

# MENDIVE

REVISTA DE EDUCACIÓN

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## Methodological bases for an integrative field practice using ExeLearning

### Bases metodológicas para una práctica de campo integradora a través del uso de ExeLearning

### Bases metodológicas para una práctica de campo integradora a través do uso do ExeLearning

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#### ABSTRACT

The formation of teachers has felt the necessity to advance toward the application of digital tools to achieve a better learning adapted to the modernity. However, the educational scenarios varied and it became necessary to strengthen an appropriate

interaction among the educational contents, the educational technology and those implied in the teaching process - learning. The present work had objective to distinguish the methodological bases that allow integrating the software ExeLearning in the field practices that are carried out in the career of Degree in Education (Geography). It was used like design of qualitative investigation the investigation - action and as main result, the methodological bases are exposed to introduce the software with possibility of being extended to other similar computer tools and the design of the field practice in their three stages considering the use of the ExeLearning software. The investigation put in clear the formative potential of the field practice to integrate the development of abilities for the use of the technology in function of solving professional problems of the career, at the same time that it reflected the value of a pedagogic vision to favor the efficient use of the computer tools in the context study object.

#### Key

**words:** ExeLearning; and educational formation; Geography; field practice.

#### RESUMEN

La formación de docentes ha sentido la necesidad de avanzar hacia la aplicación de herramientas digitales para lograr un aprendizaje mejor adaptado a la modernidad. Sin embargo, los escenarios educativos variaron y se hizo necesario fortalecer una adecuada interacción entre los contenidos educativos, la tecnología educativa y los implicados en el proceso de enseñanza-aprendizaje. El presente trabajo tuvo por objetivo distinguir las bases metodológicas que permitan integrar el software ExeLearning en las prácticas de campo que se realizan en la carrera de Licenciatura en Educación (Geografía). Se utilizó como diseño de investigación cualitativa la investigación-acción y como principal resultado se exponen las bases metodológicas para introducir el

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software, con posibilidad de ser extendido a otras herramientas informáticas semejantes y el diseño de la práctica de campo en sus tres etapas, considerando el uso del software ExeLearning. La investigación puso en claro el potencial formativo de la práctica de campo para integrar el desarrollo de habilidades para el uso de la tecnología en función de resolver problemas profesionales de la carrera, a la vez que reflejó el valor de una visión pedagógica para favorecer el uso eficiente de las herramientas informáticas en el contexto objeto de estudio.

**Palabras clave:** ExeLearning; formación docente; Geografía; práctica de campo.

#### RESUMO

A formação de professores tem sentido a necessidade de avançar para a aplicação de ferramentas digitais para se conseguir uma aprendizagem melhor adaptada à modernidade. Contudo, os cenários educacionais mudaram e tornou-se necessário reforçar uma interação adequada entre conteúdos educacionais, tecnologia educacional e os envolvidos no processo ensino-aprendizagem. O presente trabalho tinha como objetivo distinguir as bases metodológicas que permitem integrar o software ExeLearning nas práticas de campo que são levadas a cabo na carreira de Bacharel em Educação (Geografia). A investigação de ação foi utilizada como um desenho de investigação qualitativa e o principal resultado é a base metodológica para a introdução do software, com a possibilidade de ser alargado a outras ferramentas informáticas semelhantes e o desenho da prática de campo nas suas três fases, considerando a utilização do software ExeLearning. A investigação deixou claro o potencial formativo da prática de campo para integrar o desenvolvimento de competências para a utilização da tecnologia a fim de resolver problemas profissionais da carreira, refletindo simultaneamente o valor de uma visão

pedagógica para promover a utilização eficiente de ferramentas informáticas no contexto em estudo.

**Palavras-chave:** ExeLearning; formação de professores; Geografia; prática no terreno.

## INTRODUCTION

Training teachers today is one of the key goals facing any educational system, since knowledge and innovation are development elements that are rooted in a comprehensive education, where the use of different technological tools is the driving force behind achieve more competitive, sustainable and equality-based societies. The challenge may be to harmonize tradition and modernity so that new teachers are at the level of the society of the future.

The introduction of changes in the formation of the teacher in the career of Bachelor of Education (Geography) and generally forces them to rethink teaching careers learning strategies and update existing ones. The new conditions in which Cuban education is inserted must be valued for the benefit of the pedagogical process.

The referred career has multiple spaces of training; field practice stands out for its integrative nature, where various knowledge and skills can converge depending on the fundamental training objectives of the profession. Fieldwork as an educational practice approach involves the learner a certain environment in views to be analyzed. For Arias, Gómez & Martínez (2016) it is a modality that improves understanding of the landscape and contributes to directly approach the study of problems in their most real complexities, while

contributing to the integrated knowledge of reality.

The advancement of technology means the opening of various possibilities to transform the way of teaching and learning. According to the opinions of Chiang, Yang & Hwang (2014), the use of some technologies such as mobile phones and augmented reality increases motivation, students' attention and implies an improvement in learning.

For Cabero & Barroso (2016) the Technology Information and Communication (ICT) provide new opportunities for teachers to perform their work and students will help maximize their learning about the content of education. In this relationship, it is very important to know how to maintain the balance between the mastery of the teacher regarding technology and the real possibilities of students to carry out actions with them.

To Favor the use of technology in teaching means leaving traditional teaching behind and insisting more on other variants that address cooperation, reflection, research and innovation. However, the use of ICT in education function, as suggested Sebastia & Tonda (2017) - leads necessarily to run a didactic transposition to insert, properly, the technological tools to the educational process.

Some studies related to the insertion of ICT in education, such as those carried out by Sebatian & De Miguel (2017), refer to the complexities of incorporating specific *software* into teaching. Likewise, other investigations consider the limitation of teacher training for its use and the aging of the available technology (Crespo & Rodríguez, 2019).

Today, ICTs represent a new dimension with multiple possibilities to carry out the task of teaching (Martí, Seguí & Seguí, 2019). This potential must be established

from the training of the teachers themselves, taking advantage of all possible pedagogical experience.

In the context of geographic education, the TIC can provide improvements in access to information and people become familiar early with spaces or places. Martín & Vázquez (2017) believe that "Geography (...) should promote practical exercises, field trips and the use of ICT" (p.148).

The work of Akçayır & Akçayır (2017) shows that, the use of technology supports the achievement of better individualized work in teaching, while they strengthen fluidity in teamwork and socialization with respect to the collective and the landscape. To Turan, Iral & Fevzi (2018) it is remarkable how learning is enhanced and reinforced a better orientation and understanding space.

The field work has been greatly influenced by the use of technological means, which has made many experiences that associate this activity with different devices or *software* to better educational experience appear.

In the case of *ExeLearning software*, it is conceived as a tool for the production of open educational resources with outstanding features, with open source and free distribution; this favors the creation of free educational materials. This tool allows creating multimedia materials, combining textual content with images, sound, videos and interactive activities, from a simple interface (González & Vallejo, 2019).

Resources created in *ExeLearning* can be exported to different formats, making it software very versatile and makes it adapted to other platforms. Its community of developers improves its functionalities periodically, allowing its updating and enrichment.

This is a tool that helps to familiarization with other digital editing procedures used for platforms as *Moodle*, which indirectly prepares the user to work with more complex software. Some research, such as that of Arias (2019), has proven its effectiveness in improving learning in the appropriation of content from various subjects.

The execution of fieldwork with a renewed perspective requires achieving integrity in terms of the projection of the different edges that are put into play. The systemic nature must be attended focused in correspondence with the objectives defined for each academic year, the characteristics of the selected place to work, the available material conditions, the personal characteristics of the participants, the information volume of the area, and the possibility to integrate several knowledge to achieve the things planned. In this way, it is guaranteed to attend the main substantive processes in which the teacher has to train at present. That is why you should consider also the use of software that is able to help solve different problems typical to educational profession in which students are entitled.

Use softwares like ExeLearnig, favoring teaching skills should also be a priority to articulate the content that should master teachers in their vocational training. Students must be encouraged to interact with different computer tools that allow them to incorporate technology into their professional work; this would be an important step to contribute to the virtualization of the geographic contents that are taught in the Cuban school.

In this process should go together harmoniously combines knowledge of technology and pedagogical knowledge and methodology to ensure educational efficiency, in line with the strategic objectives of Cuban society? That is why pedagogy and didactics must materialize the ways for the introduction of *software* in effective

proposals. The methodological rigor to address the use of technology is as relevant as the technological product itself; on the subject, authors such as Gómez (2010) have exposed their criteria.

In the case of the Bachelor of Education (Geography) career, in the Department of Natural Sciences of the Faculty of Secondary Education of the Central University of Las Villas "Marta Abreu", it has been verified that the curricular strategy related to information technology and the new technology has been distinguished as one of the least advanced in the area. In the inspections carried out in the last three years, reference was made in all the reports as an element to improve.

Among the factors feeder this situation are: technological limits, weak preparation of teachers and students in computer science, limited methodological attention and, consequently, few proposals to generate consistent alternatives with the pedagogical action in the collective career

It should be noted that, in accordance with what is considered by Crespo & Rodríguez (2019), the research associated with finding pedagogical alternatives to implement ICT remains to be an important task for teachers and researchers who seek to contribute to promoting digital skills and relevant education for The 21st century. Today, in the context of the study, the job training being extensionist, researcher and academic do not receive an adequate supply of ICT as part of the integral formation that is expected.

That is why within the framework of the project "The improvement of the didactics of Natural Sciences for the initial training of the professional of the general secondary education of the careers Biology-Geography, Biology-Chemistry and the careers of Plan E" it is decided to attend this problem

considering different *software* that, inserted in different curricular areas favor the development of training teachers to use technology and solving various professional problems.

After analyzing the possibilities of different curricular spaces, it is determined that field practice, due to its integrating nature and because it has a solid and well-established framework within the study plan, has the conditions to implement the proposal; In addition, the *ExeLearning software*, due to its simplicity of interface and in correspondence with the skills of the population to which this research is directed, is more viable, also taking into account its similarity with other high-value platforms such as *Moodle*, to which they can be linked the educational products developed, which would serve as a bridge for future studies.

Given this situation, it arises as a fundamental problem: How to establish the essential methodological basis to incorporate the use of the *software Exelearnig* to the practice field of Bachelor of Education (Geography) This is based on defining the basic guidelines and the structure of the field practice in stages, which can facilitate the use of such computer resources for the comprehensive training of the teacher.

On this basis, it is decided as research objective: To distinguish the methodological basis for integrating the *software ExeLearning* into practice field running in the career.

The scope of the investigation falls to distinguish, from the conditions existing in the department faculty and curriculum design especially associated with the practice field, the methodological basis for integrating the *software ExeLearning* in order to solve the current status existing. In that case, it is emphasized in the diagnostic study and the proposed methodological

bases derived from the research - action, which is the basis for creating conditions for practical implementation in another cycle of research within the project.

## MATERIALS AND METHODS

The investigative process took place at the Central University of Las Villas "Marta Abreu" (UCLV), in the Department of Natural Sciences of the Faculty of Secondary Education into the area of the Bachelor of Education (Geography) career.

The study was guided under the criteria of a type research design: research - action (Hernández, Fernández & Baptista, 2010). Four work cycles are planned so far, although only three of them are mentioned in the article. The first two cycles were carried out as part of an agreement by the Bachelor of Education (Geography) career group at the referred institution, regarding the need to modify the existing situation. They were carried out between September 2018 and February 2019, while the third cycle was executed between March 2019 and June of that year.

The first cycle was conducted to identify the problem. In it, the information gathering methods were used the analysis of documents, among them the model of the Geography career according to the study plan E, the program of the practical field subject, the reports of the control visits to the department and planning two fields practices carried out in the protected area Savannas of Santa Clara and the Cienfuegos City in November 2018 and February of 2019 and data triangulation to verify the information.

The analysis was organized by following up on the following aspects:

a) Existence of a legal framework to carry out field activities.

also useful to incorporate other computing tools in the future.

b) Possibilities of introducing different *software*.

In the third cycle, using again the focus group, the concept of field practice in three stages where methodology structure planned for introducing the use of the *software Exel Learning* in practice is integrated.

c) Development of activities in the field practice that contributes to the use of *software*.

d) Main experience in the use of *software* in field practices.

As criteria, the focus group had into account:

e) Methodological actions that imply the insertion of *software* to the training work of the career.

- Theoretical and methodology principles for structuring the practice of field in stages.
- Project the integration between the stages of field practice and the stages to insert the study and application of the *software*.
- Promote cooperative work, research and creativity.
- Promote the use of *software* to solve professional problems in the study of areas of natural and socioeconomic value.

The second cycle was aimed at defining methodological bases to introduce the *Exel Learning software* as part of the field practice work. The focus group was used as data collection methods.

The criteria used by the focus group were the following:

- Establish general useful references to various curricular areas.
- Consider didactic principles.
- Address priorities contained in the study plan E and in the professional model.
- Define flexible guidelines with concrete actions in stages.
- Favor the development of multipurpose educational products.

It was considered to establish general guidelines that allow guide to the different organs of methodological work of the department introducing the *software* in other curricular or extracurricular areas; in this case, guidelines defined general work. T Iso distinguished methodological structure to establish the use of the *software* (EXEL learning in this case) in three stages, which would be an antecedent condition for insertion into practice field so harmonic and would be

It was used as a framework for study and discussion work teaching of the subject teachers Physical Geography, Economic Geography, Regional Geography, Geography of town and Geography of Cuba teachers, in the context of field practices or other activities they will involve field trips or excursions. They participated, as part of the focus group, five teachers of the Geography Department of Natural Sciences. The data processing and analysis was organized from the collective construction of meanings within the focus group work, as Hernández, Fernández & Baptista (2010) propose.

## RESULTS

In the first cycle, the following aspects stand out as the main results:

In the Document basis for the design of the curriculum "E" prepared by the Ministry of Higher Education (2016) it is contemplated the need for a broad and widespread use of Technologies of Information and Communications to change traditional pedagogical conceptions and practices. This implies the solution of learning tasks: as a means of teaching, as a work tool, communication and as a source of knowledge. Furthermore, it refers to the need to establish a curricular strategy in this sense.

In the study plan E of the Bachelor of Education (Geography) career, the discipline of field practice is recognized with 113 teaching hours and divided into Field Practice I, II, III for the first, second and fourth years. In addition, they distinguished as professional skills that should be addressed, the use of Technologies of information and Communications in fulfilling their professional teaching duties. As part of the professional problems, it is declared the use of technological resources in the work of education and implementation of practice activities related to educational excursion. In addition, it is considered that among the objectives it should be used ICT to build, acquire and disseminate geographic content.

Among the recommendations left in recent inspections to the area, the repeatedly signaling associated with the limited use of ICT in the learning process of the career is detailed, and specially in using specialized *softwares* or using other more generic that contribute to training a more integral professional. Likewise, the slow progress of the content virtualization process associated with the career disciplines was detected.

The follow-up made to the planning of antecedent practices yielded the following results.

Spaces with conditions for fieldwork and contribute to the training of students in

correspondence with the content they receive are defined. Activities planned favor the introduction of different *softwares*, but not projecting any particular one, the most used by the students were the video editors.

The use of technological means in the study stage (2018-2019) is essentially reduced to working with the *Microsoft Office* package and to a lesser extent the use of mobile phones to use the camera or the determination of coordinates. The work with the geographic information system has not materialized. There are no specific experiences designed by the teachers to introduce *software* or other informatics tools as part of the process of preparing or executing the field practice.

The Planning of work in the field practices is structured on the traditional basis of routes and processing information, leaving no evidence of use of *software* for students become familiar with it. Its use has been assumed by the students' own inspiration to carry out the planned tasks.

There are activities that links the research, labor, academic and extension but it is made visible the actions that will qualify the student to perform such activities at school where they do their practical work at the same time incorporate the TIC in function of achieving educational products or activities with the use of *software*.

Regarding the amount of methodological activity associated with the use of ICT, it was possible to define that four have been developed; they have considered the proposal and dissemination of different *software*, but the methodological bases for their use have been very limited and none of the proposals have been generalized.

The second cycle was targeted to define methodological bases to be used to introduce the use of the *software* in the field practice.

In this sense, guidelines were defined to guide teacher training based on the introduction of *software* in the field practice, as an integrating space within the curriculum:

- Achieve a greater integration of the subjects (field practice) and the components of the curriculum to the use of *software* of educational significance.
- Enhance the link between fieldwork and methodological preparation of future teachers using different types of *software*.
- Promote, from the use of computer tools, various collaboration spaces to contribute to the implementation of curricular strategies (computer science) and their interrelation, having the geographic content as an integrating axis.
- Improve the projection of students (work groups) to the creation of digital content with greater methodological projection and significance for professional practice.
- Promote field practice as a space for innovation for the creation of teaching aids or other teaching materials that contribute to professional training and encourage creative exercise.
- Encourage the problems of the geographical space to become an object of investigation and are linked to the professional problems of the career.
- Encourage students to familiarize themselves with different *software* and achieve their domain to improve their work.

- To take advantage of the products made in outreach or vocational training activities.
- Promote the use of free *software*.
- Reduce time learning to handle technological tools and promote their use for development, solution and implementation of teaching tasks.

Similarly, it was determined the methodological structure to follow to implement using *software EXEL learning* in the three stages of field practice. These follow the following logic:

#### **I- Stage 1**

- Familiarization with the *software* (components, tools, possibilities of use).
- Determination of the contents of the subjects that contribute to field practice.
- Establish links with content from high school and pre-university to define content to work with the *software*.
- Specification of the *software* tools to be used.
- Brief modeling or design scheme of the possible product to be elaborated.
- Search for bibliographic or other material that needs to be used.

#### **II- Stage 2**

- Elaboration of the final product.
- Feedback with the data provided by the bibliographic search and the field activity.

#### **III- Stage 3**

- Determination of ways to insert it into secondary or pre-university education.
- Presentation and methodological defense of the proposal (it can be carried out in an activity outside stage three of the field



practice) and promote the methodological debate.

As part of cycle three, the stages of the field practice were defined considering the insertion of the *Exe learning software*. This model of a field practice allows the integration of the *software* introduction stages and those of field practice as a strategy that seeks to maximize learning efficiency.

The proposal is articulated taking into account the following methodological structure that is made up of three phases:

### I- Preparation for field work

In this stage of previous preparation, table work and information search predominate; furthermore, the familiarization process with the *software* is prioritized. The actions to execute are:

- Determine work area and student teams.
- Presentation of the objectives of the work on which the activities are designed.
- Search in cartographic sources.
- Familiarization with the *software* (components, tools, possibilities of use).
- Determination of the fundamental contents of the subjects that contribute to field practice (according to study plan and planned activities).
- Establish links with contents of high school and pre-university to define

Contents to work with the *software*.

- Specification of the *software* tools to be used.
- Search for bibliographical material or otherwise necessary to deepen over the study area and to project the final

product. Preparation of summaries with the information obtained.

- Brief modeling or design scheme of the possible product to be elaborated (consider actions to be carried out in the field practice).
- Execution of the preparation activity to organize information collected and to check progress in the use of the *software*. This can take place in a workshop, practical activity, and visit to an area with characteristics similar to that of the practice or another route.

### II- Planning and execution of the field work

- Determination of work schedule.
- Teachers' tour of the area to specify workstations.
- Planning of activities with specialists in the area.
- Preparation of itinerary using digital media.
- Determination of tasks to be executed and results.
- Execution of planned itineraries and activities.
- Collection and organization of the information derived from the fieldwork carried out.
- Follow-up to work with the *software*.
- Facilitation of levels of assistance to form results or final product as part of the expected results.
- Feedback with the data provided by the bibliographic search and the field activity.
- Final conformation of the results
- It is presented and defended (it can be carried out in an activity outside of stage three of the field practice and promote the methodological debate).
- Socialization of the same, according to different formats (social networks, materials for the subject, preparation of tutorials or work practice activities).

- Vocational training activities using the experiences derived from fieldwork.

The development process has been possible to distinguish a limitation in the teacher department, especially in the Bachelor of Education (Geography) career, the introduction of different *software* in the field practice activities. This has been essentially associated with the limited knowledge about different *software*, both among students and among teachers; this is manifested in the few actions that favor this line within the work of the curricular strategy of informatics.

However, the study of the normative documents showed that there are direct references to the need to favor the use of ICT in the different curricular training spaces. This situation has resulted in the limited implementation of this basic aspect of plan E.

In addition, it was found that the use of *software* not only depends on its mastery by teachers and students but also on ensuring methodological bases to introduce it in the different curricular components of the career. The definition of such bases is an essential starting point to promote proper insertion of the *software* on any activity teacher develops, at the time a methodological exercise that allowed better project work objectives.

## DISCUSSION

The proposal coincides with the essential elements considered by authors such as Gómez (2010) on the methodological pillars to introduce technology (Google *Eart software*) in the teaching of social sciences. However, it is oriented with greater emphasis on improving the achievement of results based on the solution of professional problems that favor a better presentation of the

contents and the interaction with them in different areas. It is structured in response to the content, teaching and technology, aspects that have been distinguished by the investigator; but it insists on generating from the direct experience of the fieldwork of new content to promote teacher labor of the student. In this case, the role of the field practice is reinforced to influence other spheres of the educational activity of the career.

In the context the research describes, a process of parallel learning that includes the study of the area where the practice field develops, literature search on specific content and the development of skills to use the *software* is projected. In addition, the search for solutions is promoted from the beginning to generate an educational product, which can be inserted in different teaching spaces within the school. Such a conception is a way to contribute to self-learning and enable the professional education to reduce the period to master a computer tool, while gaining autonomy to manage knowledge, which is one of the pillars of the model formation "E".

From the theoretical point of view, the projection of the methodological bases can constitute the antecedent of a theoretical- methodological conception that deepens the integration of field work and the use of different *software* that allow the formation of educational products of multiple uses in the different contexts of performance of the professional in training.

In the Cuban context, from the perspective of field practice, the methodological procedure has not been sufficiently addressed to integrate the study of a specific geographical area and the parallel learning of a *software* that enriches the educational value of this curriculum space, while better connecting it to the academic, labor, research and extension components that

any training model in Cuba should attend.

Although the results of the research are partial, it is possible to distinguish valuable elements to better serve from the pedagogical point of view the process of learning and putting into practice different *software*, in terms of achieving a teaching that uses technology and its benefits in benefit of the integral formation of the professional of the education.

As conclusions, the research allowed:

Determine the shortcomings that hinder the insertion of different *software* in the training process of the Bachelor of Education (Geography) career in the context of the Department of Natural Sciences of the referred institution. Among them, the limited methodological treatment to establish the use of different *software* in the area, as manifested in weak incorporation into the training process.

Establish the methodological bases to insert different *software* (exel *learning*) in career training processes is essential for their effective integration.

The development of methodological bases is a viable reference to enrich integrative teaching-learning proposals for the study of geographic content and attention to the development of professional skills.

The general guidelines allow orienting teacher training to the introduction of *software* in different curricular spaces, while they can be generalized to other curricular components.

The field practice as curricular space to promote inclusiveness fosters methodological work in walked promote the use of different *software* that help to materialize different educational

outcomes that can have an impact in solving different professional problems.

Work, when showing the preliminary results, must still study in practice how this proposal would behave; however, it establishes the basis for address more precisely the use of the *software* with a stronger pedagogical projection.

The methodological design of the research has made clear the need for people to take existing problems in their hands and contribute to their solution; however, the research- action is very subject to the subjectivity of the participant and the peculiarities of the context, what has been contrasted with the literature that the issue addresses. In addition, it is possible to extract valuable experiences that can be valid in other contexts.

When contrasting these results with literature you can see that not always the methodological way to insert using different informatics tools is designed, the need to define starts from achieving the use of the *software Exelearning in the field practice* and reduce time learning to fulfill the planned objectives.

Consequently, the methodological bases for inserting the *Exelearning software* in the field practice of the Bachelor of Education (Geography) career take on great significance to guide educational activities that address different aspects of the professional training of future teachers, since they guide planning, execution and dissemination of the results conformed to different contexts of the student- educator work.

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**Conflict of interest:**

Authors declare not to have any conflicts of interest.

**Authors' Contribution:**

*Mikel Moreno Hernández:* Conception of the idea (100 %), authorship coordinator (100 %), general advice on the topic addressed (40 %), literature search and review (40 %), translation of terms or information obtained (40 %), preparation of instruments (40 %), application of instruments (40 %), compilation of information resulting from the instruments applied (80 %), statistical analysis (40 %), preparation of tables, graphs and images (40 %), preparation of the database (40 %), writing of the original (first version) (40 %), review of the applied bibliographic standard (40 %), review and final version of the article (40 %), correction of the article (40 %).

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