













ORIGINAL

Professional performance of the graduate in optometry and optics in the calculation and adaptation of contact lenses

Desempeño profesional del licenciado en optometría y óptica en el cálculo y adaptación de lentes de contacto

Dayli Jorge Leal¹  , Yanet Ortega Dugrot²  , Dayana Castillo Rodriguez¹  , Eliseydis Mc Pherson Cedeño¹  , Rosario Cairo Davis³  , Noelia Alvarez Serrano⁴  

¹Servicio de Oftalmología, Hospital Universitario Clínico Quirúrgico Comandante Manuel Fajardo. La Habana, Cuba.

²Instituto Nacional de Salud de los Trabajadores. Departamento Psicofisiología. La Habana, Cuba.

³Departamento de Cuadros, Facultad de Ciencias Médicas Manuel Fajardo. La Habana, Cuba.

⁴Departamento Docente De Clínicas. Hospital Universitario Clínico Quirúrgico Comandante Manuel Fajardo. La Habana, Cuba.

Cite as: Leal DJ, Ortega Dugrot Y, Castillo Rodriguez D, Mc Pherson Cedeño E, Cairo Davis R, Alvarez Serrano N. Professional performance of the graduate in optometry and optics in the calculation and adaptation of contact lenses. Management (Montevideo). 2024; 2:6. <https://doi.org/10.62486/agma20246>

Submitted: 28-09-2023

Revised: 17-02-2024

Accepted: 15-05-2024

Published: 16-05-2024

Editor: Misaél Ron 

Corresponding author: Dayli Jorge Leal 

ABSTRACT

Introduction: the appearance, evolution and development of contact lenses brought with it a therapeutic method to correct refractive error, treat corneal ectasias and improve the patient's visual quality, thereby improving the professional performance of the graduate in Optometry and Optics in this area it constitutes an aspect of singular importance within the medical sciences.

Objective: define professional performance of graduates in Optometry and Optics in the calculation and adaptation of contact lenses.

Method: a search was carried out in the Google Academic/ Scholar PUBMED, SciELO Public Health, SciELO Cuba engines. In the search strategy, the terms were used: professional performance, contact lenses, quality of health services. A bibliographic review of 43 articles related to the topic under investigation was carried out.

Results: we work to train a professional with scientific mastery who responds to social needs, without abandoning the humanistic conception, since contemporary times demand a high level of performance, with the purpose of providing better care to patients' visual problems.

Conclusions: professional performance has been studied from different angles, highlighting the works of different authors, who offer as results of research models, methodologies and strategies as options aimed at the process of improving professional performance in different educations, which is why it is done it is necessary to highlight the work of the graduate in Optometry and Optics in the calculation and adaptation of contact lenses based on visual health.

Keyword: Professional Performance; Contact Lenses; Optometry and Optics.

RESUMEN

Introducción: la aparición, evolución y desarrollo de las lentes de contacto trajo consigo un método terapéutico para corregir defectos refractivos, tratar ectasias corneales y mejorar la calidad visual del paciente, por lo que el mejoramiento del desempeño profesional del licenciado en optometría y óptica en esta área, constituye un aspecto de singular importancia dentro de las ciencias médicas.

Objetivo: definir desempeño profesional de los licenciados en optometría y óptica en el cálculo y adaptación de las lentes de contacto.

Método: se realizó una búsqueda en los motores Google Académico/Scholar, PUBMED, SciELO Public Health, SciELO Cuba. En la estrategia de búsqueda, se utilizaron los términos: desempeño profesional, lentes de contacto, calidad de los servicios en salud. Se realizó una revisión bibliográfica de 43 artículos relacionados con la temática que se investiga y de ellos 32 referenciados.

Resultados: se trabaja en aras de formar un profesional con dominio científico que responda las necesidades sociales, sin abandonar la concepción humanista, ya que la contemporaneidad demanda de un alto nivel de desempeño de los mismos, con el propósito de brindar una mejor atención a los problemas visuales.

Conclusiones: el desempeño profesional ha sido abordado desde diferentes aristas, destacándose los trabajos de diferentes autores, que ofrecen como resultados de las investigaciones modelos, metodologías y estrategias como opciones dirigidas al proceso de mejoramiento del desempeño profesional en las diferentes educaciones; se hace necesario resaltar la labor del licenciado en optometría y óptica en el cálculo y adaptación de lentes de contacto en función de la salud visual.

Palabras clave: Desempeño Profesional; Lentes de Contacto; Optometría y Óptica.

INTRODUCTION

The accelerated advances in scientific and technological knowledge demand a better performance of the professional in optometry and optics, where the idea of creating strategies directed to the assistance practice prevails, with the vision of having a health professional with the ability to provide a better service to society.

Therefore, the graduate in optometry and optics in the calculation and adaptation of contact lenses must acquire a scientific preparation that allows the development of suitable professional performance and provides the basis for the support of excellent care regarding visual problems.

The world has reported an increasing trend in the correction of visual defects through the use of contact lenses. It is estimated that there are more than 125 million contact lens wearers. In 1975, there were only 2 million contact lens wearers worldwide. It was estimated that in 1998, the number of contact lens wearers reached 75 million; in 1999, there were 17 million in Asia and Europe, half a million in Australia, and 32 million in the United States.⁽¹⁾

Contactology in Cuba began in the fifties when Dr. Gilberto Cepero made contributions to rigid contact lenses. From 1980 to the nineties, in the Calixto García and Asclepios hospitals, training in soft contact and gas-permeable lenses was developed for the first time.⁽²⁾

Since the end of the 20th century, national monographs and book chapters on refraction and other subjects began to be published, among which the manual on Optics and Contact Lenses by Roberto Lassale del Amo stands out.⁽²⁾

In 2007, the Ramón Pando Ferrer Ophthalmology Institute started the training course on contact lenses, still in force, where graduates in Optometry and Optics from Havana and other provinces of the country improve their skills in calculating and adapting contact lenses.

The authors highlight the postgraduate course given by the graduate and assistant professor, Dania López Delgado, directed to the graduate in Optometry and Optics to apply methods, techniques, and special procedures of Contactology in the solution of problems related to visual health in the exercise of the profession with greater scientific rigor, in 2011.

Contact lenses are ocular devices of different manufacturing materials, used as a compensatory means of refractive defects and corneal ectasias, they enable the improvement of visual acuity in most cases and help to correct irregular astigmatism established in the anterior face of the cornea due to irregularities in the surface as a result of some diseases.⁽³⁾

Contact lens fitting is a common optometric practice in the correction of ametropia. The therapeutic indications of contact lenses are innumerable and range from cosmetic to functional, where it is an optical compensating means in ametropia, depending on visual health.

In astigmatic defects where the refractive deficiency originates in the asymmetry of the corneal curvature, adapting a rigid contact lens is necessary to give regularity to the curvatures and thus improve vision.⁽⁴⁾

In cases of keratoconus, where the cornea is ectatic, with high myopia and aberrant curvatures, the use of myopic prescription rigid contact lenses allows a refractive surface that gives regularity and a vision that cannot be achieved by any other optical means.^(5,6)

The authors' experience confirmed that contact lenses occupy a primordial place in the treatment of corneal ectasia in its beginnings, making it possible to correct the refractive defect that brings with it the presence of the disease.

Consequently, the authors refer to the advantages of the use of contact lenses from the optical point of view, highlighting the compensation of ametropia greater than 2,00 diopters, the totality of correcting anisometropia, providing a total visual field, eliminating the existence of lateral distortions and in cases of keratoconus helps to correct, compensate or retain the disease safely and effectively, especially with gas permeable or hybrid contact lenses.

Using gas-permeable contact lenses is the first alternative refractive solution against corneal ectasia; although it favors better vision in people, it does not prevent the progression of the disease. Technological development has modernized the creation of lenses with more noble materials that favor satisfactory visual results by providing for the passage of oxygen gases through them.⁽⁷⁾

For those mentioned above, the authors propose an objective: to define the professional performance of optometry and optics graduates in calculating and adapting contact lenses.

METHOD

A search was conducted using Google Scholar/Scholar, PUBMED, SciELO Public Health, and SciELO Cuba. The search strategy used the following terms: professional performance, contact lenses, and quality of health services. A bibliographic review of 43 articles related to the subject under investigation was carried out, including review articles, original articles, and theses to obtain scientific degrees and specialties.

After the analysis of the references consulted, a selection was made in correspondence with the proposed objective, and 18 of them corresponded to the last five years (56 %), and 14 were more than five years old (43 %) due to the relevance of their content for the research.

The documents were evaluated in extenso for a total of 32 works referenced in the documentation presented: 15 related to professional performance, eight related to contact lenses, seven related to professional development, and two corresponded to Ministerial Resolutions in the Health sector. The analysis of the data obtained from each reference and the professional experience of the Cuban researchers made it possible to arrive at the results and conclusions of the research.

DEVELOPMENT

As an inherent way in the process of professional performance of the graduate in Optometry and Optics in the calculation and adaptation of contact lenses, it is necessary to take into account the care function in the management of optical-optometric technological procedures manifested in daily practice, the teaching function, by using education at work as a regulatory means of pedagogical development and constant preparation, the fulfillment of the research function to solve health problems, through science, and the administrative function in the confrontation of managerial roles.

Therefore, the authors affirm that, for a suitable professional performance, the current need for postgraduate studies should be considered as the integration of theoretical and practical knowledge that leads to a constant training process with a better performance of the professionals.

Rosell R. (2004). Barbón O. 2015, and Espino L. 2018, among others, offer theoretical foundations of professional development for the improvement of professional performance from the Pedagogical, Medical, and Social Sciences, whose results demonstrate the potentialities that represent graduates by participating in professional development activities with the objectives of updating, deepening and application of new knowledge, in order to enhance the quality of services provided in the institutions where it is performed.^(8,9,10)

Muñoz L. 2018 states that "In order to achieve the adequate preparation of professionals, their professional development must be of a flexible nature that is manifested in the ordering and sequence of the selected content, based on a curricular conception instituted from their needs and the characteristics of their learning, which contributes to determining the forms of organization of the development."⁽¹¹⁾

By the way, Ortega, Y, 2020 in his definition of professional development of the Basic Health Team in the care of the family of the oncologic patient with the use of self-expandable esophageal prosthesis, stated the potentialities to manifest knowledge, skills, attitudes, and values, from the strengthening of creative, innovative and transforming capacities, evidenced in the professional performance of the Basic Health Team in interaction with the family, in correspondence with the technological process and the sociocultural demands.⁽¹²⁾

A distinctive feature of the Cuban health system has been the development and improvement of human resources in line with the advances of the system. To achieve this purpose, it became necessary to accelerate the process of training professionals from the professional and human point of view in order to face and fulfill the new needs and functions that arose, satisfy the existing needs, and thus improve the quality of care for the population.^(13,14)

The professional must achieve optimal performance in his area of expertise, provide better care, and deepen his knowledge, which is important for intellectual development.

For those mentioned above, it is necessary to emphasize that authors see performance as the action or effect of performing. Thus, Añorga defines it as: "to fulfill a responsibility, to perform an action that has been

accepted as an obligation. As a service for which satisfaction is obtained, the word extends to the set of actions that are performed to achieve an objective".⁽¹⁵⁾

On the other hand, Quintana relates performance as a process seen in the fulfillment of functions or tasks in the roles assumed in the job. The assessment, evaluation, and certification are done systematically and under specific indicators.⁽¹⁶⁾

According to the previous references, it is valid to mention that the term professional performance has been approached by different authors who, from their position as professionals and with diverse points of view, have conceptualized it in each of their investigations, where it has been demonstrated the importance that the improvement of professional performance represents for the political, social and cultural development of the nation.

From the literature reviewed, professional performance sometimes appears accompanied by terms such as pedagogical, managerial, school, educational, didactic, students and graduates, cognitive, and individual, among others.

It is important to emphasize that professional performance has been treated by several Cuban pedagogues, immersed in improving the quality of the act of teaching, today representative figures in the pedagogical and research jargon, who left their work to contribute to the academic and scientific training of others who will follow in their footsteps.

According to Torres Pérez, professional performance is "the concrete and personalized performance..., whose quantitative and qualitative results correspond to the social demands expressed in the social function of the subsystem, and which is based on know-how and know-how to be harmonious and coherent with the objectives and principles of the Cuban social project."⁽¹⁷⁾

For Remedios in 2006, a suitable professional performance is the execution of actions aimed at carrying out the activity and obtaining the expected products, which has as a reference criterion of excellence and quality work, collectively built or accepted in the immediate social environment.⁽¹⁸⁾

The authors consider that pedagogical professional performance is linked to the relationships established between the social character and the work content aimed at achieving the objectives, where the results point to the improvement of professional, personal, and social performance.⁽¹⁹⁾

Professional performance is a category in which the achievement of the levels of formation of the professional's competencies and the results required in the labor and social sphere are manifested, which implies degrees of complexity and requirements in terms of knowledge as an expression of the character of its totality in the contextual suitable performance.⁽²⁰⁾

In line with the above, Añorga 2014 considers a professional to be a person prepared to act in a context, who has learned to cope with the insecurities inherent in their work, who has the ability and courage to make difficult decisions with the data at their disposal and the technical preparation to apply them.⁽²¹⁾

In the particular case of health professionals, professional performance is focused on accurate responses to the health-disease process, where priority is given to the well-being of the population in close relation to the satisfaction of the needs of the triad of patient, family, and community.⁽²²⁾

Health professionals in Cuba are committed to offering a competent health service with full independence in applying techniques and technologies, with a predominance of the humanistic approach.

In this way, Añorga also expressed that professional performance is where the real behavior of the worker is manifested in other tasks to be fulfilled during the exercise of his profession, what the professional does, and not only what he knows how to do.⁽²³⁾

On the other hand, Hernandez and collaborators propose a broader definition of professional performance particularized in Health Technology, specifying the existence of a direct interrelation between the profession, professionals, and technologies as a means that contributes to solving the health-illness problem and which is demonstrated during the execution of the four basic functions of technologists: assistance, teaching, research, and management.⁽²⁴⁾

Incidentally, it is appropriate to refer to Ramos, who clearly defines the professional performance of imaging technologists in mammography techniques. "The behavior demonstrated by the technologist in Imaging in the execution of the process of training and obtaining medical images for the early detection or presumptive diagnosis of breast cancer, through the application of the technological procedure, in the fulfillment of their functions with responsibility, solidarity, humanism, communication, scientificity, and ethics, in interaction with the multidisciplinary health team for the sake of the quality of life of patients, family members and their environment."⁽²⁵⁾

Solís S. 2017 defines the professional performance of a Bachelor in Hygiene and Epidemiology as the capacity (understood as intelligence, talent, preparation, and sufficiency) that this professional has to identify, evaluate, and contribute to solving hygienic-epidemiological problems by applying his/her pedagogical, scientific-research, managerial and assistance functions, in close relationship with the health team, which guarantees the achievement of quality results in health services.⁽²⁶⁾

Jordán T. 2018 states that the professional performance of physicians, family nurses, and laboratory technicians, as a process linked to the objects of the Medical Education Sciences, is expressed through the modes of action and behavior of these health professionals to meet the objectives and methods of their work content in the direction of the health care process for the identification of risk factors of the population about tuberculosis that allows them the diagnosis, intervention, education, promotion, and prevention of this disease.⁽²⁷⁾

As can be seen, solid steps are currently being taken to improve the professional performance of healthcare personnel, showing that the veracity of its implementation and the satisfactory results obtained have as a common denominator the birth of a professional who is fully trained for the practice of the activity assigned to him/her.^(28,29,30,31,32,33)

Decree Law 372/2019 is currently in force. Resolution 140/2019, a rule that aims to establish the regulations for graduate education management.⁽³⁴⁾

The authors refer to the definition of professional performance provided by Suarez J, embodied in his Doctoral thesis in Medical Education, where from a context of Health Technology, addressed to technologists in Imaging who perform gynecological ultrasonographic procedures for minimal access surgery... as the process that links the development of clinical-epidemiological skills and knowledge, taking into account the relationships established between the person, the environment and technology, in the execution of gynecological ultrasonographic procedures for minimal access surgery, allowing to identify and diagnose health problems, from pedagogical, scientific-research, managerial and care conceptions, with responsibility, ethics and humanism, in direct relationship with the multidisciplinary health team.⁽³⁵⁾

The authors further state that, in the performance of the professional in Optometry and Optics, the work responsibility conferred to him/her should be contemplated, developing theoretical and practical skills in his/her initial and continuous training, with precision, disposition, systematization, and respect. Link in their daily work planning and research to be an updated and prepared professional.

The authors identified the following regularities after systematizing the theoretical referents that address professional performance:

- It is obtained from the guiding principle of education at work;
- It is multidimensional and implies, in its didactic interrelation, the integration of knowledge, skills, attitudes and values;
- Integration of theory and practice;
- It encompasses permanent and continuing education expressed in postgraduate education;
- Improvement of the functions performed by professionals, reaching a higher level in the performance of their activity;
- It is oriented to enhance competencies applicable in a variety of work situations and areas of occupation;
- Integrated and articulated with economic, social and cultural policies;
- Promotes the quality of services and labor productivity.

Professional performance from different positions assumes an equal number of definitions and meanings, all in the direction of concrete actions and their effects on fulfilling professional obligations.

Bustamante Y, in the year 2021, referring to the improvement as a way to improve professional performance in Contactology, proposes a process aimed at technologists in Optometry and Optics for the updating, consolidation of knowledge, and development of skills in the execution of technological procedures and decision making in Contactology; through the use of the clinical and epidemiological method, which enhances from science the solution of problems arising from professional practice with a multi-interdisciplinary, ethical-humanistic approach, which facilitates the implementation of actions for the promotion of health and prevention of visual diseases, the quality of health services and social inclusion of healthy or sick people.⁽³⁶⁾

Muñoz LL. 2021 proposes the professional performance in Optometry and Optics as the mode of action expressed in good professional practices in the execution of technological, optical, and optometric procedures in a close ergonomic man-machine relationship, with sufficient ethical, humanistic, cognitive, and affective development base so that they can assume the challenges imposed by society, in interaction with the multidisciplinary work team, to ensure the quality of vision and life of patients in their social environment.⁽³⁷⁾

The graduate in Optometry and Optics should project their performance capacities, skills, knowledge, attitudes, and values to fit the professional level in which they can perform with true quality standards. To this end, it is necessary to develop alternatives that broaden society's theoretical and practical knowledge.

In correspondence with the previous definitions and the theoretical assessments coming from this research, where traits that characterize the category of professional performance in several branches of education and medical assistance are evidenced, the authors propose a structured and formal definition of professional performance of the graduate in Optometry and Optics in the calculation and adaptation of contact lenses, leads to understanding it; as the integration of theoretical-practical knowledge in the development of modes of action

and performance of optometric technological procedures, corresponding to the calculation and adaptation of contact lenses, with precision and accuracy, evidenced in the care, research, teaching and social interaction functions, in correspondence with the technological, economic, social and cultural requirements.

CONCLUSIONS

The professional performance of the optometrist and optician who performs the calculation and adaptation of contact lenses greatly impacts the professional's competence in applying technological procedures. It is important to offer a quality service to solve the most common problems that arise in daily practice.

REFERENCES

1. Ispizua Mendivil E, Duran de la Colina JA. Queratitis infecciosas asociadas al uso de lentes de contacto: estudio multicéntrico REGINFECOR. Archivos de la Sociedad Española de Oftalmología. 2024[acceso 4/ 06/ 2024];99(6):237-247 Disponible en: <https://0.1016/j.ofal2024.01.010>
2. Muñoz Lazo A, Mena Lorenzo JA, Rodríguez López M. La superación profesional en Contactología del licenciado en Optometría y Óptica. Criterios que la caracterizan. Rev. Cub. Educacion. 2024 [acceso 4/06/2024];22(1), e 3602. Disponible en: https://mendive.upr.edu.cu/index.php/Mendive_UPR/article/view/3602
3. Barrozo R, Santiesteban I, Miranda I, Jareño Ochoa M. Lentes fáquicos como alternativa de tratamiento en el queratocono. Revista cubana de Oftalmologia.2014 [acceso 4/06/2024];27(2):237-245. Disponible en: <http://scielo.sld.cu>
4. Arauz Tupiza CC, Tapia Ponce SM. Adaptación de lentes de contacto escleral en ectasias corneales y Astigmatismo irregulares en la clínica oftalmológica Andes Visión. Quito-Ecuador [Trabajo de Titulación previo a la obtención del título de optómetra]. Quito: Facultad salud y cultura física carrera de optometría; 2021. (archivo digital)
5. Rivas Cruz AJ. Diagnóstico de queratocono en la población pediátrica del Instituto Panamericano contra la ceguera. [Tesis de Maestría en Oftalmología Integral]. Universidad Galileo Guatemala. Instituto Panamericano contra la ceguera. Facultad de ciencias de la Salud. 2021. (archivo digital)
6. Salazar Preteel LE. Características clínico epidemiológica del queratocono en pacientes del área de oftalmología del hospital regional docente de Cajamarca atendidos durante el periodo 2021-2023. [Tesis para optar el título profesional de médico cirujano] Universidad Nacional de Cajamarca: Facultad de Medicina. 2024. (archivo digital)
7. Muñoz A, Mena JA, Conill JA. La superación profesional en lentes de contacto en Pinar del Río. Evolución histórica. Revista de Educación.2020 [acceso 01/06/2024].18 (2), 193-205. Disponible en: <https://scielo.sld.cu>
8. Rosell W. Criterios de clasificación y selección de los medios de enseñanza. Rev Educación Medica Superior. 2012 [acceso 03/06/2024];26:(2):343-349. Disponible en: <http://ems.sld.cu>
9. Barbón O. La Educación Avanzada ante las exigencias de los procesos de profesionalización pedagógica en la Educación Médica. 2015 [acceso 03/06/2024];29(2):p.5.Disponible en: <http://www.ems.sld.cu>
10. Espino W. Competencias digitales de los docentes y desempeño pedagógico en el aula. [Tesis de Maestría] Universidad de San Martín de Porres. USMP-Institucional. Perú. 2018. Disponible en: <https://hdl.handle.net/20.50012727/4525>
11. Muñoz LL. El proceso de superación de la Educación Médica y de Tecnología de la Salud particularizado en Optometría y Óptica. Revista Cubana de Tecnología de la Salud. 2018 [acceso 03/06/2024];9(2):108-115. Disponible en: <http://revtecnologia.sld.cu/index.php/tec/article/view/1162>
12. Ortega Y. Mejoramiento humano en la atención al paciente oncológico con uso de prótesis esofágica autoexpandible [Tesis para optar por el grado de Doctor en Ciencias de la Educación Médica]. Universidad de Ciencias Médicas. Facultad Tecnología de la Salud. La Habana. Cuba. 2020 [archivo digital]
13. Muñoz A, Mena JA, Conill JA. La superación profesional en lentes de contacto en Pinar del Río. Evolución

histórica. Revista de Educación.2020 [acceso 03/06/2024];18 (2), 193-205. Disponible en: <https://scielo.sld.cu>

14. Bustamante TY. Superación profesional en contactología: Impacto en la promoción y prevención de salud. Revista de Tecnología de la salud. 2021 [acceso 03/06/2024];12(3):2-2. Disponible en: www.revtecnologia.sld.cu

15. Añorga J. Glosario de términos de Educación Avanzada. La Habana, Cuba: Ceneseda-ISPEJV; p.20. Disponible en: <http://www.redalyc.org/articulo.oa?id=360634165003>

16. Quintana D. Desempeño laboral del profesional de enfermería. 2020 [acceso 01/06/2024];20(1):123-132. Disponible en: <https://www.redalyc.org>

17. Torres Y. El entrenamiento socio psicológico para el desarrollo de la comunicación interpersonal.2017 [acceso 01/06/2024];9(4):145-154. Disponible en: <https://opuntiabrava.ult.edu.cu/index.php/opuntiabrava/article/view>

18. Remedios J, Fernández O, Brito S. Propuesta de dimensiones e indicadores para evaluar el desempeño de los docentes de los institutos superiores pedagógicos en Cuba. 2006[acceso 01/06/2024];20(39),187-218. Disponible en: <http://pascal-francis.inist.fr/vibad/index.php?action=getRecordDetail&idt=18189839>

19. Bruno Inga M. Inteligencia emocional y desempeño pedagógico en docentes de la provincia de Huancavelica. [Tesis para optar por el grado académico de maestra en educación] Universidad Nacional del centro del Perú. Unidad de posgrado de la Facultad de Educación. Huancayo. Perú. 2023. Disponible en: <http://hdl.handle.net/20.500.12894/10165>

20. Barrera J, Rojas D. Evaluación de la concordancia entre la prueba de Schirmer 1 y la prueba de Schirmer modificado de 1 minuto en estudiantes universitarios.[Tesis para optar el título de especialista en segmento anterior y lentes de contacto] Universidad Santo Tomas. División de Ciencias de la Salud. Colombia. 2020. Disponible en: <http://hdl.handle.net/11634/21321>

21. Añorga J. La Educación Avanzada y el mejoramiento profesional y humano. 2014. [acceso 01/06/2024];19(31).p.14. Disponible en: <https://www.redalyc.org>

22. Hernández Suarez N, Ferro González B, Labrado Alemán R, Tamayo Batista II, Sandrino Sánchez M, García Miranda A. Regularidades del proceso de superación profesional sobre neumonía adquirida en la comunidad para profesores de Medicina Interna. Rev. Cub. Ciencias Médicas de Pinar del Rio. 2023 [acceso 01/06/2024]; 27(4): 1-12 Disponible en: <http://revcmpinar.sld.cu/index.php/publicaciones/article/view/5756>

23. Añorga J, Cardoso L, Sepúlveda J. La investigación científica: una mirada desde los presupuestos teóricos de la educación avanzada.2018 [acceso 01/06/2024]; 4(16) Pág 1-9. Disponible en: <http://books.google.com>

24. Hernández VS. Desempeño profesional de los tecnólogos de Rehabilitación en Salud.Rev. Cub. Tecnol Salud.2018 [acceso 01/06/2024];9(4), 96-105. Disponible en: <http://www.revtecnologia.sld.cu>

25. Ramos V. El desempeño profesional del tecnólogo en Imagenología en las técnicas de mamografía. Rev. Cub. de Tecnol de la Salud. 2013 [acceso 01/06/2024]. 6(4). Disponible en: <http://revtecnologia.sld.cu/index.php/tec/article/view/608>

26. Solís S. Modelo de evaluación del desempeño profesional del tecnólogo en Higiene y Epidemiología. [Tesis presentada en Opción al Grado de Doctor en Ciencias de la Educación Médica]. La Habana, Cuba: Facultad de Tecnología de la Salud.2017. (archivo digital)

27. Jordán T. Mejoramiento del desempeño de los profesionales en la atención de los grupos de riesgo de padecer tuberculosis en La Habana [Tesis presentada en Opción al Grado de Doctor en Ciencias de la Educación Médica]. La Habana, Cuba: Facultad de Tecnología de la Salud; 2018.(archivo digital)

28. Mejías Y, Borges L. Consideraciones para la definición del desempeño profesional en el proceso de calidad en salud. Rev. Humanidades Médicas. 2021 [acceso 30/05/2024]; 21(1):224-238. Disponible en: <http://scielo.sld.cu>

29. Zapata EMJ. Evolution of the relationship between gentrification and urban planning. *Gentrification* 2024;2:51-51. <https://doi.org/10.62486/gen202451>.
30. Baena-Navarro R, Serrano-Ardila L, Carriazo-Regino Y. Innovative model for the integration of ICTs in rural environmental education: towards a sustainable pedagogy. *Southern Perspective / Perspectiva Austral* 2024;2:35-35. <https://doi.org/10.56294/pa202435>.
31. Auza-Santiváñez JC, Díaz JAC, Cruz OAV, Robles-Nina SM, Escalante CS, Huanca BA. Gamification in personal health management: a focus on mobile apps. *Gamification and Augmented Reality* 2024;2:31-31. <https://doi.org/10.56294/gr202431>.
32. Valle GPC do, Arcieri S. Prevalence of multidrug-resistant microorganisms in patients admitted to the intensive care unit. *South Health and Policy* 2024;3:118-118. <https://doi.org/10.56294/shp2024118>.
33. Cuentas JAA, Bernedo-Moreira DH. Multisensory Design in Education: How Architecture Enhances the Learning Experience. *Land and Architecture* 2024;3:104-104. <https://doi.org/10.56294/la2024104>.
34. Ministerio de Educación Superior. Resolución No.140/2019. Reglamento de Educación de Postgrado de la República de Cuba. Artículo 4. La Habana. Cuba; 2019. pp. 1441
35. Suarez J. Estrategia de superación dirigida al tecnólogo en Imagenología en ultrasonido ginecológico para la cirugía laparoscópica [Tesis para optar por el grado de Doctor en Ciencias de la Educación Médica]. Universidad de Ciencias Médicas. Facultad Tecnología de la Salud. La Habana. Cuba. 2020. (archivo digital)
36. Bustamante TY. Superación profesional en Contactología para la promoción de salud y prevención de enfermedades visuales. [Tesis en opción al título académico de Máster en Ciencias en Diagnóstico y Terapéutica en Optometría y Óptica] La Habana: Universidad de Ciencias Médicas de La Habana; 2021. (archivo digital)
37. Muñoz LL. El desempeño del tecnólogo en Optometría y Óptica. *Rev. Cub. Tecnol Salud*, 2021 [acceso 01/06/2024];12(3): 75-81. Disponible en: <http://www.retecnologia.sld.cu>

FINANCING

None.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Dayli Jorge Leal.

Data curation: Rosario Cairo Davis, Yanet Ortega Dugrot.

Formal analysis: Dayana Castillo Rodriguez.

Research: Dayli Jorge Leal.

Methodology: Eliseydis Mc Pherson Cedeño, Rosario Cairo Davis.

Project administration: Dayli Jorge Leal.

Supervision: Noelia Alvarez Serrano.

Visualization: Eliseydis Mc Pherson Cedeño.

Writing - original draft: Dayli Jorge Leal.

Writing - revision and editing: Dayli Jorge Leal, Yanet Ortega Dugrot.