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**THE ROLE OF THE  
UNIVERSITY IN LOCAL  
DEVELOPMENT IN A  
TOURIST CITY, THE  
CASE OF THE TRAINING  
PROJECT IN THE  
INSTITUTION: INSTITUTO  
TECNOLÓGICO JOSÉ  
MARIO MOLINA  
PASQUEL Y HENRÍQUEZ,  
CAMPUS: PUERTO  
VALLARTA**

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**Abstract:** The purpose of this work is to analyze the contribution of the professional residences of the students of the Bachelor of Tourism of the José Mario Molina Pasquel y Henríquez Technological Institute, Puerto Vallarta campus (ITJMMPyH), to generate local development through projects linked to the sector. productive in the region of Puerto Vallarta and its adjoining municipalities. The methodological design is non-experimental, with a qualitative approach of descriptive type, the study population was made up of the directors of the companies in which professional residences were developed in the period from September 2017 to January 2021, being a total of 58, of 37 who were the study sample were interviewed by telephone. The instrument used to collect information was a questionnaire with questions on a scale of values. The results indicate that different types of professional residence projects have been developed, none have been implemented, three have served as a reference for similar projects, and the assessment of their contribution by employers is generally good in the indicators analyzed.

**Keywords:** Tourism, local development, training project, professional residences, university.

## **INTRODUCTION**

### **LOCAL DEVELOPMENT AND TOURISM**

Local development has boomed in recent decades, its origin dates back to the 1940s, associated with the basic interventions proposed by UNESCO whose objective was to help less developed countries to take off from the economic and social backwardness in which they met. Other initiatives related to this issue are located in the disadvantaged areas of France in 1965 and that is when it began to spread to the rest of the countries until today (Lorenzo and Morales, 2014).

There is consensus among some authors about the concept of local development (González, 1994; Ferraro, 2003; Enríquez, 2004), defined as the interaction or relationship between agents, sectors and forces that operate within the limits of a given territory (local, regional), is a complex process that is carried out with the purpose of promoting a common project that combines the generation of economic growth, social justice, ecological sustainability, gender approach, quality, spatial and territorial balance, social and cultural change., in order to raise the standard of living, the well-being of each family and citizen.

Development thus understood is a function of natural, cultural and social wealth, and depends on the intrinsic forces of the locality, driven by the challenge of reaching higher levels of satisfaction, in the face of fundamental human needs (Narvaez, 2014).

One of the means to generate local development is through tourism, which through the use of natural and cultural resources with tourist value (intrinsic forces), allows the economic participation and empowerment of the members of a locality or region, in projects integrated by government and the productive sector.

Today, the turnover of tourism is equal to or even exceeds that of exports of oil, food products or automobiles, it has become one of the main economic activities of international trade, and represents at the same time one of the main sources of income for many developing countries.

The direct contribution of the tourism sector refers to the value of the goods and services produced by the industries directly related to the activity of tourists: accommodation, travel agencies, airlines and other passenger transport services, as well as restaurants and other leisure activities. (Diaz, 2020).

The World Tourism Organization (UNWTO), in its report *Tourism and Poverty Alleviation*, states that tourism has advantages for underdeveloped countries, since tourism consumption is carried out at the place of production and there are no significant tariff barriers to traditional exports of developing countries (UNWTO, 2003).

In 2021, the tourism industry's contribution to global GDP exceeded US\$5.8 trillion, and tourism's direct contribution to employment, meanwhile, amounted to nearly 280 million jobs (Statista, 2022).

### **TRIPLE HELIX MODEL**

The triple helix model focuses on the interactions and relationships between universities, government, and business. This model facilitates a link between institutions, disciplines and knowledge, where the university is the basis for generating relationships with companies and plays a strategic role in the development of society.

It has its origins in the entrepreneurial university that emerged in the United States where there is a long tradition of collaborations between academic and industrial environments, the university and government agencies, and between government and industry (Etzkowitz, 1989).

One of the objectives of the Triple Helix is the search for a model that reflects the complexity of the linkage concept, taking into account the environment in which the relationships between the linkage agents are based (Chang, 2010).

Another key concept of this theme is innovation, since this model is created in order for places to develop through innovative projects. And from the neo-evolutionary perspective, innovation systems present various types of problems due to their changing and emerging nature and, since innovations occur in the interfaces between the various

subsystems of agents involved: university, industry and government (González, 2009 ).

This model, as already mentioned, is made up of three vital parts: university, government and business. Universities play a strategic role in the whole process, and can even be the starting point for the formation of new organizations.

In this regard, Chang (2010) mentions that the university has a very important role in the socioeconomic activities of a country, insofar as it can generate, apart from its own teaching-learning activity, research and development within it, and in the same way can participate in the creation of new companies or encourage spin-offs.

The second element of the model is the government, which is an essential factor for the linkage and coordination between the other elements. The proposal of the TH implies a participation of the government for its proper functioning, this through the legislation, the instruments and fiscal incentives necessary for the promotion and proper functioning of the relations between university-company. On the other hand, a contribution is also expected with the development of legislation that encourages the creation of companies or projects within the universities that benefit the business link with the university.

Finally, we have companies that, due to their own characteristics and needs, are constantly changing, applying processes and knowledge that stimulate their growth and also help to implement new sources of innovation and development, in which technology is a determining factor., and in cooperation with the university and government contribute to the strengthening of joint projects.

The means for the generation of innovation and to promote the strengthening of the tourism sector can be achieved through business incubators, university technology transfer offices, and technological institutes

that coordinately establish links for the creation of companies oriented towards the use of the forces intrinsic (natural and cultural resources) of the communities or regions with the participation of their members.

## **SOCIAL AND ECONOMIC IMPACT OF PROJECTS**

Every social project seeks to modify the situation of the problem that motivated the intervention, in such a way that an improvement can be obtained. The social impact of a project refers to changes in society and the environment in general, which are generally promoted by companies or associations that have a presence in the area. The impact on society in terms of the benefit that can be provided refers to equity, livelihoods, health, nutrition, poverty, security and justice of a population. Although it is desirable to promote positive impacts, these can also be negative, depending on the situation in which they occur, for example, the effects on the environment and the creation of social problems.

According to Salamanca (1995), impact evaluation is one that focuses on investigating the secondary or collateral effects of any social intervention, encompassing both the positive and negative aspects, direct and secondary effects, which they may have in the medium term. long term. Cohen and Franco (2000), state that the impact evaluation establishes to what extent the social intervention manages to improve the situation for which it was designed, the magnitude of the changes, whether there were or not, to what segment of the population. target affected and to what extent.

Impact evaluation is the difference that exists between a set of initial and final characteristics that are observed in the execution of projects, whose objective is to improve the quality of life of the people in

the place in which they are being developed, the The intention of this type of project will always be focused on improving people's daily lives and seeks to ensure that the impacts generated are always positive and short-term. Through the evaluation of impacts, an attempt is made to verify the changes produced by the interventions to which the target populations are subjected in which a certain project is applied (Valdés, 2009).

The Social Impact Assessment is today a recurring practice and is a tool for monitoring and improving social programs or projects. The processes of social intervention, through programs aimed at a specific population, are inspired by the general principle of the common good, as an instance of increase and improvement of the development of the potentialities of the target community and, therefore, of sustainable improvement. in the quality of life of the beneficiaries (Crespo, 2007).

## **TRAINING PROJECT OR INTEGRATOR**

For López and García (2012), the training project, or integrative project, is a didactic strategy that is based on carrying out activities articulated with each other, with a beginning, a development and an end, with the purpose of identifying, interpreting, arguing and resolving a context problem. While for Tobón (2010), training projects are a general strategy to train and assess students' skills by solving pertinent problems of the context (personal, family, social, work-professional, environmental-ecological, cultural, scientific, artistic, recreational, sports, among others.) through actions of management, planning, action and communication of the activities carried out and the products achieved.

Tobón (2013), mentions the phases in which a training project is developed:

1. Addressing. The goals to be achieved are

defined taking into account the learning expected from the subjects, context problems to be solved are identified.

2. Planning. The problem is clearly defined, and strategies are planned so that students can propose adequate solutions achieving the goals set, roles and responsibilities are established.

3. Performance. Actions planned to resolve the problem are carried out and the necessary evidence of resolution is documented.

4. Communication. A report of the process that was carried out to solve the problem is prepared through some type of report, the results can be presented in a forum or plenary.

One of the main characteristics of this type of projects is that they gather multidisciplinary knowledge with the aim that the student obtains learning to solve specific situations; these strategies facilitate the identification and formulation of problems, the articulation of knowledge, and the development of research skills.

Lissabet and Rosabal (2019), consider the professional training project as: the structuring of the professional training process, based on the relationship between the professional's logic of action and the logic of the profession, promoting the preparation of professionals to face the solution and assessment of problems related to the object of the profession.

For the development of competencies, it is necessary to address problems of the context in which students learn and put their knowledge into action. This is achieved with the implementation of training projects, these types of projects are focused on students being able to identify problems in their context, interpret, argue and solve them, based on collaborative work and having vital experiences to form and consolidate the

universal values (Tobón, 2010).

## THE TRAINING PROJECT AT THE ITJMMPYH

At the ITJMMPyH, in the tourism career, a training project is developed that consists of the planning of a project that is designed in three subjects from the area of research methodology, and is carried out in professional residencies, the concluding activity of the training of the students, in which a problem in their professional area is resolved in a company in the productive sector (amador, 2020).

The professional residences project is carried out in the last semester of studies, it is a project linked to the productive sector, and its purpose is to strengthen the training of students through the application of knowledge acquired during their academic career in a real situation, in turn, it fulfills a function of the universities to provide knowledge and contribute to the development of the region in which it is immersed.

The intention of this work is to know how much impact the professional residence

projects of the tourism career have (generated through the methodology of training projects), in the region of Puerto Vallarta and its surroundings, from a development perspective, based on the perception of employers where these projects have been implemented.

From this, it is expected to answer the following research questions: ¿What type of professional residence projects in the tourism area are carried out in the ITJMMPyH? What percentage of these projects have been implemented in companies? How much can they contribute according to the perception of employers in generating community development, job creation, contributing to sustainable development, creating organizations and innovating?

## METHODOLOGICAL ASPECTS

An investigation is presented with a non-experimental methodological design, with a descriptive qualitative approach in which the perception of employers of the impact of professional residency projects carried out in companies or organizations by students of the career is analyzed. of tourism.

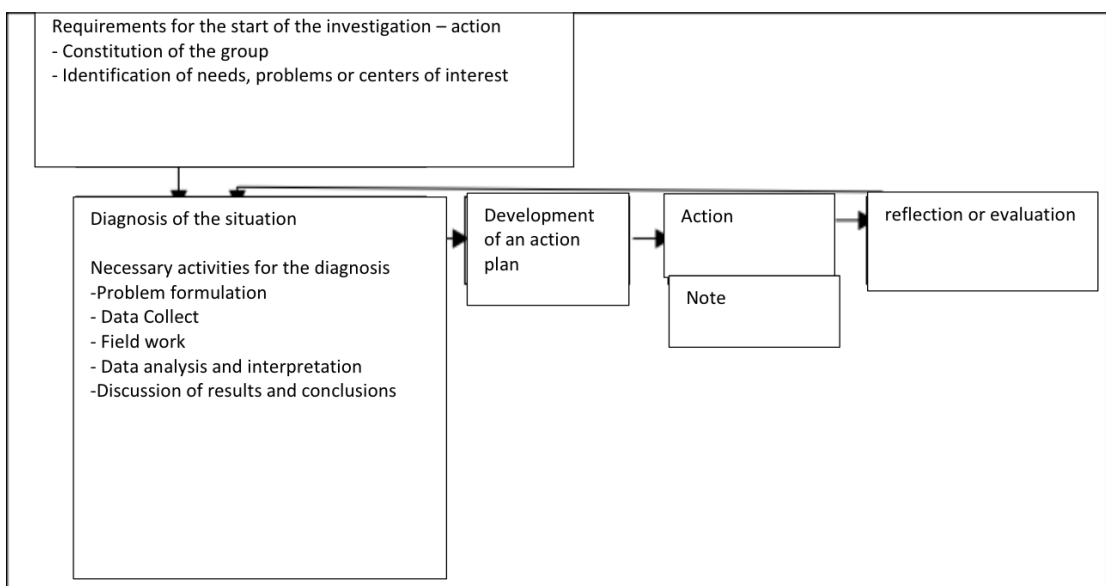


Figure 1. Research-action methodology

Source: Bauselas (2004).

The project was developed based on the research-action methodology, with a scope of the diagnosis phase of the situation, which can be seen in Figure 1, and the following procedures were carried out:

### **AN AREA OF OPPORTUNITY WAS IDENTIFIED TO MONITOR THE IMPACT OF PROFESSIONAL RESIDENCY PROJECTS**

The ITJMMPyH belongs to the National Technological Institute of Mexico, which in its educational model contemplates professional residences as the final part of the students' training, in the last semester of studies they develop a project proposing a solution to a problem of some institution or organization in the area knowledge of their profession, this project is generally linked to the productive sector, and they are assigned two advisers to support the professional residencies, a professor from the institution and an adviser from the company or institution linked to the project.

The problem identified in this work

corresponds to the analysis of the impact of the projects carried out in professional residences, considering the focus of the tourism career, directed towards nature tourism, to analyze if the projects carried out by the students in the period from September 2017 to January 2021 they have had some contribution to the development of the Puerto Vallarta region and the surrounding municipalities.

### **A DOCUMENTARY REVIEW WAS MADE ON THE TOPIC OF LOCAL DEVELOPMENT AND TOURISM AND A CLASSIFICATION OF THE PROJECTS DEVELOPED BY THE STUDENTS WAS MADE**

After the documentary review, a database was collected with the information of the projects carried out, to simplify the analysis, a classification of the types of projects developed was used, considering a bank of projects previously prepared through collegiate work of the tourism academy., a total of 58 projects were documented, with the following classification:

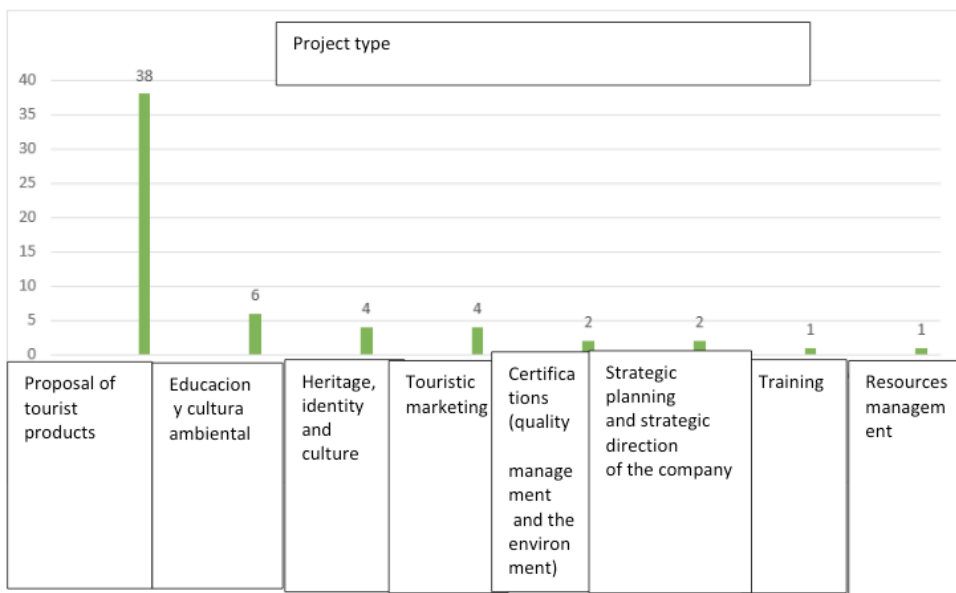


Figure 2. Types of projects developed in professional residences

Of the projects obtained from the database, 38 (66%) correspond to tourism product proposals, 6 (10%) to education and environmental culture projects, 4 (7%) heritage, identity and culture, 4 (7%) tourism marketing, being the most frequent, which can be seen in Figure 2.

### A QUESTIONNAIRE WAS DESIGNED TO BE APPLIED THROUGH A TELEPHONE INTERVIEW AND INFORMATION WAS COLLECTED

The questionnaire was addressed to entrepreneurs or managers of the companies in which the projects were developed with the intention of knowing their perception of the impact of the project, the final questionnaire consisted of 12 questions, of which 10 were formulated using a scale of values from 0 to 5, with 0 being a little and 5 being a lot, on attributes of the projects.

From a population of 58 projects documented in the database, it was possible to obtain 37 interviews from which the information was obtained through telephone calls, using a web form as support, and the data analysis was carried out through graphs.

implemented, and these only remained as proposals.

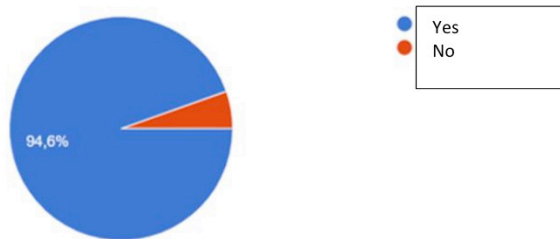


Figure 4. It was taken as a reference to generate a similar project

Figure 4 shows the results to the question if this project was used as a reference to generate a similar one, only three projects out of the 37 mentioned yes.

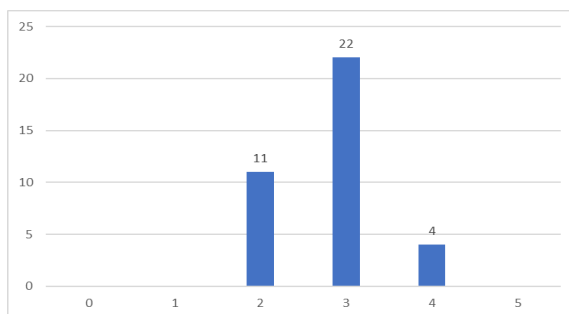


Figure 5. Capacity of the project to be implemented

Figure 5 shows the results to the question about the capacity of the project to be implemented, the answers to this question were established with a scale from zero identified as nothing to five identified as much, the results obtained were 22 selected three on the scale, 11 answered two and 4 remained at the same number on the scale.

### RESULTS

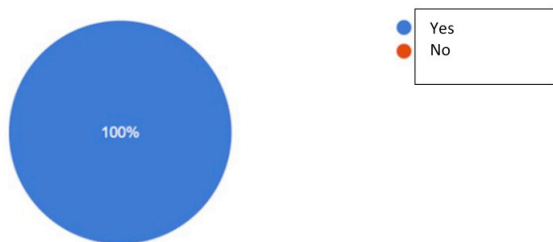


Figure 3. Project Implementation

Figure 3 shows the results to the question if the project was implemented, where it was obtained that from the follow-up of the 37 applied interviews, no project was



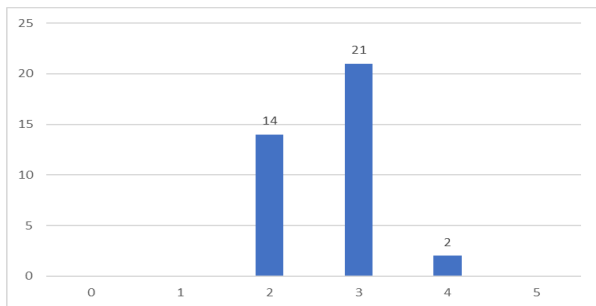


Figure 6. Capacity of the project to meet objectives and goals

Figure 6 shows the results to the question about the project's ability to meet objectives and goals, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 21 selected three on the scale, 14 answered two and 2 answered four on the scale.

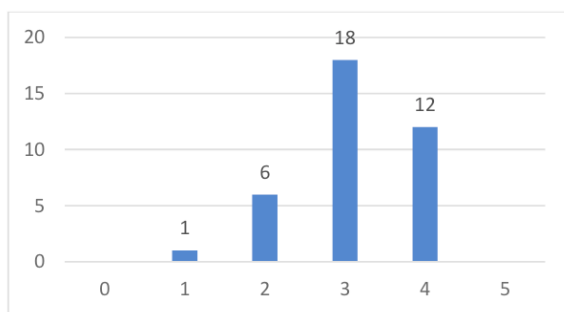


Figure 8. Capacity of the project to contribute to the creation and development of organizations

Figure 8 shows the results to the question about the project's capacity to contribute to the creation and development of organizations, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 18 selected three on the scale, 12 answered four, 6 answered 2 and 1 was one on the scale.

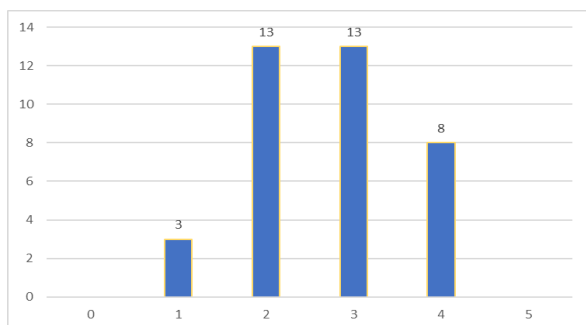


Figure 7. Capacity of the project to generate jobs

Figure 7 shows the results to the question about the project's capacity to generate jobs, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 13 selected option three on the scale, like the other 13 in option four, 8 answered four and 3 answered one.

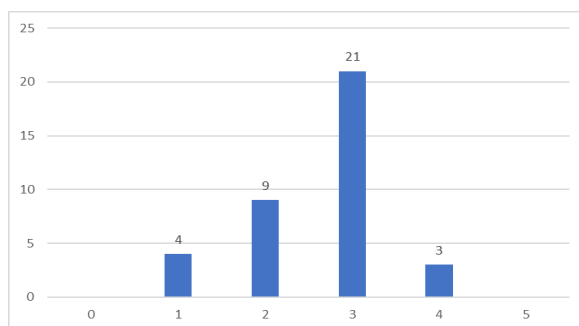


Figure 9. Capacity of the project to promote the development of communities

Figure 9 shows the results to the question about the project's capacity to promote the development of communities, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 21 selected three on the scale, 9 answered two, 4 answered one, and 3 answered 4.

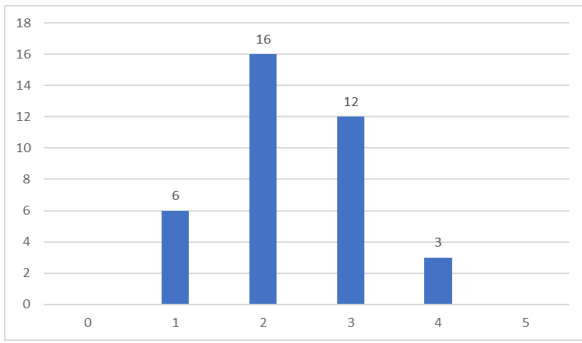


Figure 10. Capacity of the project to generate infrastructure

Figure 10 shows the results to the question about the project's capacity to generate infrastructure, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 16 selected two in the scale, 12 answered three, 6 answered 1 and 3 answered four on the scale.

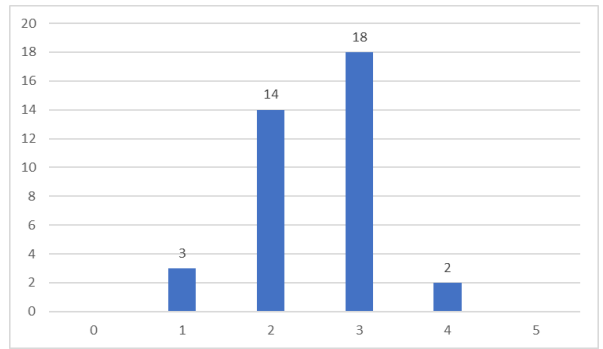


Figure 12. Capacity of the project to innovate and create a new product

Figure 12 shows the results to the question about the project's capacity to innovate and create a new product, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 18 they selected three on the scale, 14 answered two, 3 answered one and 2 answered four on the scale.

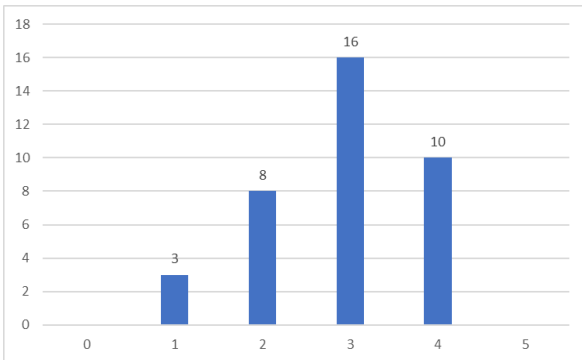


Figure 11. Capacity of the project to contribute to sustainable development

Figure 11 shows the results to the question about the project's capacity to contribute to sustainable development, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 16 selected three on the scale, 10 answered four, 8 answered two and 3 answered one on the scale

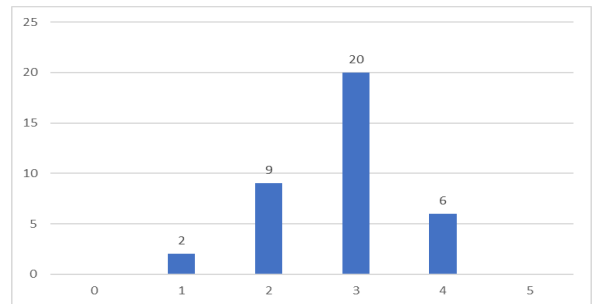


Figure 13. Capacity of the project to increase tourist activity

Figure 13 shows the results to the question about the project's capacity to increase tourist activity, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 20 selected three on the scale, 9 answered two, 6 answered four and 2 answered 1.

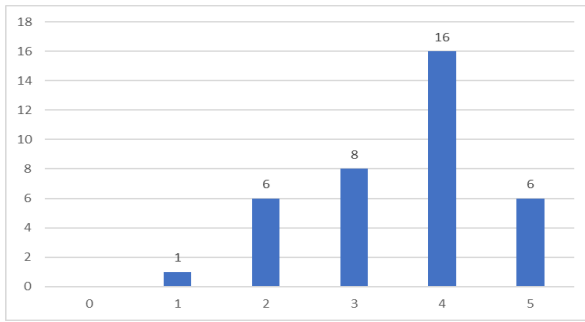


Figure 14. Capacity of the project to take advantage of natural and cultural resources

Figure 14 shows the results to the question about the project's capacity to take advantage of natural and cultural resources, the answers to this question were established with a scale of zero identified as nothing to five identified as much, the results obtained were 16 selected four on the scale, 8 answered three, 6 answered two and also 6 answered 5, finally 1 answered one on the scale.

## DISCUSSION AND CONCLUSIONS

In this work, it is possible to identify how the university as an institution responsible for generating and transmitting frontier knowledge can also fulfill a social function of linking with the productive sector, and which can be standardized through the educational model and the curricular design. of study plans; the professional residencies at the ITJMMPyH, mandatory for all students as part of the educational model, involve these linking processes.

In this case presented, the curriculum of the Tecnológico Nacional de México, to which the ITJMMPyH belongs, is structured with three subjects in the field of research (fundamentals of research, research workshop I and research workshop II), the contribution by part of the tourism academy has consisted of the design of a training project that integrates the knowledge of these three subjects in the design of a project plan (research protocol), to

be implemented in professional residencies.

Regarding the research questions raised in this study, firstly, the types of projects formulated by the students are mostly proposals for tourism products with 66% of the 58 that were developed in the analysis period, projects of environmental education with 10% of all projects, 10% heritage, identity and environmental culture, as well as 10% tourism marketing.

In general, the projects were not implemented because they were only proposals for the companies, mainly because executing a project depends to a large extent on the decision makers in the organizations and implies making an investment that is not made in the short term. In addition, the times stipulated for the realization of the projects by the educational institution do not allow the student to continue with the stage of consolidation of the work, this understood as the implementation and evaluation of the projects.

On the other hand, a relevant aspect to consider is that practically 60% (22) and 11% (4) that make up a total of 71% of the total proposals are above the average of the assessment scale and are perceived as with the capacity to be implemented, that is, with the potential to be executed in each organization for which they were designed.

Regarding the possibilities of the projects to generate jobs, the assessment of the employers was mostly in points 2 and 3 of the scale with 13 frequency each, but they are also identified in point 4, very close to the maximum of the scale. best assessment 8 answers, therefore, more than half of the employers consider the projects to generate jobs viable.

The evaluation of the indicators on the capacity of the project to create and develop organizations, to promote the development of communities, to contribute to sustainable development, to innovate and create a new

product, to increase tourist activity and to take advantage of natural and cultural resources had response frequencies with trends in points 2, 3 and 4 (with higher averages in the sum of 3 and 4) of the assessment, closer to a high capacity of the project for these indicators, therefore the assessment tends to be good for more than half of the employers interviewed; the indicator of the project's capacity to take advantage of natural and cultural resources was the one that had the best evaluation with 6 answers at the maximum of the scale (5), 16 answers in option 4 and 8 answers in option 3. On the other hand, the indicator of the project's capacity to generate infrastructure was the one that had the lowest scores with the highest frequency in indicator 2 (16) and with a trend in the mean of the responses towards little project capacity.

Therefore, based on the data analyzed, it can be concluded that, although the projects were not implemented and these generally remain in a scope of proposals, the assessment of the indicators considered in this study, oriented to their contribution to local development, tend to be favored by most employers with the highest averages close to a lot of project capacity, except for the infrastructure generation indicator. Finally, it must be noted that the ITJMMPyH contributes with the proposal of projects aimed at the productive sector, with capacities for local development, in the region of Puerto Vallarta and its adjoining municipalities, from the perspective of employers.

## REFERENCES

- Amador Ortiz, C. M. (2020). **El proyecto formativo para la profesionalización en educación superior: propuesta para la licenciatura en turismo.** *Revista Universidad y Sociedad*, 12(5), 237-247.
- Chang, C. H. G. (2010). **El modelo de la triple hélice como un medio para la vinculación entre la universidad y empresa.** *Revista Nacional de administración*, 1(1), 85-94.
- Cohen, E., & Franco, R. (2000). **Evaluación de proyectos sociales.** Siglo XXI.
- Crespo Amigo, J. (2007). **Apoyo a la gestión de producción y comercialización de productores olivícolas y artesanales de Til-Til.** Estudio de impacto social y económico, Proyecto Fondo de Inversión Social FIS de la División Andina de CODELCO.
- Díaz, A. (2020). **Tourism in the world -Statistical data.** Dossier. Statista, pp. 110
- Enríquez, Alberto. 2004. **Hacia una delimitación conceptual del desarrollo regional.** FUNDE, El Salvador.
- Etzkowitz, H. (2002). **La triple hélice: universidad, industria y gobierno. Implicaciones para las políticas y la evaluación.** Estocolmo, Recuperado de: <http://www.sivu.edu.mx/portal/noticias/2009/VinculacionLatriplehelice.pdf>.
- Ferrero, G. (2003). **De los proyectos de cooperación a los procesos de desarrollo a largo plazo.** *Revista de Fomento Social*, 61-103.
- Gambarota, D. M. (2017). **El turismo como estrategia de desarrollo local.** *Revista Geográfica Venezolana*, 347-359.
- González de la Fe, T. G. (2009). **El modelo de triple hélice de relaciones universidad, industria y gobierno: un análisis crítico.** *Arbor*, 185(738), 739-755.
- González Meyer, R. (1994). **Espacio local, sociedad y desarrollo. Razones para su valorización.** Santiago de Chile, Ediciones Academia, PET.
- Lissabet, J., & Rosabal, T. (2019). **El proyecto formativo profesional como método para dinamizar la formación del profesional en las carreras pedagógicas.** *Revista Dilemas Contemporáneos: Educación, Política y Valores*, 6(3), 1-18.
- López, N., & García, J. (2012). **El proyecto Integrador: Estrategia didáctica para la formación de competencias desde la perspectiva del enfoque socioformativo.** Grafi Editores.
- Lorenzo, L. H., y Morales, G. G. (2014). **Del desarrollo turístico sostenible al desarrollo local. Su comportamiento complejo.** *Pasos Revista de Turismo y patrimonio cultural*, 12(2), 453-466.
- Organización Mundial del Turismo. 2003. **Turismo y atenuación de la pobreza.** Organización Mundial de Turismo. Madrid
- Narvaez, E. L. (2014). **El turismo alternativo: una opción para el desarrollo local.** *RevIISE: Revista de Ciencias Sociales y Humanas*, 6(6), 9-18.
- Salamanca, F. (1995). **Manual de Formulación y Evaluación de Proyectos sociales.**
- Statista (2022). **El turismo en el mundo -datos estadísticos.** Recuperado de: <https://es.statista.com/temas/3612/el-turismo-en-el-mundo/#dossierKeyfigures>
- Tobón, S. (2010). **Formación integral y competencias.** ECOCE ediciones.
- Tobón, S. (2013). **Los proyectos formativos: transversalidad y desarrollo de competencias para la sociedad del conocimiento.** Instituto CIFE.

Valdés, M. (2009). **La evaluación de impacto de proyectos sociales: Definiciones y conceptos.** revista electrónica Mapunet, Santiago de Chile. Recuperado de [https://www.mapunet.org/documentos/mapuches/Evaluacion\\_impacto\\_de\\_proyectos\\_s\\_oficiales.pdf](https://www.mapunet.org/documentos/mapuches/Evaluacion_impacto_de_proyectos_s_oficiales.pdf).