MENDIVE
REVISTA DE EDUCACIÓN

Translated from the original in Spanish

Knowledge management t hrough the use of teaching literature

La gestión del conocimiento a través del uso de la literatura docente

A gestão do conhecimento através da utilização de literatura pedagógica

Ana Luisa Figueredo Figueredo[1], Mariela María Martínez Roselló[1], Rebeca Pérez Rosabal[1]

[1] Universidad de Granma. Cuba. ORCID: http://orcid.org/0000-0001-7855-5047, https://orcid.org/0000-0002-2929-9451, https://orcid.org/0000-0002-1869-2565.
Correo electrónico: afigueredof@udg.co.cu, mmartinezr@udg.co.cu, rperezrosabal@udg.co.cu

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ABSTRACT
For this 21st century, within the framework of the Information and Knowledge Society, Cuban Higher Education faces the challenge of training more prepared professionals, in which the acquisition of skills and tools that play a decisive role-plays a determining role to the application of solid knowledge in each of the scenarios of society. The development achieved has allowed the increase of information at an uncontrollable pace and although it has had a strong impact in the diversification of information, in the flow of information and in the transmission of knowledge, it has also had its limitations in terms of being able to carry to the university student that pertinent information that taxes their professional training. Taking into account the above, it is proposed as the objective of the research, to develop a procedure for the management of teaching literature in the training process of the undergraduate professional of the Forest Engineering Career. They were applied theoretical methods (historical-logical, analysis-synthesis, induction-deduction, analysis and criticism of sources), empirical (survey, interview, scientific-participatory observation) and statistical (descriptive statistics). The study reveals the relevance of the proposed procedure, taking into account the obvious need to solve a group of limitations that prevent the efficient use of documentary information sources in the process of initial professional training.

Key words: knowledge management; teaching literature; professional training process.

RESUMEN
Para este siglo XXI, en el marco de la llamada Sociedad de la Información y el Conocimiento, la Educación Superior Cubana se enfrenta al desafío de formar profesionales cada vez más preparados, en lo que juega un papel determinante la adquisición de habilidades y herramientas que contribuyan a la aplicación de conocimientos sólidos en cada uno de los escenarios de la sociedad. El desarrollo alcanzado ha permitido el incremento de la información a un ritmo incontrolable y, aunque ha tenido un fuerte impacto en la diversificación de soportes informacionales, en los flujos de

información y en la transmisión de los conocimientos, también ha tenido sus limitaciones en cuanto a transmitirle al estudiante universitario aquella información pertinente que tribute a su formación profesional. Teniendo en cuenta lo anteriormente expuesto, se plantea como objetivo del artículo, proponer un procedimiento para la gestión del conocimiento a través del uso de la literatura docente en el proceso de formación inicial del profesional en la carrera Ingeniería Forestal. Se aplicaron métodos teóricos (histórico-lógico, análisis-síntesis, inducción-deducción, análisis y crítica de fuentes y sistémico-estructural-funcional), empíricos (encuesta, entrevista, observación científica participativa) y estadísticos (estadística descriptiva e inferencial). En el estudio se revela la pertinencia del procedimiento propuesto, teniendo en cuenta la evidente necesidad de resolver un grupo de limitaciones que impiden el empleo eficiente de las fuentes de información documentales en el proceso de formación inicial del profesional.

Palabras clave: gestión del conocimiento; literatura docente; proceso de formación inicial del profesional.

RESUMO
Para este século XXI, no quadro da chamada Sociedade da Informação e do Conhecimento, o Ensino Superior cubano tem pela frente o desafio de formar profissionais cada vez mais preparados, em que a aquisição de competências e ferramentas que contribuam para a aplicação de conhecimentos sólidos em cada um dos cenários da sociedade desempenha um papel determinante. O desenvolvimento alcançado permitiu o aumento da informação a um ritmo incontrolável e, embora tenha tido um forte impacto na diversificação dos suportes de informação, no fluxo de informação e na transmissão de conhecimentos, teve também as suas limitações em termos de transmissão aos estudantes universitários da informação relevante que contribui para a sua formação profissional. Face ao exposto, o objectivo do artigo é propor um procedimento de gestão do conhecimento através da utilização de literatura pedagógica no processo de formação inicial dos profissionais da carreira de Engenharia Florestal. Foram aplicados métodos teóricos (histórico-lógico, análise-síntese, indução-dedução, análise e crítica de fontes e sistémico-estrutural-funcional), métodos empíricos (inquérito, entrevista, observação científica participativa) e métodos estatísticos (estatística descritiva e inferencial). O estudo revela a relevância do procedimento proposto, tendo em conta a necessidade evidente de resolver um conjunto de limitações que impedem a utilização eficiente de fontes de informação documental no processo de formação inicial do profissional.

Palavras-chave: gestão do conhecimento; literatura didáctica; processo de formação profissional inicial.

INTRODUCTION

The changes that have occurred in terms of supports, access and availability of information, regardless of the area of knowledge in question, have directly affected the changes that have occurred in the initial professional training process. In this context they will require new and alternative ways to properly manage the different types of documents that are needed for the formation of the professional.

Teaching literature, as a fundamental means of managing knowledge, is made up of basic documents (guided by the National Career Commission) and complementary documents (oriented by

the National Career Commission and / or each discipline of the CES). The first materialized in one or several books in printed or electronic / digital format, and the second made up of different types of documents (manuals, monographs, and articles from periodical and serial publications, reference works, study guides and other documents) in different supports that complement the former.

A starting of the proper use of basic and supplementary documents will reveal a group of functions such as transmission of information acquisition with essential knowledges and development of skills necessary for the performance of the student as future professional. The pupil, as the center of the training process - must become a manager of information and knowledge, able to delve into the content, so curriculum must overcome to meet society
as a competent professional. They have to achieve greater cognitive independence every day and a greater mastery of those skills that allow them to take to a higher level the use of teaching literature and, consequently, the management of their knowledge.

The initial professional training process has been addressed by the National Commission of the Forest Engineering Career (2018) and by researchers such as Horruitiner (2008), Hermida and López (2016), Fuentes *et al.* (2017), Morales and Cruz (2018), and Smith, Alonso and Gamboa (2019), who refer to their importance in the transformations that take place in the university, based on the development of knowledge, skills and values. Researchers who have dedicated themselves to the study of teaching literature, focus, fundamentally, on the development of specific skills such as reading, writing, selecting, retrieving, recording and summarizing, but they do not affect the integration of these and other skills that are very useful for its training process.

Authors such as Almuiñas and Galarza (2015), Martínez, Hernández & Torres (2018) and Ponjuán (2018), approach knowledge management from the necessary transformations that are carried out in Higher Education, taking into account the role that information and knowledge, its treatment and management.

Horruitiner (2008) refers that Cuban Higher Education uses the term bibliographic assurance to name the system of bibliographic materials to be used in a subject. This system is made up of the textbook or books considered as basic (edition and production guaranteed by the MES), other books identified as complementary, magazine articles, study guides and other materials produced by teachers and materials in electronic format.

Students of Forest Engineering career at the University of Granma, are not outside the phenomenon of "infoxication", for which is so necessary to have updated information, relevant and reliable, and apply tools suitable to manage their knowledge efficiently. It is not a matter of imposing the use of a certain support or documentary typology, but rather of helping the student to form under a model in which the relationships established around the use of teaching literature favor the development of skills that respond to the how, what and why to learn. For this, mastering the properties of information (topicality, novelty, completeness and reliability) is essential in order to achieve professional training consistent with the accelerated rate of production and updating of knowledge.

In the relationships established between teaching literature and the ways to manage knowledge appropriately, the

skills that students have to develop are an essential element. Knowing how to read and write continue to be essential skills, but today they are insufficient when evaluating the speed with which information is increased and, at the same time, certain contents are outdated, as well as the creation and disappearance of sources.

The skills that the student develops for the socialization of his knowledge and the application in different contexts, are the result , to a large extent, of how he accesses, discriminates and evaluates the information, what and how he learns and its subsequent application in the solution of daily problems.. In this sense, documentary sources play a determining role as disseminators of teaching literature. Taking into account all the aforementioned, it is established as an objective: to propose a procedure for knowledge management through the use of teaching literature in the initial training process of the professional in the Forest Engineering career.

MATERIALS AND METHODS

Research is carried out on the basis of dialectical materialism. The research paradigm ass umed is the constructivist. It is also supported by the use of different methods: theoretical, empirical and statistical.

It was developed in two stages: diagnosis of the current state of management of knowledge performing by the students of Forestry Engineering career from literature teaching and the development of the procedure. The first stage began with the application of surveys to students from the first to the fifth year of the Forestry Engineering career, to determine the essential elements of the current state of the management of knowledge that perform through the use of the teaching literature, serving as a reference for the development of a procedure that could be applied at the career level.

Because the Forest Engineering degree historically has a reduced enrollment, it was decided to apply the survey to 100% of the students (12 students in first, 14 in second, 19 in third, 17 in fourth and 32 in fifth). For the processing of questionnaires and scientific observation, the SPSS software (version 21) was used, which allowed for greater precision and scientificity in the interpretation of the results obtained. The analytical syllabuses of different disciplines to consult the training objective, system knowledge and skills system of each were reviewed; the Organizational Document of the University of Granma (2017-2018); the bibliographic plan corresponding to Study Plan D of the Forest Engineering career and the preparation of the subjects in the Moodle platform and in the File Transfer Protocol (FTP).

The reviewing of grade works (2015-2016, 2016-2017 and 2017-2018) of all subjects of the Integral principal discipline were also performed. The purpose was to establish comparisons between the types of processing that are evident in its elaboration, the most used sources of information and skills. In the second stage, the actions and operations that made up the procedure were determined: three actions with an operations system.

RESULTS

With the survey applied to the students, it was determined that, at the career level, 36.17 % reported that the access to the teaching literature is the loan

store, so it can be inferred that the difference is not very marked regarding access through the network. It is contradictory that, if society is immersed in the age called Information and Knowledge, where, as a result of the use of the Technologies of Information and Communications the information is increased at an uncontrollable rate, a considered number of students are identified as the main method used, the books borrow store (figure 1).

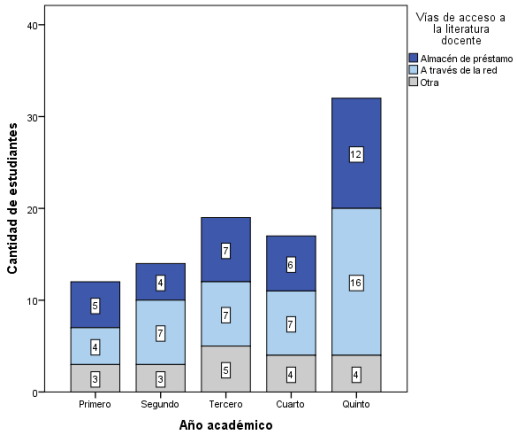

Fig. 1- Access routes by academic years

However, it is necessary to point out that, thanks to the work developed by the professors of the degree program, there is an increase in the consultation of other types of documents, including those of electronic / digital support, since in previous courses, students identified as the main path to the loan warehouse.

The group of the Forest Engineering career works, with special attention in those subjects with difficulties, in the availability of the text or printed basic material, for which articles, monographs and compilations are made available to students through the network, in data repositories and the CRAI. For this course, 100 % of the subjects of the degree have teaching literature, available through different channels (in printed and / or electronic and / or digital format). Due to the plan for internal editions of the degree program - to which the University responds - 20 titles were reproduced for the subjects without basic texts, with a total of 1015 copies in recent years.

In the current study plan (Plan D), of the total number of subjects, as directed by the National Career Commission (basic and own curriculum) and the different disciplines (optative- elective curriculum), 70 must have texts basic; Of these, 56 meet the requirement, with texts on printed media, for 80%. Of the 56 referred, 87.5% have a distribution of one book for each student, in 7.14 % it is one in two students and 5.35 % represents a subject in which teams work. The rest have complementary documents, both in printed and electronic support. Of 94 basic texts of which you must have a degree, there are 74, for 78.7 %.

To determine the sources of information used by students, these were grouped by brackets (figure 2). To the extent in which the student goes through the different years, generally it will increase consultation documents electronically. It is considered that this type of resource should be used by 100 % of students from the first year, since among its advantages is the speed

of updating the content in each of the subjects.

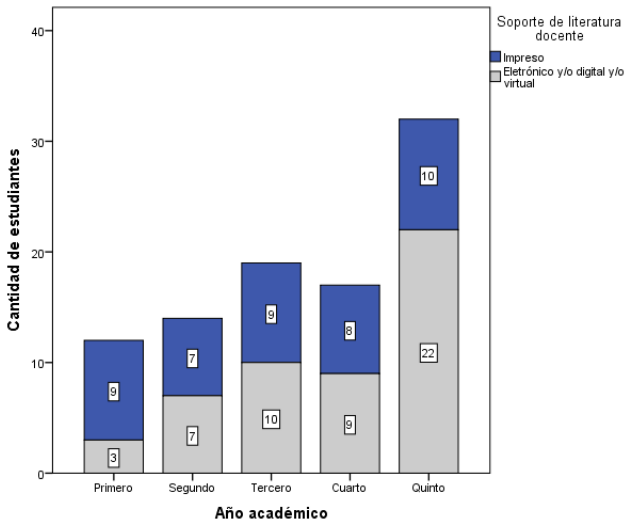

Fig. 2- Consultation of documents in different supports

It is paradoxical that, as there are multiple opportunities for accessing information sources in electronic format, the printed book continues to be the document most consulted by students and that the electronic scientific journal, which has a rapid circulation and a high degree of update, to use by a small number of students. However, they also acknowledge using the book in electronic format, whose publishing process is much faster than the book in print, therefore, the level of content updating is higher.

It is still necessary to continue working with students in the use of interactive platforms (figure 3), taking into account the advantages in the development of the process teaching-learning and strengthening that occurs collaborative learning.

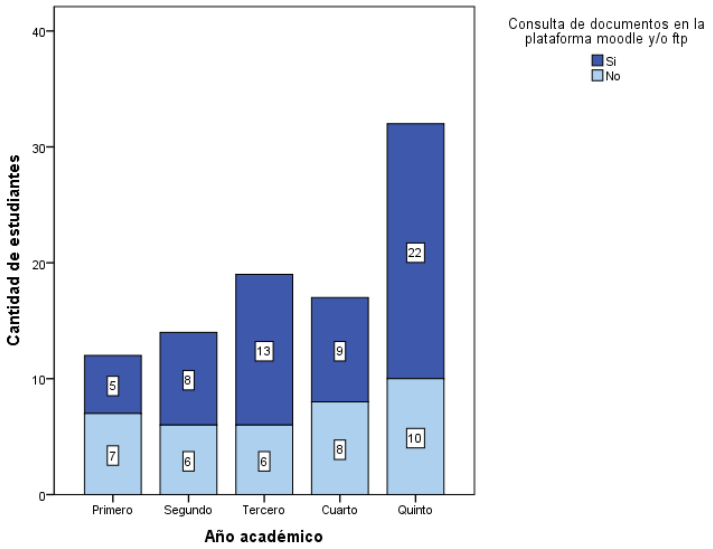

Fig. 3- Document consultation in the Moodle and FTP Platform

The students that prefer to consult documents in different types of media expose skills that apply own productive information processing, not those consulting limited sources of information. In this situation the importance of a structured process where inferred arises, logically, actions and operations which integrate different types of documents (figure 4).

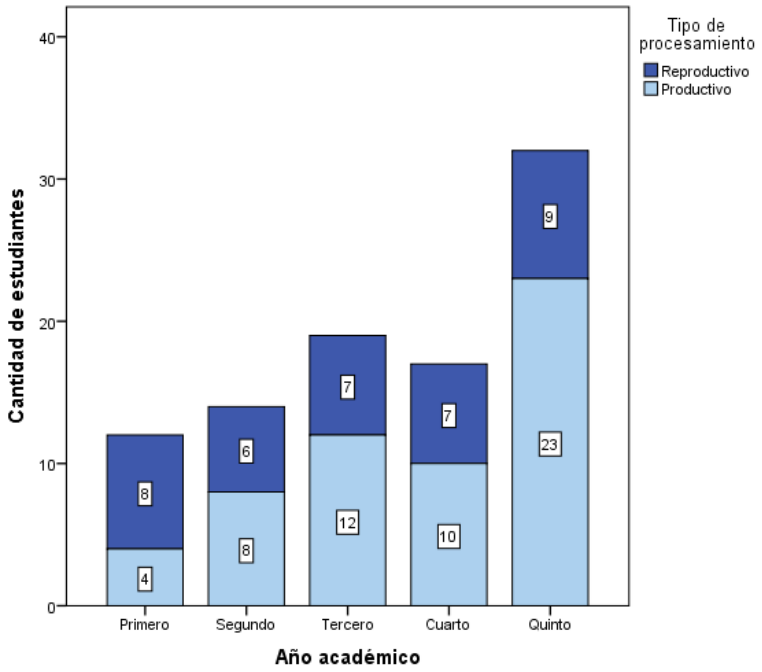

Fig. 4- Type of scientific information processing

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Álvarez (1999) argues that the skills of each discipline can be classified , according to their level of systematization, as: those of specific science and logical skills, both formal and dialectical, also called intellectual or theoretical, which are applied in any science, such as induction, deduction, analysis-synthesis, generalization, abstraction-concreteness, classification, definition, scientific research, etc.. In addition, the skills of the teaching process itself and self-instruction are presented, such as taking notes, making summaries and index cards, developing reports, fast and efficient reading, among others.

At times, students do not perceive that, even so unconsciously, in some way they apply some kind of procedure for the management of knowledge through the use of literature teaching and information processing, although this is not always the more effective. Once again, the need to propose a procedure that allows the student to make proper use of different sources of information is inferred.

Despite the importance of teaching literature in the development of the initial professional training process, on many occasions students do not use the most of the knowledge contained in each document, which at the same time is essential material in what is currently society we know as information management and knowledge management.

From the Methodological Teaching Direction of the UDG, during the last three academic years a procedure has been established (to link 1) that responds to the availability in printed support of the teaching literature that is called *Working with the bibliographic system.* In this, four actions are proposed, in which the greatest responsibility is conferred on the Principal Professor of the Academic Year. The actions are fundamentally oriented towards the evaluation and control of the bibliographic system in each academic year, but it is considered insufficient to achieve an efficient use of what is declared as a bibliographic system at the subject level.

The procedure takes as a starting point the indication of the MES in which, according to Horruitiner (2008), the first day of classes in both semesters each teacher must explain to the students how the bibliographic assurance (textbooks) of its subject, its location and distribution, as well as access to study guides and supplementary materials prepared by teachers. The preparation and requirement of the teacher in terms of the way in which he orients and controls the use of teaching literature from the subject he teaches is considered decisive.

For several weeks, at different times in the first half of the course 2017-2018, participatory scientific observation in the CRAI and computer labs for students (it was developed to link 2). From the CRAI the general room and the one dedicated to Agricultural Sciences were visited, where a collection of documents corresponding to the Forest Engineering Career can be consulted. Accessible also to databases content scientific and academic virtual library with articles of scientific magazines and specialty books, as well as all - electronic and digital documents - from all other universities in the country and the MES university network. The record of visits of the students of the career to this information system shows low levels. The second and third year students are the ones with the highest attendance and 100% of the documents consulted are books in print.

Regarding the reason for the visits made to this information system, it is not found that students frequent it for entertainment purposes. For the study

and search for documents, visits have a quite similar behavior, 47 and 51, respectively; however, the results are very low if the wealth of the assets that this system has is taken into account.

The greatest number of visits is made to computer laboratories, with 218 in the first year, 254 in the second, 176 in the third, 227 in the fourth and 120 in the fifth; However, taking into account the work carried out since the career in the virtualization of each of the subjects, the requirements for the development of scientific-investigative work and the concretion of relations with labor entities from the DPI, it is considered that it is insufficient access to this service. The main reason for concurrence is the study, with 120 visits in the first year, 171 in the second, 115 in the third, 136 in the fourth and 83 in the fifth. Regarding the search for documents, 42 visits are made in the first, 77 in the second, 47 in the third, 136 in the fourth and 37 in the fifth. It is considered necessary to intend the work towards the consultation of documentary (textual) information sources, through which the student can prepare summaries, take notes with the criteria of the authors studied, and prepare bibliographic entries and other information products.

The revision of the Course Work of the subjects of the Main Integrative Discipline (Introduction to Forest Engineering, Forest Engineering I and II, Ecological Studies of Multistage Forests, Reforestation, Forest Heritage Management and Forest Management of Hydrographic Basins) was carried out. The main deficiencies identified are related to:

- The use of bibliographic references (inappropriate use of quotations and paraphrasing, insufficient consultation of electronic / digital sources, relevance of citations according to the logic of the document).

Establish relationships and comparisons between criteria.

As a result of the information processed, then they propose two actions a system of operati ons, as a procedure for the management of literature teaching in Forestry Engineering Career:

1. Determine the appropriate documentary information sources: relevant documents in the context of the need for information.

1.1 Establish as the main criteria for consultation, the most recognized authors on the subject (through consultation with specialists).

1.2 Consult the sources of information, taking into account as an order of relevance: scientific journal (electronic support), book (electronic / printed), Diploma Work, digital / virtual library, website, brochure, other sources of information related to the object research (example: catalog / manual, dictionary / encyclopedia).

1.3 Evaluate, taking into account the physical and content description of the information source (author, title , year of publication, place of publication , index, summary), the relevance of the information ; considering , among other elements, its level of topicality, authenticity and reliability . Eliminate duplication of information.

1.4 Contrast the information sources, ranking their relevance among them, to reduce the number of information sources to those that truly respond to the subject in question.

2. Read (reading study): The understanding and interpretation of the content of the information source is performed. The student translates the

author's ideas into their own terms. It gives meaning to what it perceives.

2.1 Take notes: determining keywords and / or relevant expressions within the source.

2.2 Identify, for each source of information, the fundamental concepts.

2.3 Establish relationships between two or more concepts within the same source of information.

2.4 Establish comparisons between concepts, criteria and essential contents from various sources of information.

2.5 Questioning and inferring about the criteria selected from the set of information sources.

2.6 Prepare content sheets of the different sources of information consulted.

3. Produce a new documentary source: construction and reconstruction of knowledge.

3.1 Contextualize the information retrieved with the need for information (establish links with the criteria found around the topic).

3.2 Reference the most recognized authors on the topic addressed.

3.3 Consult non-documentary information sources (to establish feedback).

3.4 Organize the content in a logical way, taking into account the rules of scientific writing.

3.5 Select the most appropriate means to present the new knowledge (socialization of the main results), relying on the elaboration of conceptual maps, logical diagrams, and synoptic tables.

To socialize the procedure and enrich it with the suggestions and criteria of the students, workshops were held for academic years. Participation behaved as follows (Table 1):

Table 1- Workshops by academic years

Workshop	Academic year	Date execution	Number of students
1st	First	05/17/2018	12
2nd	second	05/15/18	14
3rd	third	5/9/18	19
4th	fourth and fifth	10.5 / 18	17

Among the main approaches made by students are:

- The application of the procedure with emphasis on the teaching-educational process.

- Need for enhancing the dissimilar query information sources, mainly electronic.
- Develop skills related to the treatment of the scientific information (search, selection, processing, and socialization).
- Strengthen the review of scientific magazines, Cuban and foreign, whose research interests relate to the Forest Engineering.
- Emphasize, from the first year, on working with electronic, digital and virtual sources of information.
- Need to enhance the visibility of the scientific investigative results of the students in sources consulted by other students, teachers and researchers.

Likewise, workshops were held with the professors of the career program, which has a staff of 11 Full Professors and 19 Auxiliary Professors, reaching between them 60 %. D and a total of 50 teachers, 11 have the scientific level of Doctor in Science, representing 22 % and 29 Master of Science and Specialists, which represents 58 %. As a feedback path for obtaining the results of this socialization, an interview of 38 teachers (to link 3), which confirms the correspondence between actions and operations proposed in the procedure was applied (Table 2).

Table 2 - Results of the teacher interview

Elements to consider		**Teaching category**			
		Headlines	**Auxiliaries**	**Assistants**	**Instructors**
Suggest incorporating other skills	yes	two	4	two	5
	no	5	eleven	9	0
Proper sequencing of actions and proposed operations for consulting information sources	yes	5	12	one	5
	no	two	3	10	0
Relevance of the proposed procedure for the adequate management of knowledge through the use of teaching literature	yes	7	1 5	1 1	5
	no	0	0	0	0

DISCUSSION

To refer to the transformations that the initial professional training process undergoes, it is necessary to take into account several elements that affect the way in which the university student manages his knowledge, with greater independence from the teacher's

orientation. This independence is often mediated by the access, availability and exchange of information and knowledge, which may favor or limit the systematization and generation of new knowledge, which directly affect the development of other processes involved in its formation.

To achieve this purpose, from admission of students to the first year of college, the work towards a solid vocational training starts, not only related to the area of knowledge that requires efficient performance efficient once graduated, but also orientation towards comprehensive training where knowledge, skills and values complement each other.

In this analysis, we must start from the significant change in the treatment of the subject in the university with respect to the previous teaching. On the one hand, the transition of study in each of the subjects by a textbook (in some cases two or three) in which the necessary knowledge that the student must possess at the end of the school year is collected, to the consultation of various documents (printed book / electronic - magazine printed / press print / digital, work for diploma, brochure and others) to systematize and deepen the knowledge acquired in the classroom. On the other hand, from the directed search - in many cases reproductive - of certain content, to the analysis of a chapter, epigraph, article or other document that allows making judgments, making evaluations, assuming criteria, establishing relationships and reaching conclusions.

This is corroborated by research aimed at developing essential skills based on the deficiencies with which students enter Higher Education, which prevent them from successfully advancing in their professional training. Gonzalez, Hernandez and Vines (2008) provide tools aimed at the use of study skills so that students can better express their ideas and more easily manage the information, emphasizing in the treatment of reading from the content of specific documents.

The limitations of students depend, in many cases, of which have no the necessary tools to establish relationships between the knowledge possessed and containing each of the documents consultation, which become essential sources to move from what in today's society is called as information management towards knowledge management. In this regard, Febles *et al.* (2004) reflect on the volume of information produced by students due to their links to research and economic and social practice (reports on production practices, reference, course and diploma papers and their participation in scientific- student forum) and the need for its creative use.

Knowledge management through the use of teaching literature as a dynamic, flexible, systemic and cyclical process, which from the analysis of the form and content of different documents (regardless of the medium) guarantees that it is identified, selected, evaluated, processed and transmit the information that is transformed into knowledge in a more efficient way , depending on the current, novelty, completeness and reliability of said information, it is based on the application of cognitive skills, which allow the student to deepen the knowledge acquired from the academic, labor and research components, based on the content oriented in the analytical program of each of the subjects.

Peña (2010) refers to , in the Higher Education, consulting multiple sources of information, which pose different and sometimes divergent visions of the same issue, open new questions and discussions that make it even more complex analysis of the

problem; However, it is considered that the essence does not lie in using a large number of *a priori* sources of information , but rather that those that are used meet the necessary conditions, including credibility and scientific visibility, that allow their recognition in their area of knowledge. .

It coincides with Estrada and Benitez (2010), who argue that one of the main issues to address is, manage tacit knowledge and turn it into explicit knowledge (if possible) and find methodologically appropriate ways to present it in teaching materials (articles, books, theses, monographs, etc), organizational materials, regulations and others that contribute to maintain and improve their intellectual capital. The authors infer of the criteria of these authors that, both teachers and students should be regarded as tireless knowledge managers. In the first ones, the exercise of guidance and counseling should prevail, in the latter, motivation due to the need to learn and learning to learn.

The factual diagnosis carried out in the Forest Engineering career at the University of Granma revealed the existing limitations in the current state of knowledge management through the use of teaching literature by students, which influence the development of skills for a adequate identification, selection, processing, evaluation and socialization of the information, and its transformation into knowledge, from the initial professional training process.

The proposed procedure has a direct implication not only in the development of the class but in the performance of independent work, which deepens and systematizes the knowledge transmitted by the teacher in the classroom. It contributes to the students learning to determine the essential, to study, to think and to actively participate in the construction of new knowledge, taking into account the transformations of today's society. The development of cognitive skills that respond to how and what to learn is promoted, based on the mastery of the properties of information. It also allows optimizing the use of information and adapts it to the demands that each moment and context demand.

From the proposed procedure it emphasizes the importance of relationships around the management of knowledge through the use of teaching literature and information means studies, founded on the need to solve a set of constraints that prevent adequate use of teaching literature in the professional training of students in the Forest Engineering career.

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Appendix 1

WORK WITH THE BIBLIOGRAPHIC SYSTEM AT THE UDG (COURSE 2017-2018)

PROCEDURE FOR ITS MANAGEMENT

1. Present the bibliographic system of each subject to the teaching group and its method of use.

Date: First teaching activity for each subject.

Responsible: main professor of the course.

2. Systematically Evaluate systematically the use of the bibliographic system in each subject at organizational and management levels and in meetings with teaching groups.

Date: monthly.

Responsible: Head of Department and Principal Professor of the Academic Year.

3. Evaluate the level of satisfaction with the bibliographic system in the University Community of the Academic Year.

Date: at the end of each school period.

Responsible: Principal Professor of the Academic Year.

4. Prepare the Internal Edition Plan of the center, taking into account the curricular improvement and the needs related to the basic part of the curriculum.

Date: May, 2019.

Responsible: Director of Undergraduate Training and Vice-Deans of Training.

Appendix 2

Results of participatory scientific observation

First year							
Weeks	**Servicies**						
	Computers Lab Reazon			**CRAI Reazon**			**Total visits**
	Count	**Count**	**Count**	**Count**	**Count**	**Count**	**Count**
Week 1 (10-14 / 09)	0	0	0	0	0	0	**0**
Week 2 (24-28 / 09)	13	6	4	two	0	0	**25**
Week 3 (1-5 / 10)	18	5	13	3	0	0	**39**
Week 4 (22-26 / 10)	35	two	10	one	two	0	**fifty**
Week 5 (19-23 / 11)	7	6	4	0	0	0	**17**

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Week 6 (3-7 / 12)	22	eleven	6	two	0	0	**41**
Week 7 (7-11 / 01)	fifteen	8	4	one	0	0	**28**
Week 8 (21-25 / 01)	10	0	8	two	one	0	**twenty-one**
Week 9 (18-22 / 02)	0	4	7	0	0	0	**eleven**
Total	**120**	**42**	**56**	**eleven**	**3**	**0**	**232**
Second year							**Total visits**
Week 1 (10-14 / 09)	4	6	4	one	two	0	**17**
Week 2 (24-28 / 09)	fifteen	9	two	0	0	0	**26**
Week 3 (1-5 / 10)	twenty-one	5	0	3	4	0	**33**
Week 4 (22-26 / 10)	25	eleven	0	one	0	0	**37**
Week 5 (19-23 / 11)	12	8	0	0	4	0	**24**
Week 6 (3-7 / 12)	37	10	0	0	3	0	**fifty**
Week 7 (7-11 / 01)	19	fifteen	0	0	0	0	**3. 4**
Week 8 (21-25 / 01)	26	5	0	0	5	0	**36**
Week 9 (18-22 / 02)	12	8	0	0	0	0	**twenty**
Total visits	**171**	**77**	**6**	**5**	**18**	**0**	**277**
Weeks	**Services**						**Total visits**
	Computer labs			**CRAI**			
	Reason			**Reason**			
	study	**Search for documents**	**Entertainment**	**study**	**Search for documents**	**Entertainment**	
	Count	**Count**	**Count**	**Count**	**Count**	**Count**	**Count**
Third year							

Week 1 (10-14 / 09)	fifteen	4	two	0	0	0	**twenty-one**
Week 2 (24-28 / 09)	12	8	one	0	0	0	**twenty-one**
Week 3 (1-5 / 10)	9	16	0	3	two	0	**30**
Week 4 (22-26 / 10)	7	6	4	7	5	0	**29**
Week 5 (19-23 / 11)	twenty-one	5	0	0	4	0	**30**
Week 6 (3-7 / 12)	eleven	0	two	4	0	0	**17**
Week 7 (7-11 / 09)	13	0	two	0	two	0	**17**
Week 8 (21-25 / 01)	18	8	3	0	3	0	**32**
Week 9 (18-22 / 02)	9	0	0	0	0	0	**9**
Total visits	**115**	**47**	**14**	**14**	**16**	**0**	**206**
Fourth year							
Week 1 (10-14 / 09)	13	9	two	0	0	0	**24**
Week 2 (24-28 / 09)	22	0	two	0	0	0	**24**
Week 3 (1-5 / 10)	fifteen	17	two	5	3	0	**42**
Week 4 (22-26 / 10)	4	0	two	0	one	0	**7**
Week 5 (19-23 / 11)	27	eleven	two	4	0	0	**44**
Week 6 (3-7 / 12)	12	8	one	0	0	0	**twenty-one**
Week 7 (7-11 / 01)	24	10	one	0	3	0	**38**
Week 8 (21-	8	19	3	0	0	0	**30**

25 / 01)							
Week 9 (18-22 / 02)	eleven	0	two	0	0	0	**13**
Total visits	**136**	**74**	**17**	**9**	**7**	**0**	**243**
Fifth year							
Week 1 (10-14 / 09)	14	6	0	0	0	0	**twenty**
Week 2 (24-28 / 09)	7	3	0	0	0	0	**10**
Week 3 (1-5 / 10)	0	one	0	two	two	0	**5**
Week 4 (22-26 / 10)	eleven	12	0	0	0	0	**2. 3**
Week 5 (19-23 / 11)	13	0	0	4	4	0	**twenty -one**
Week 6 (3-7 / 12)	22	12	0	two	one	0	**37**
Week 7 (7-11 / 01)	0	one	0	0	0	0	**one**
Week 8 (21-25 / 01)	4	0	0	0	0	0	**4**
Week 9 (18-22 / 02)	12	two	0	0	0	0	**14**
Total visits	**83**	**37**	**0**	**8**	**7**	**0**	**135**

Appendix 3

Interview with professors of the Forest Engineering degree

Objective: Assess the relevance of the proposed procedure.

1. General data

Teaching category _____

Scientific category _____

Discipline _____

Years in Higher Education_____

2. Do you recommend that other skills be included in the procedure? Which? In what action?

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3. Do you consider the sequencing of proposed actions and operations to be appropriate for consulting information sources? Do you have another proposal?

4. How do you evaluate, by funds and collections, the sources of information made available to students?

5. Do you consider that the proposed procedure guarantees the adequate management of knowledge through the use of teaching literature in the students of the Forest Engineering degree?

Yes _____ No _____

Why? _____

6. Do you have any suggestions regarding the procedure?

Conflict of interest:

Authors declare not to have any conflict of interest.

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