todos los casos apoyo las decisiones grupales ya que no siempre son las más acertadas.					
15. La confianza que tienen mis colaboradores conmigo, facilita que me expresen sus debilidades sin temor y ello me permite mejorar su desarrollo profesional.					
16. Cuando me transmiten alguna información, habitualmente realizo preguntas y trato de decir con mis palabras lo que he entendido para verificar si realmente estoy comprendiendo lo que me están transmitiendo.					
17. Suelo anticiparme a situaciones que no son evidentes para otros y realizo acciones para prevenir los problemas que puedan acarrear, llegando incluso a contribuir en proyectos ajenos a los míos.					
18. Las ideas que tengo para realizar cambios en mi trabajo son difíciles de llevar a cabo, por ello no suelo poner en práctica cambios importantes.					
19. Los entornos inciertos, sin reglas, sin límites, son para mí un reto intelectual, me resultan especialmente motivadores y me permiten disfrutar aprendiendo e innovando.					
20. Mantengo constante mi nivel de rendimiento en situaciones normales, pero pierdo calidad/velocidad de respuesta en situaciones muy competitivas o en contextos restrictivos si bien no dejo de mejorar mi desempeño.					
21. Afronto los problemas de trabajo con un planteamiento de prevención que me lleva establecer procedimientos que eviten o por lo menos					

minimicen el impacto de los mismos.					
22. Si soy sincero, realmente creo que trabajar en grupo supone más problemas que ventajas, por ello realizo mi trabajo con el grupo sin comprometerme excesivamente, evitando los conflictos.					
23. En una negociación, cuando mi interlocutor está interesado en una opción determinada, indago con tacto en el por qué, lo que me permite presentarle otras opciones que puedan interesarle.					
24. Me actualizo y me resulta fácil comenzar a trabajar con criterios diferentes a los que he utilizado habitualmente, logrando implementar de forma continua nuevas formas de trabajo.					
25. Me encuentro más cómodo en situaciones que domino y normalmente retraso asumir riesgos, aunque cuando lo hago me alegro de ello y obtengo unos resultados aceptables.					
26. En general, sólo tengo en cuenta lo que yo pienso, por eso me resulta difícil encontrar personas que me ayuden a alcanzar mis objetivos.					
27. Me cuesta ser constante a la hora de conseguir objetivos que me demandan un alto esfuerzo y cuando no los logro, culpo a los demás.					
28. Frente a una situación problemática, me siento inseguro y presento alternativas de solución muy similares con lo que se hace habitualmente.					
29. Suelo ser directo e impulsivo en la comunicación, lo que me lleva a no verificar si la otra parte comprende lo que digo, y a veces, a arrepentirme por reaccionar de manera defensiva y/o agresiva ante los desafíos en la comunicación.					
30. Realizo un diagnóstico del contexto en el que voy a competir para analizar las oportunidades del mercado, lo que me lleva a anticiparme a mis competidores esperando generar oportunidades, aún en situaciones adversas.					
31. Si lo considero necesario para el cumplimiento de mi trabajo, hago cosas nuevas e incluso arriesgadas, previo análisis de la situación, sin importarme que otros no arriesguen de igual forma.					
32. Normalmente me anticipo a las situaciones problemáticas que puedan surgir a corto plazo haciendo sugerencias de mejora en los procesos de					

trabajo.					
33. Normalmente los cambios que propongo suponen ver los problemas desde una perspectiva diferente, ello me lleva a proponer soluciones que se anticipan a las necesidades y usualmente sorprenden y agradan.					
34. Me fastidia tener que aprender nuevas formas de hacer las cosas porque a la hora de la verdad no se ponen en práctica esos nuevos conocimientos adquiridos.					
35. En entornos inciertos mantengo una actitud vigilante y tiendo a identificar los riesgos y oportunidades con los que me puedo encontrar.					
36. No me cuesta abrirme a la experiencia de otros para enriquecer mi propia actuación y recurro a mis compañeros como apoyo y partícipes de mi propia formación.					
37. Establezco procedimientos que me permiten realizar un seguimiento de la efectividad y el desarrollo de las acciones que planifico, evaluando el trabajo con criterios objetivos.					
38. Antes que los resultados, es más importante cumplir las normas y procedimientos establecidos que los resultados ya que éstos, no dependen exclusivamente de mí, sino del resto de personas con las que trabajo.					
39. En un proceso de negociación recojo información sobre las diferentes reuniones de negociación, realizo propuestas para futuros encuentros en los que estimulo la discusión y evaluación sobre estas propuestas.					
40. Recibo con agrado el feedback procedente de los miembros del equipo y normalmente solicito y estimulo la aportación de ideas y sugerencias ante los problemas, procurando llegar al mayor consenso posible.					
41. Establezco objetivos, defino responsabilidades y delego tareas que suponen oportunidades de desarrollo profesional para los miembros de mi equipo, dándoles la posibilidad de que obtengan seguridad y confianza en sus capacidades.					
42. Ante pequeñas vicisitudes que puedan surgir en mi actividad diaria, no tomo cartas en el asunto hasta que no he realizado las consultas adecuadas para resolverlas.					

This instrument was taken from the website in the period 2017-2018 when this research study was carried out.