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System of workshops to promote change and innovation in university teaching managers

Sistema de talleres para promover el cambio y la innovación en los directivos docentes universitarios

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ABSTRACT

Universities as agents of change, are called to promote innovation in society, for it must be a reference in the way in which it innovates in each of its processes, transferring these practices to the students they form, as the most immediate way of which they have to transfer knowledge and innovation. For this reason, managers are responsible for promoting change and innovation both inside and outside their departments. The objective of this article is to propose a system of workshops to prepare the teaching managers as change managers in the university processes they lead as a first step to transfer the innovative culture that should characterize them at present, both in their actions within like outside the university. The technique of the documentary analysis and the logical procedures of analysis and synthesis and induction and deduction were used. Based on the design and application of surveys and interviews with teachers and professors, computer tools were used to tabulate the results of the diagnosis, as well as for the creation of conceptual maps. As a result, five workshops aimed at fostering certain competencies in the heads of departments were designed, allowing them to effectively and with greater projection lead the results conceived for their fulfillment in the teaching collectives they lead.

Keywords: culture of innovation; management; innovation.

RESUMEN

Las universidades como agentes de cambio, están llamadas a promover la innovación en la sociedad, para ello debe ser un referente en la manera en que innova en cada uno de sus procesos, transfiriendo estas prácticas a los estudiantes que forman, como la vía más inmediata de la que disponen para transferir conocimientos e innovación. Por tal motivo a los directivos les corresponde impulsar el cambio y la innovación tanto hacia el interior como hacia el exterior de sus departamentos. El presente artículo tiene como objetivo presentar un sistema de talleres para preparar a los directivos docentes como gestores del cambio en los procesos universitarios que lideran como primer paso para transferir a todo el claustro la cultura innovadora que los debe

caracterizar actualmente, tanto en sus actuaciones dentro como fuera de la universidad. Se utilizó la técnica de análisis documental y los procedimientos lógicos de análisis y síntesis e inducción y deducción. A partir del diseño y aplicación de encuestas y entrevistas a directivos docentes y profesores. Se emplearon herramientas informáticas para la tabulación de los resultados del diagnóstico, así como para la conformación de mapas conceptuales. Como resultado fueron diseñados cinco talleres dirigidos a fomentar determinadas competencias en los jefes de departamentos, que les permita conducir de manera efectiva y con una mayor proyección los resultados concebidos para su cumplimiento en los colectivos docentes que dirigen.

Palabras clave: cultura de innovación; gestión; innovación.

INTRODUCTION

The *innovation* has been consolidated now as a strategic and structural process for all sectors of society in the changed environment at possibilities where Renew as reporting standards allow changes noticeable in the knowledge system and the culture of the environment where they interact. It is a term that is increasingly incorporated into everyday language and in general people perceive it as a symbol of modernity and well-being. Several authors approach it from the cultural conception through the search and generation of specific theoretical and methodological approaches, according to the areas of knowledge that work. (García Retamero Redondo, 2010; Tomás et al., 2010; Labarca, García & Villegas, 2012; Marcano,

Rojas & Mosello, 2014; Naranjo Valencia & Calderón Hernández, 2015; Souto, 2015).

Innovation makes sense and place not only when people are convinced and motivated of the need for change, but also to achieve a transformation of their attitudes and practices in the various scenarios that interact. It is a complex fact that requires constant updating, systematization and feedback in the different scenarios, where those involved must not only accept changes and risks, but anticipate them in order to control them.

In the higher level educational institutions despite notable changes in the development of their processes to generate, share, promote and apply new and improved knowledge; co there are objective and subjective conditions that limit their possibilities of growth and in turn, set the tone on which action is needed for change. »An innovative university will be able to manage that knowledge s and promote innovation through interaction with the collective of actors, for the deployment of regional, sectoral and national innovation system». (García Cuevas, 2016, p.32)

Although for Tomás et al. (2010) universities are identified as the institutions that have changed the least over the years, it has not been until the last thirty years that initiatives are promoted on how to develop innovation in university settings, which generate knowledge substantially linked to the problematic of the region and a transformation is achieved in the contexts investigated.

To achieve this, it is essential that university executives lead the innovation process in order to develop their collective

values and attitudes for change and transformation demanded by today `s times for best results and impacts on all university processes. (Villa Sánchez, 2014; Euler, 2015; Fierro Moreno & Martínez Ávila, 2015; Núñez Jover, Armas Marrero, Alcázar Quiñones & Figueroa Alfonso, 2015)

As a result of the diagnosis made, elements that limit management of the university innovation that affect the behavior of teachers are related to the lack of control mechanisms, shortsighted integrative processes, fear of taking on new challenges, modify the methods and styles of address. The responsibles of university processes in the leading spaces, not always the results correspond to with the things projected, despite the existing potentialities in the collective d and teachers they represent.

From the study of the various authors who have worked on the Innovation Culture Management (GCI), among which are Tom ás et al. (2010); Labarca et al. (2012); Marcano et al. (2014); Souto (2015); Some of the most important features that should characterize it were identified:

- People should prioritize learning on a continuous basis, which enables the emergence of new knowledge or the combination of existing ones in new directions.
- The management of teamwork is the key factor in achieving a collective goal.
- An environment of freedom, communication and debate is promoted; with tolerance to error, independence and tendency to take risks.

In this context, this article aims to present a system of workshops for the preparation of teaching managers as managers of the change in the university processes they lead, as a first step to transfer the innovative culture that must face them to characterize currently, both in their performances inside and outside the university.

To comply with the proposed objective it starts with the theoretical discussion of the topic with the theoretical fundaments more general related to the management culture of innovation university from the performance of the teachers that can characterize management culture of innovation management faculty at the University of Pinar del Río, based on a methodology used for diagnosis to form the workshops that will contribute to the awareness of university leaders the role that corresponds as managers of the change in the spaces of action that they lead , from their influence on the emotional and rational components that influence the behavior of their teachers in their double role: as a teacher and researcher .

MATERIALS AND METHODS

The research was carried out at the University of Pinar del Río Cuba, with the help of the simple software. The sample statically is representative of school administrators and teachers from seven schools, as well as the independent teaching departments and study centers headquarters. The information obtained came from 49 teachers and 88 teaching teachers. The proportional stratified probabilistic sampling type is used to group the population elements into homogeneous subgroups (strata) according to the internal areas of the

University and determine the size of each stratum by calculating the proportion factor ($F = n / N$; where n: sample obtained and N: determined population). (Calderón Franco, 2002, p. 91)

The methodology used to characterize the management of innovation culture of management professors from the University of Pinar del Río (Negrin Reyes Gonzalez Perez & Arteaga Prado, 2017) is based on the method of empirical level measurement at a representative sample of the teaching directors of the university. After analyzing bibliographic materials located at national and international level, generates both so much by institutions of higher education as for other types of organizations, they applied four instruments for general analysis of the subject object. In order to relate the elements of the theoretical design of the research with the possible solution proposal, the questionnaire was used as an instrument for the search for information and to obtain as much information as possible from respondents with questions in various formats. In the general distribution of the respondents, the subgroups and study areas defined from the analyzed universe are taken into account.

The applied surveys contain structured questions so that respondents could choose possible answers, make contributions, identify aspects and rate the level of influence on their innovative attitudes and practices. The response options presented by the structured questions were established from a joint combination of formats with nominal scales for the characterization of the sample, equidistant intervals to associate a magnitude to certain categories, ordinal scales to know the preference of the idea that best conforms the concept of innovation, to determine the cultural perception that respondents have and multiple choice to determine the highest incidence.

Taking into account the elements obtained and the context where they apply their design, five workshops were designed to prepare teachers as managers of change in the processes they lead to «… create a favorable and receptive environment where innovation is comfortable and positive for everyone» (Cornejo & Muñoz, 2009, p. 129)

The structure which is proposed for the implementation of the workshops is based on the basis of the Resolution 2 of 2018 (Ministry of Higher Education, 2018) and themes are related to the necessity and possibility of promoting change in the methods and styles management that they use for the efficient and effective conduction of university processes, where they can incorporate and share their experiences from teamwork to solve problems of their management.

RESULTS

The study of the analyzed theoretical foundations allowed deepen the main concepts related to the management construct culture of innovation (GCI) linked to the university, from conception of the role of manager's teachers as change managers in the spaces lead. From existing definitions (management, innovation, innovation culture) the conceptual map is illustrated below.
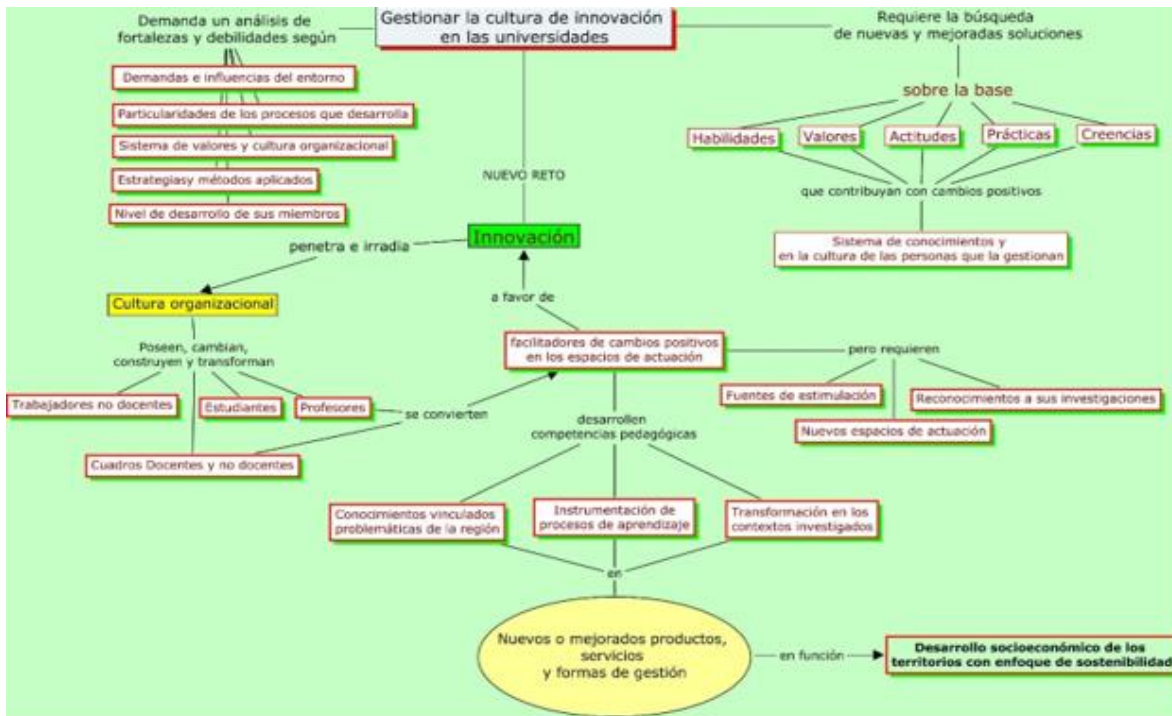
Fig. 1. Conceptual map with the theoretical framework of the study object.

Source: Software Cmap Tools v .5.04.02. Prepared by the authors.

The change of attitudes and innovative practices in the ways of acting of university professors requires a marked intention in those areas where the need for it is promoted, managed and accepted within each teaching group. Necessary, a planned conception that fosters improved thoughts, organizing and conducting educational policies as well as in teaching practices, which allow professional and institutional development with the commitment and the understanding of the entire university community.

The management of science, technology and innovation in universities is vitally important, as it contributes to achieving not only sustainable development in the territory where it is located, but also considers permanent education and throughout the life of man in his social, cultural and economic environment, the main factor to achieve the desired development. (Domínguez Garrido, Medina Rivilla, & Sánchez Romero, 2011; Jiménez Valero, Suárez Mella, & Medina León, 2012; Batista Zaldívar & Pérez Guerrero, 2012; Núñez Jover et al., 2015)

It corresponds to the teachers collective the great task of creating, promoting and managing , in student groups and in their own, an innovative culture characterized «… by a set of features where the aspects related to tolerance, the right to error stand out , trust, ability to adapt to change, risk taking, effort, creativity, leadership, teamwork, self-esteem,

technological surveillance, talent, market needs satisfaction, cash flows communication, the link mechanisms, being a pioneer, empathy, reward in case of success and the absence of punishment in case of failure, learning, cooperation, entrepreneurial initiative, the acquisition of ideas, commitment, among others « (Bueno & Morcillo , 2007, p.54)

To manage the innovation culture it is necessary to identify and construct together with teachers at different levels of the organization the right profile, able to take on new challenges and promote creativity in their ways and scenarios; becoming proactive subjects through the establishment of a distributed network within the organization that implements and implements innovation , which allows , not only to continuously generate and develop new ideas but »… create the conditions to boost the generalization of scientific results both inside and outside the universities « . (González Pérez & Núñez González, 2011, p. 4)

Characterization of the management of the innovation culture of the teaching directors in the University of Pinar del Río.

The research techniques applied to professors and department heads in the university allowed the identification of the main elements that characterize the GCI of the university's teaching managers are the following:

- The high scientific and educational level reached by the center does not produce quantitative leaps in the research results and impacts obtained.
- The limited participation of managers' teachers in R + D + i.

The innovation as a transverse process, multidisciplinary and strategically in a systemic and intentional way is not addressed-

The tendency to the partial fulfillment of the research results and not their implementation in the practice.

- The few actions promoted limited to manage change in attitudes and innovation practices of teacher collectives in favor of an innovative environment in the institution.

The necessary aspects to effectively manage innovation culture of managers teachers are related to training (updating policy documents, project development, publishing sites, scientific publications, generalization of results and impact assessment); the implementation of monetary compensation mechanisms based on the contributions made, the availability of resources, the information culture on innovative results and with the guidance of the teacher from the administration and the group of researchers.

The study of the culture of innovation in educational groups allows their managers to know the situation of the same for enhance in the management of university processes, the essential elements that promote the attitude and innovative practices of the teachers.

Inside the teacher's departments and study centers, the management of university processes must be characterized by identifying elements such as the work in teams, integrity, initiative, ability, satisfaction, responsibility, decision making,

To learn of failure, the creativity; which marks the path towards the consolidation

of the university as an innovative institution, developer of socioeconomic projects with a focus on sustainability.

The innovative quality of a university should not only be expressed formally in speeches and documents, but must distinguish the actions of its members and groups to achieve excellence with superior results, as part of the continuous improvement, in each of the areas. This quality should be characterized by:

- The high professionalism most demonstrated by human resources,
- Social recognition of the quality of the graduates.
- The teaching groups show a tendency towards interdisciplinary transdisciplinary and multidisciplinary integration in the development of all university processes.
- Possess their pre and postgraduate programs accredited by the competent authorities.
- High social impact of the research results.
- The evaluation of individual performance recognizes and promotes the excellence and contribution of each in achieving the objectives of the institution and the area they represent.
- Cooperation and integration with national institutions and foreign shows a level of academic and scientific professionalism of the faculty, and student groups.
- Culture of innovation and entrepreneurship of both its students and its teachers and workers.

The study of the culture of innovation in teaching groups allows their managers to stimulate and enhance in the management

of university processes essential elements that promote the attitudes and innovative practices of the teachers they lead. The aspects that should be prioritized to increase the innovative environment of the University are: the infrastructure of the existing laboratories, the computer computations, the connectivity, and the systems of stimuli for recognition received the visibility that is given to the work of the professors by of the faculties and the car park.

The symptoms that are considered to affect the generation of an innovative environment and from where, efforts should be focused are: the human and material conditions available to the University to manage innovation from a strategic and systemic approach, countless permits and consent to prove A new idea, the scarce mechanisms to develop innovation and the promotion of creativity and exploitation of the full potential of its teachers. In addition, it stands out that sometimes the institution's representatives are not interested in changing the way things are done.

To summarize, it is proposed that the application of this instrument enables a level of successful assessment study process on those elements that are recognized by their level of influence, attitudes and innovative practices of teachers and heads of the departments Teachers

System of workshops to prepare university managers as managers of change in the spaces of action they lead

This form of methodological teaching work was used because knowledge is acquired on specific situations and the exchange of experiences between teaching managers

on the management of processes in the areas they represent is encouraged. It is a participatory methodology where it is taught and learned through a joint task. The workshops include methodologically introduction, development and conclusions:

- The introduction, as a first moment, conceives the characterization of the methodological conceptual problem and should emphasize the skills of knowing how to listen, tolerate the opinions of others, learn to communicate with others, make collective decisions, differentiate relevant information from non-relevant, and prioritize the tasks and the processes, share experiences, among others.
- In the development the theoretical elements and the projection of the audiovisual material relevant to the subject to be discussed are presented. Take into account the group organization that must be conceived in advance to enable the participation of the selected.

The execution and group reflection and the collective debate are the other elements that characterize the development and should be oriented to the open debate. It is necessary to stimulate the participatory inclusion of those present. Considerations are noted and linked to social practice by interacting and building trust in the group.

- In the conclusions a final assessment is made. Several techniques can be used to evaluate the final results of the workshop, but they must be presented to the participating teachers. In addition, it is important to define agreements that respond to the needs of teachers in order to effectively manage the culture of change in the areas they lead according to the opinion of everyone involved in the workshop.

The characterization made, together with the absence of a formalized method confirms the need for workshops to promote the change and innovation in performance spaces leading university professor's managers, as part of the continued improvement. The logic used for the design of the workshop system is illustrated in the following figure:
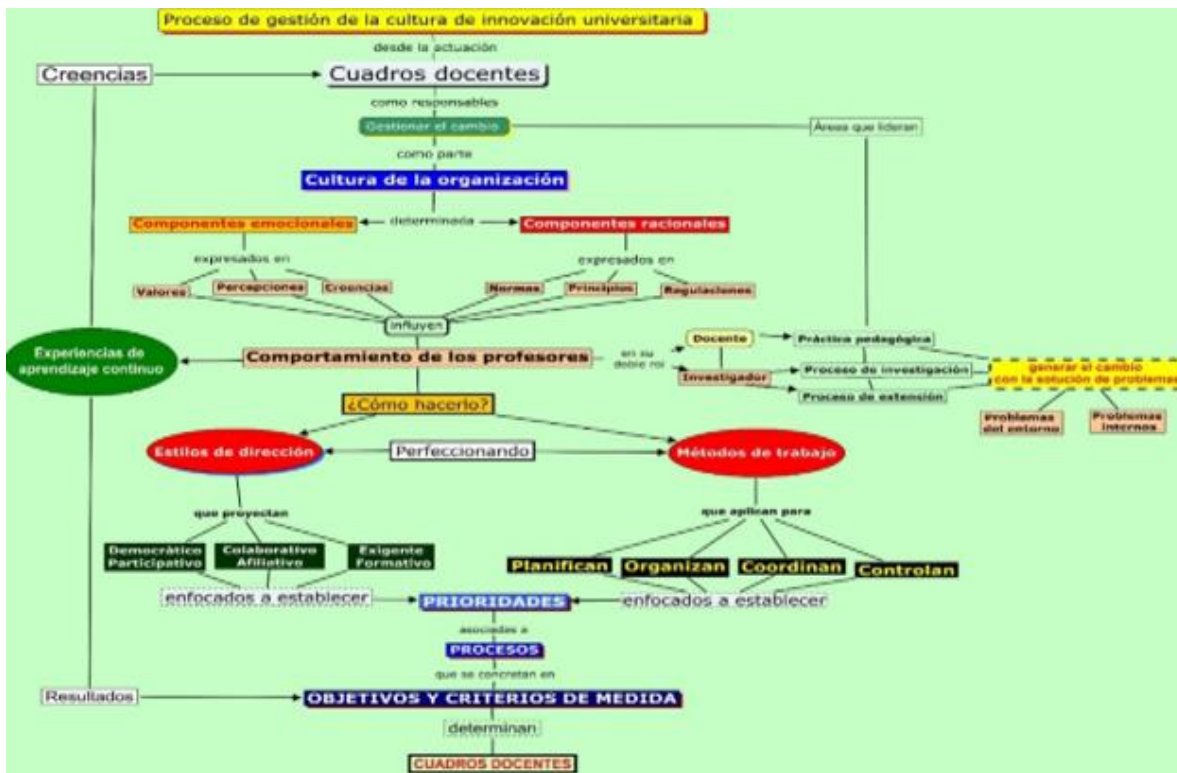
Fig. 2. Logical conception of the innovation culture management process
of university teaching managers. Prepared by the authors.

The topics are related to the necessity and possibility of promoting change in the methods and management styles that used for the efficient and effective conduct of university processes, which can incorporate and share experiences from teamwork. This form of methodological teaching work is used because knowledge is acquired about specific situations and the exchange of experiences between teaching managers on the management of processes in the areas they represent is encouraged. It is a participatory methodology where it is taught and learned through a joint task that allows a better level of awareness in the solution to the problems identified in the areas they lead.

Workshop # 1: Roll of the educational directors as managers of the change in the spaces of action that lead.

Objective of the workshop: Discuss the different attitudes and practices present in the teaching executives as managers of the change in the conduction of the processes they lead from the presentation of the main results obtained in the characterization of the institution under study.

Contents: The teaching director as change manager. How to promote creativity and innovation in teaching groups?

Workshop duration: 2 hours.

Material for the workshop: Blackboard, markers and audiovisual material. With the video «You dare to dream», 7 minutes and a half, is an approach to reflection on the need to take on new challenges and leave the comfort zone.

It is an approach to rethink the way management practices manage change in the areas they lead. In general, the management style they apply to manage the processes in their teaching groups does not always allow to establish priorities in those processes that are specified in the objectives and measurement criteria.

Raise the culture of change in their methods and management styles and that radiate in the group of teachers they lead is the fundamental essence to induce a new method of doing things, where new skills are built, new knowledge is fostered and consolidated attitudes and practices in favor of innovation.

Workshop # 2: The methods and styles of leadership most associated to promote change and innovation in the university groups they lead.

Objective of the workshop: Discuss the different methods and management styles they use to promote change in their teaching groups.

Contents: Methods and styles of direction. Promote change and innovation in the management of university processes.

Workshop duration: 2 hours.

Material for the workshop: Blackboard, markers and audiovisual material. With the video «Who ate my cheese», 12 minutes and a half, is an approach to reflection on the need to promote change to the current state in which they manage the results in the teaching groups they lead.

Workshop # 3: Generation of ideas and alternatives in the innovative solution to the problems or opportunities related to the different internal and external processes.

Objective of the workshop: Generate viable solution alternatives to the problems presented in the management of university processes.

Contents: Techniques to generate creative and innovative ideas. Internal and external processes.

Workshop duration: 3 hours.

Material for the workshop: Blackboard, markers and audiovisual material. With the Video «Enhancing creativity, » 10 and a half minutes, can reflect on how you can generate, obtain and produce innovative ideas to the development of creativity.

Then the video «Generate ideas», 7 minutes, is used to describe with a logical coherence, the way to get better ideas in collective.

Workshop # 4: The use of teamwork techniques to promote creative solutions in the spaces they lead.

Workshop objective: Share teamwork techniques that allow creative solutions in the management of university processes.

Contents: Teamwork techniques.

Workshop duration: 2 hours.

Material for the workshop: Blackboard, markers and audiovisual material. The first audiovisual material entitled «The Carpenter and his tools», with 3 minutes, facilitates the introduction of the workshop in which the need to work as a team to achieve the proposed goals is highlighted.

Before finalizing, the video «Teamwork» is projected, lasting 4 minutes, with the intention of addressing the essence of teamwork and sharing the techniques most used in the solution to the problems that arise in the management of processes that lead.

Workshop # 5: Relactioning the management of the culture of innovation with the work tools of the teaching directors.

Objective of the workshop: Socialize best practices in the use of work tools to promote change management in the spaces they lead.

Contents: Work tools of the teaching director (Work objectives and measurement criteria, improvement plan, scientific sessions plan, projects, generalization meetings, individual work plans, performance evaluation)

Workshop duration: 2 hours.

Material for the workshop: Blackboard, markers and audiovisual material. With the video «La carreta», duration 3 minutes, it is sought to discuss the solutions used that have allowed to counteract the difficulties existing in the teaching groups they lead.

As part of the feedback system of the workshops, evaluation instruments are applied to them. A guide in each workshop and other integrated one at the end. It takes advantage of the space of the last workshop to project the video « How do we come up with ideas» with a duration of 28 minutes, in which it stands out that , being creative is combining things that exist differently and for that the teaching managers by managing in a complex way the processes that lead in the diversity of relationships they establish; They should continuously promote creativity, based on knowledge, to solve the problems that limit compliance or increase the results in the group they lead. The results of the instruments applied are applied and made known, then the main agreements that contribute to the preparation of the teaching directors as managers of the change in the spaces they lead are drafted.

The characterization of the innovation culture management of the teaching directors of the University of Pinar del Río contributes to the creation of the planned workshops. The application of the instruments used enables a level of successful assessment of the study process on those elements that are recognized for their level of influence, on the innovative attitudes and practices of university teaching managers in their performance as change managers in spaces that lead and with it, the results projected in the work objectives and criteria of measures declared within each basic organizational cell of higher education (teaching departments) are fulfilled and increased .

DISCUSSION

The literature recognizes that the *management culture of university innovation* is an issue of vital importance and relevance, because it stimulates the creation and the dissemination of new

management styles in a constant process of teaching and learning, where not only the development is promoted organizational but also the challenge of consolidating institutions innovated career of the higher education. (García Retamero Redondo, 2010; Tomás et al., 2012; Labarca et al., 2012; Marcano et al., 2014; Villa Sánchez, 2014; Euler, 2015; Fierro Moreno & Martínez Ávila, 2015; Naranjo Valencia & Calderón Hernández, 2015; Núñez Jover et al., 2015; García Cuevas, 2016)

The innovation culture management (GCI) construct is no stranger to higher level educational scenarios. It is a term that is aimed at the way in which skills, values, attitudes and knowledge are managed and consolidated in favor of creativity and innovation by all its workers. The university actors have so many opportunities for solving socioeconomic problems identified in as in the social environment they are taxed. In the study conducted, there is no explicit definition of the term in question. However, the authors consulted address essential aspects that allow us to approach a conceptualization. The following concept of GCI that addresses the problem studied from the performance of university teaching managersis assumed:

«Process that promotes teamwork and people's attitude towards achieving solutions to common problems that limit the correct performance of the different levels of management in the teaching areas of the university in all its processes; aimed at managing , in an appropriate way , the competences of teachers, where knowledge and shared skills stimulate the formation, assimilation, generation and creation of new and / or improved ideas towards the continuous improvement of the processes they develop ». (Negrín Reyes, 2018, p. 17)

To manage the culture of innovation within university teaching groups, a management style that stimulates new and improved skills, attitudes, values and practices in favor of innovation is required; where creativity is promoted and learning from failures, where new risks are assumed for the continuous improvement of university processes and in general, for the continuous improvement of the products and services that are generated for society.

In spite of the actions developed at the institutional level, the results obtained do not express an effective management of the teaching directors in the prioritized tasks that are specified in the objectives and measurement criteria, determined within each group they lead.

The level of satisfaction among manager's teachers with the transfer of results and knowledge generation in their areas varies, despite the potential of the collective, because there is little motivation of teachers, caused by: non - payment corresponding to the contributions realized, the low levels of knowledge about working with projects, agreements; the demands and obstacles of the business sector and the ignorance of specific procedures for this activity.

To this are added the difficulties indicated that prevent the research results from being applied in social practice, among which are:

- Little interest, commitment, knowledge and political will of managers in companies and operators to apply the research results, resistance to change.
- Deficiencies in the integration policies of the Central State

Administration Organizations (OACE) with the UPR.

- Limitations with the financing of material, logistic and monetary resources and with the search for information on the internet.
- Diversity of criteria in decision making, excessive bureaucracy.
- Lack of methodological instruments of practical application after the conclusion of the investigations.
- Few motivational mechanisms to achieve impacts in the performance environments.
- Few instruments or ways of socialization for the dissemination of the results.
- Absence of an integrated system for the introduction of research results.

The methodological workshops will be aimed at promoting certain competencies in the teaching managers as managers of the change process, which will allow them to effectively conduct, with a greater projection, the results conceived and guarantee their fulfillment in the teaching groups that lead:

- Implement a work system that is accepted by its group of teachers, aligned with the strategy of the tax area.
- Get the group to assume work strategies and directly influence the increase in the results obtained.
- Be able to manage and implement continuous improvement processes.
- Lead your team of professors in terms of efficiency and effectiveness in prioritized processes that allow the fulfillment of the projected objectives and measurement criteria.
- Employ various group work techniques where knowledge is

built based on the interrelationships between teaching managers.

- Use the experiences of the participating teacher managers as a result of their social praxis.
- Prioritize problems of common interest to the needs presented.
- Promote active participation in the search for viable solutions to the identified problems.
- Promote consensus, aware of the existence of conflicts, to ensure the total participation of the group with proposals for improvements to solve the problems that limit compliance with the objectives and measurement criteria established for the group.

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