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Professional Skills Acquired by Graduates of Information and Knowledge Management

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ABSTRACT

The objective of this work is to identify to what extent the diploma programs in Information Management and Knowledge Management develop a set of professional competencies for their graduates, depending on the needs of their organizations. A questionnaire was developed to assess the importance of 30 competencies grouped into four dimensions (information management, interpersonal relations and communication, information technologies, and organizational management), validated with the Delphi method. It was applied to teachers, students and representatives of their organizations of origin. The degree of satisfaction with the learning of these competencies perceived by the students and the degree of inclusion in the programs by the teachers were analyzed. To assess the degree of importance of the competencies, the median and standard deviation obtained in the statistical treatment of the responses were used. It was obtained for the three samples and with little significant difference that the diploma program is valued as good. The most important dimension, as well as the perception of learning satisfaction by students and the degree of inclusion in the study programs by teachers, is related to the competencies of the interpersonal relations and communication dimension and the least valued was related to information technologies. The evaluation model presented made it possible to identify deficiencies in the study programs and establish recommendations for their improvement in terms of professional competencies in their new editions.

Keywords : competencies; information management, knowledge.

INTRODUCTION

Competencies are the operational element [1-3] that links the individual and collective capacity to generate value with work processes, which is why it constitutes a new alternative to improve the performance of people and the organization. The complex nature of the competencies has meant that it has been approached from different perspectives and approaches, where methodologies have also been proposed for their determination and analysis, which have evolved based on the main existing trends; but in one way or another they all point to the man-work interrelation with the particularities of the work, and with the characteristics of the people.

From business management [4] or human resources management, [3.5-10,] significant contributions have been made in this field; In some cases they are approached from the process approach in the developed models, [11] or in process reengineering, [12] as well as from the strategic integration of the company's management system, the balanced scorecard or management control [13- 17] or with a logistical approach. [18] From the information sciences they have also been addressed, [19-22] in conjunction with guidelines developed by professional associations such as the Association of Research Libraries , the American Library Association, the Special Libraries Association and the European Council of Professional Information Associations (European Council of Information Associations – ECIA), which published in 2004 the reference document (Euroreference or Euroguide LIS) on the competencies and aptitudes that are considered fundamental for the information professional in the European context. New studies have emerged, such as those related to the library profile of Latin America, [23] which incorporates the competencies that must be developed in this professional in the region, as well as the contributions to training in information competencies [24] or information literacy (ALFIN), [25] and also

referring to information and communication technologies (ICT). [26]

From an educational point of view, several of the previous elements converge in the concept, where proposals and strategies regarding professional competencies have been developed; [19,27-39] but there are still insufficient studies on the formation of professional skills, in correspondence with the requirements of organizations, their advances and the needs of society in the specific historical social context in which it is developed, analyzed from the opinion of graduates, teachers and employers through systematic and periodic consultation.

Since 2010, two diploma courses have been developed annually at the Institute of Scientific and Technological Information (IDICT), the first in Information Management and the second in Knowledge Management, aimed at managers and specialists responsible for information management functions. knowledge and information, research-development-innovation (R+D+i), human resources or human capital and technologies in the organization. The objective of the Knowledge Management diploma is to develop in participants the ability to transform organizational knowledge into an essential resource, which influences the favorable productive and competitive performance of the organization. While the diploma in Information Management is to integrate knowledge and skills through specialized training that effectively allows your functions as an information manager.

This research is aimed at identifying to what extent the information management and knowledge management diploma programs develop a set of professional competencies for the graduates of these diplomas, depending on the needs of the organizations.

METHODS

The International Standard Classification of Education was used as a basis for

the study, [40] the European Tunning Framework Project, [41] Tunning Latin America, [42] as well as the study carried out by *Arias* et al., [32] where they used a questionnaire containing 29 competencies, which were selected from the "Verifica" document, in which general, transversal and specific competencies of the academic program of the master's degree in document management appear.

Arias and [32] others chose the skills most in line with the professional profiles currently required for document management, "that is, skills related to information management, applications of information and communication technologies, the personal and social attributes that a professional must possess, as well as those necessary for the management of information units". In addition, they took into account "a set of more technological skills related to system architecture, web applications, communication networks, or computer applications to document management."

As the study was carried out to assess the competencies developed in the graduates of two academic programs, the development of the applied questionnaire was made from the 29 competencies proposed by *Arias* and others, [32] considering that the graduate of these programs is conceived as a professional. with training in management sciences, which allows you to diagnose the current problems facing your organization related to the creation, identification, management and dissemination of information and knowledge; model or apply studied models of information and knowledge management and apply research methods and tools supported by information and communication technologies for information and knowledge management.

The Delphi method of consulting experts was applied, in two rounds, to evaluate the questionnaire. 11 experts with more than fifteen years of experience in the topics of information, knowledge and training management were selected. For each of the experts, their competence coefficient was determined, which was

found to be in a range between 0.85 and 1.0, considered high, so the opinions of all the experts consulted were included in the study. As a result of consulting experts, some competencies were modified or eliminated, in correspondence with the general and specific objectives declared in both diplomas. A total of 30 competencies were obtained, for an agreement coefficient of 89%.

The questionnaire was applied to teachers, students and representatives of their organizations, who had to respond using a rating scale from 1 to 10, with 10 as the maximum value. Furthermore, in the case of teachers, they were asked to determine the specific weight that they considered a certain competence had in the module they taught, and for the students to assess the degree to which the competences were included in the program they had taught. received.

Those who were enrolled in the diploma courses in the corresponding editions participated in the sample of students. Of a total of 75, only 42 sent complete questionnaires (56%). For the sample of representatives of the organizations, those from which the students enrolled in the diploma came from were selected; Responses were received from 65% of the surveys sent. In both cases, email was used to send the survey and its response. In the case of teachers, both those who teach different subjects and tutors who collaborate with the training program participated, for a total of 11.

The survey responses were analyzed using the SPSS statistical processor. For each item, the mean value (mean), the standard deviation (SD) was calculated and a factor analysis was carried out, based on the principal components method. As in the previous study, a solution was obtained for four factors that explain more than 72% of the variability of the variance, with a Cronbach's alpha of 0.82%, for a Kaiser-Meyer coefficient. Olkin (KMO) of 0.80. The above indicates the reliability of the instrument used [43] and the validity of grouping the competencies into four dimensions.

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ANALYSIS OF THE RESULTS

The competencies related to information management are shown in Table 1 . As can be seen, high scores are generally obtained by the three groups analyzed (over 7.75 out of 10). The competence related to knowledge in database management was the one that received the lowest rating, despite the fact that there are no statistically significant differences (95% probability level) between the average scores made by teachers and students, where Teachers have a more favorable opinion than students and employers.

Table 2 shows the results of the competencies related to the dimension "Interpersonal relationships and communication", where most of those included in this dimension present average values greater than 8.62. The high value given by the three samples to the competencies "ability to work in a team" and "ability to communicate orally and written in one's own language" stands out, especially by the organization and the students, despite the fact that the difference is not statistically significant.

The competencies related to information technologies achieved the results shown in table 3 . "Knowledge about management and design of Intranet and web pages" and "knowledge about system architecture" were the skills that did not reach a value above the average (7.15). Table 4 presents the results obtained in the analysis of the competencies related to organizational management. In this dimension, only three competencies behave with values above the average (7.78): "Ability to manage resources (human, information, knowledge)", "Ability to manage and implement information or knowledge management policies" and " Knowledge of models for managing organizations and their application." The reported results show that the differences between the three samples are not significant.

RESULTS OF THE ASSESSMENTS ON THE IMPORTANCE OF EACH

DIMENSION

An analysis of the global mean values on the importance of the competencies included in each dimension allows us to conclude that the difference between the means of the responses of the three samples (students, teachers and the organization) is not statistically significant, with a level of 95.0% confidence. However, it should be noted that the most important dimension for the three samples is the one that groups together the competencies related to interpersonal relationships and communication; On the other hand, the dimension that refers to skills related to information technologies is the one that obtains a lower average rating.

An ordering of the competencies, by their average value, allows us to recognize which are the most and least important for the organizations from which the students come. Tables 5 and 6 show the competencies that the organizations obtained the highest and lowest ratings respectively, in comparison with the place they occupied according to the responses of the students and teachers (D1: Information management; D2: Interpersonal relations and communication; D3: Information technologies; D4: Organizational management).

It is also observed in table 5 that the competence "Ability to work as a team", of dimension D2, was considered by the organization and the students as the most important when it was assigned first place (1), while for the teachers it ranked first. second place (2). Similarly, Table 6 shows that the competence "Knowledge about the design and management of Intranet and web pages", of dimension D3, was considered by the organization and the students as the least important, being assigned the last place (30), while for teachers it ranked second to last (29). 50% of the competencies related to dimension 2, "Interpersonal relationships and communication", appear as the most valued by

the organizations of origin of the students; while the third part of dimension 3, "Information technologies", were valued as of less importance.

RESULTS BETWEEN THE DEGREE OF IMPORTANCE OF SKILLS FOR STUDENTS AND THE SATISFACTION WITH THE LEARNING THEY RECEIVE IN THE DIPLOMAS

Figure 1 shows the result of the degree of satisfaction with the learning that students receive in the diploma courses, where there are significant differences in the average values obtained, for a confidence level of 95%.

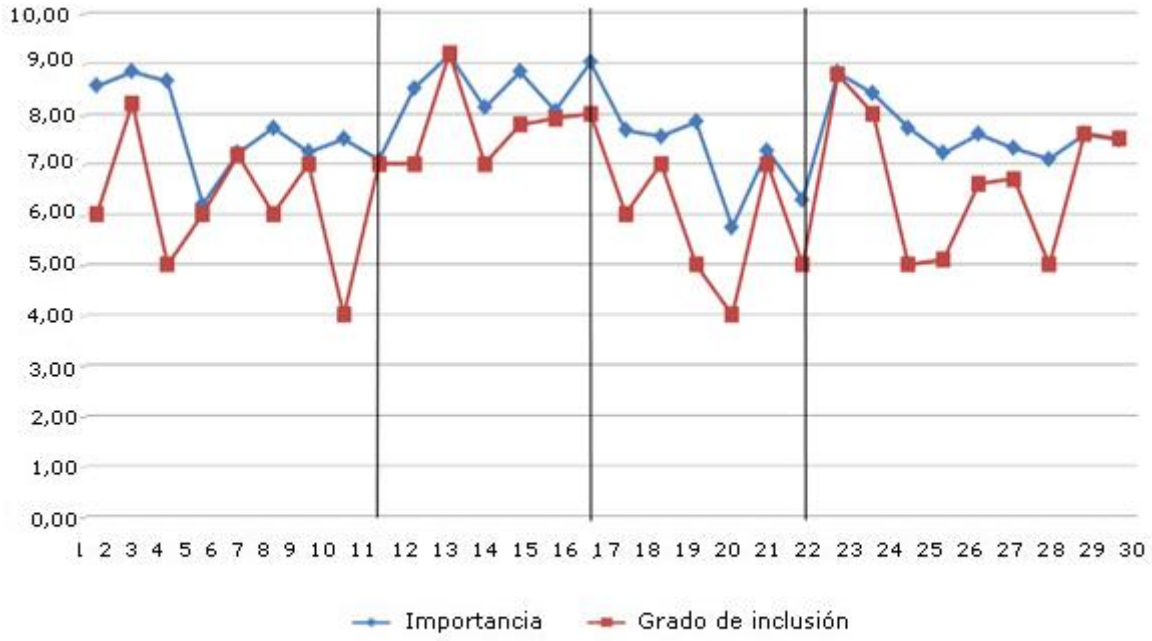

Fig. 1. Grado de importancia y nivel de satisfacción con el aprendizaje de los estudiantes, respecto a las competencias de los diplomados.

The values obtained were different for the 30 competencies. The students responded that they achieved greater satisfaction with learning in the competencies related to the "Interpersonal relationships and communication" dimension, where the following values were obtained above average:

- Capacity for teamwork.
- Ability to form, coordinate and direct teams.

- Ability to transfer knowledge.
- Oral and written communication skills in one's own language.

Of the total of the competencies analyzed, regarding the satisfaction with the learning perceived by the students of the diploma, in addition to the four mentioned above, only 12 reach an average value greater than 7:

- Ability to manage resources (human, information, knowledge).
- Knowledge of information sources, retrieval and storage.
- Ability to manage and implement information or knowledge management policies.
- Ability to organize strategies and work objectives.
- Knowledge of models for managing organizations and their application.
- Ability to manage information management and control systems.
- Ability to implement an information or knowledge management system.
- Knowledge about searching for information on the web.
- Ability and ability to interact with users.
- Social interaction skills with colleagues and superiors.
- Ability to navigate communication networks using search engines and other tools.
- Ability to plan information systems.

The dimension that least satisfies student learning are those that group together the competencies related to information technologies, and of these the ones that have obtained average values lower than 5.5 are:

- Knowledge of systems architecture.
- Ability to analyze and organize data.
- Ability to create and organize services for the user/client.
- Ability to analyze and synthesize information.

- Sufficient technical knowledge to solve unforeseen problems.
- Analytical ability to combine and organize complex information.

RESULTS BETWEEN THE DEGREE OF IMPORTANCE OF COMPETENCES FOR TEACHERS AND THEIR PERCEPTION OF THEIR INCLUSION IN THE DIPLOMAS

The importance assessments made to each of the competencies by the teachers and their perception of the degree to which these competencies are included in the study programs of the corresponding diplomas are shown in Figure 2 , where the values On average, there is a statistically significant difference between the means of the two variables (importance and degree of inclusion), with a 95.0% confidence level.

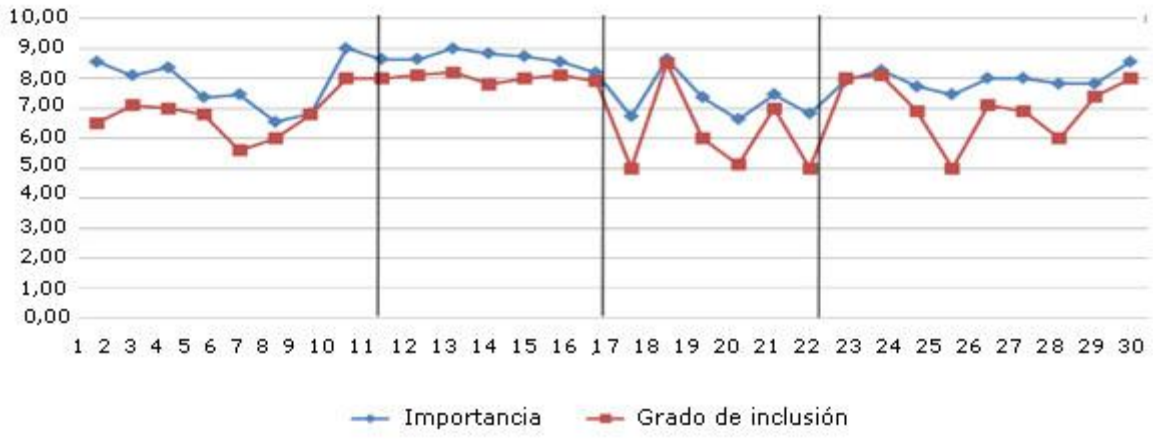

Fig. 2. Nivel de importancia y grado de inclusión de las competencias por los profesores

The competencies that have a higher degree of inclusion perceived by teachers are related to the dimensions "Interpersonal relationships and communication" and "Organizational management". Of the total competencies, 15 obtain values above average (7):

- Knowledge about searching for information on the web.
- Capacity for teamwork.
- Social interaction skills with colleagues and superiors.
- Ability to transfer knowledge.

- Ability to manage and implement information or knowledge management policies.
- Knowledge of methods and tools to manage and audit information or knowledge.
- Skills to navigate communication networks using search engines and other tools.
- Oral and written communication skills in one's own language.
- Ability to manage resources (human, information, knowledge).
- Knowledge of models for managing organizations and their application.
- Ability to form, coordinate and direct teams.
- Ability and ability to interact with users.
- Ability to organize strategies and work objectives.
- Knowledge of information sources, retrieval and storage.
- Ability to manage information or knowledge management projects.

Of the total competencies, only 4 have obtained average values lower than 5.5:

- Knowledge of Intranet and web page management and design.
- Mastery of web applications and collaborative work.
- Knowledge of systems architecture.
- Analytical ability to combine and organize complex information.

It is proposed that to improve the level of satisfaction on the part of the students, and the inclusion in the study plans, improvements be made in the programs of the modules related to the competencies that obtained the lowest rating: knowledge about system architecture; analytical ability to combine and organize complex information; ability to analyze and organize data; ability to create and organize services for the user/client; ability to analyze and synthesize information; sufficient technical knowledge to solve unforeseen problems; knowledge of intranet and web page management and design; and

mastery of web applications and collaborative work.

One of the main limitations in the study is related to the number of organizations surveyed. However, the results obtained can be an approximation to support the monitoring and improvements of these training programs, as a result of the specific evaluations of those who teach and those who receive the professional skills that were stated in the research.

CONCLUSIONS

From the results obtained, the most important dimension for the three samples, as well as for the perception of learning satisfaction by the students and the degree of inclusion in the study programs of the two diplomas according to the teachers, turned out to be " Interpersonal relations and communication", followed by the dimension "Organizational management". Likewise, the one that obtained the lowest rating was the "Information Technologies" dimension.

It is important to highlight that the results achieved show the scant significant difference between the assessments of the most important and least important competencies for each of the dimensions in the three samples analyzed. However, regarding the relationship between importance valued by students and learning satisfaction, as well as importance valued by teachers and degree of inclusion in the study program, there were significant differences, for a confidence level of 95%.

Of the ten competencies that students perceive as satisfied with learning, nine coincide with those of the highest degree of inclusion in the study program perceived by teachers; That is, only the competence "Ability to manage information management and control systems", considered as satisfied with the learning by the students, has not been perceived with a high degree of inclusion by the teachers. On the other hand, with the satisfaction with the learning that students perceive in 16 competencies, which represent 53 percent of the total of

these, it is concluded that the program offered can be valued as good, despite the fact that there are significant differences. between the importance they assign to a competence and their level of satisfaction.

CONFLICT OF INTERESTS

The author declares that there is no conflict of interest in this article.

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