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Acciones para preservar la salud de estudiantes y profesores en los Talleres y Laboratorios Docentes
Actions to reserve the health of students and teacher in Teaching Workshops and Laboratories

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Resumen

En el presente trabajo se alude a un conjunto de acciones para preservar la salud de los estudiantes y profesores en el ambiente de los talleres docentes y laboratorios, espacio donde se realiza la planificación, confección y construcción de objetos; estas, favorecen la creación de condiciones para eliminar los factores de riesgo y contribuir a una cultura preventiva y de promoción de salud, ampliar el conocimiento de los participantes en relación con la salud, desarrollar la comprensión y las habilidades personales que promuevan la salud, todo lo cual favorece aprendizajes conscientes con vistas a facilitar cambios de conducta unida a la prevención de enfermedades.

Palabras clave: Protección e Higiene del trabajo; Prevenir; Preservar; Promoción de salud

Summary

Presently work one mentions to a group of actions to preserve the health of the students and professors in the atmosphere of the educational shops and laboratories, space where he/she is carried out the planning, making and construction of objects, these, favor the creation of conditions to eliminate the factors of risk and to contribute to a preventive culture and of promotion of health, to enlarge the knowledge of the participants in connection with the health, to develop the understanding and the personal abilities that promote the health, all that which favors conscious learnings with a view to facilitating behavior changes together to the prevention of illnesses.

Key words: Protection and Hygiene of the work; To prevent; To preserve; Promotion of health

Introduction

For years, MINSAP and MINED have been working on the improvement of mechanisms that can contribute to a more accurate knowledge of the health effects of schoolchildren based on the broad

concept of health offered by the World Health Organization (WHO), which states: "Health is a state of complete physical, psychological and social well-being and not merely the absence of disease or infirmity" (2005, p.83). (2005, p.83)

The joint work of teachers and health personnel in the formation of a culture of health enables them to influence the students and through them the family and the community, making them promoters and participants in the identification and solution of their health problems in the positive transformation of the environment. (From the same conception, the environment influences the new being through the mother's organism, facilitating (protective factors) or hindering (risk factors), the normal growth and development of the new being and therefore its health.

The experience accumulated in the work to develop health culture through the Education System, the studies carried out and the multiple joint reflections of experts, scholars and other professionals dedicated to the same task, allow us to state that the Health Promotion that takes shape through the teaching process assumes a theoretical and methodological conception based on principles that constitute the starting point of the whole educational strategy.

The teacher, as a basic component of society, has a fundamental role in the creation of an environmental culture and in the rooting of a personal ethic of consuming only what is necessary, not polluting the environment, taking care of their surroundings, participating in the process of sustainable creation of wealth for the collective and with their example, transmitting positive experiences, all of which facilitates the achievement of certain levels of health.

The role of the school, in its contribution to this aspiration, is expressed through the purpose of integrating the environmental dimension in the educational system, aimed at the acquisition of knowledge, the development of skills and the formation of ethical values that favor social and professional behavior consistent with sustainable development.

The school has started the path towards achieving these objectives with the inclusion of important contents in the disciplines of its different levels. Universities are moving towards an education in line with these objectives, and are incorporating environmental and health elements in an increasing number of disciplines.

However, although work is being done to achieve this objective, it is still a challenge to establish interdisciplinary relations at the level required by the systemic nature of environmental and health problems in their link with development.

The work of teachers and professors has been distinguished in the development of an intense extracurricular and extra-school activity, linked to the knowledge and protection of nature, health, protection of different types of ecosystems, reforestation, among others, which are frequently carried out linked to the communities surrounding the schools; and in the case of universities, projects are developed aimed at contributing to the solution of problems of this order.

Of great importance for its educational value is the combination of study and work, since it stimulates the formation of a conception that identifies nature as the source of all wealth, and work as the means for its transformation.

In workshops and laboratories, the production of objects implies the continuous application of a preventive environmental strategy, integrated to the processes, construction and confection, in order to increase efficiency, reduce risks for human beings and the environment. As a global approach to production activity, this strategy covers products (objects) and processes, as well as practices and attitudes.

For production processes, it includes the efficient use of raw materials, energy and natural resources, the elimination of raw materials and toxic substances, as well as the reduction of volumes and toxicity of emissions and wastes during a process.

For products, it includes the reduction of negative impacts throughout their life cycle, from the extraction of raw materials to final disposal.

For practices, it includes the application of scientific-technical and organizational knowledge and compliance with occupational health and safety standards, improvement of technologies, rigorous technological discipline and adequate environmental education that enables changes in the attitudes of teachers and students in relation to a culture of prevention and health promotion in workshops and laboratories.

In recent years, the rapid development of epidemiology has strengthened the tendency to use the term "Risk Approach" to plan and organize collective and individual decisions for the preservation of health. This term is derived from the knowledge about the determinants of diseases and among its purposes is the conduction to the adoption of appropriate measures to avoid the harmful effects of these factors, it is in an inverse sense to the production of the damage, to eliminate or reduce it. Therefore, the objective is to socialize a set of actions to contribute to the development of a culture of prevention and health promotion in the laboratories and teaching workshops of the University of Guantánamo.

Development

The Pedagogy of Health Promotion in the school environment has the objective of contributing to the improvement of the process of formation of a health culture from the school environment, offering the theoretical and methodological foundations for its approach from the pedagogical process. It is proposed to explain the relationship and dependence between the concepts and categories of Health Promotion Pedagogy, to define the pedagogical practice, to discover its laws, objectives, regularities, principles and methods of health culture formation from the pedagogical process and to offer the methodological recommendations to contribute to the formation of this culture from the curriculum and all the educational action organized and directed by the educational institutions.

The experience accumulated in the work to develop health culture through the Education System, the studies carried out and the multiple joint reflections of experts, scholars and other professionals dedicated to the same task, allow us to agree with the criteria of Carvajal (2005) and collaborators, when stating that, "Health Promotion that is carried out through the teaching process assumes a theoretical and methodological conception based on principles that constitute the starting point of the entire educational strategy". (2005, p.170).

Principles that constitute the starting point of the whole educational strategy

1. Principle of centralization and decentralization, presupposes that the Educational System assumes Health Promotion as one of the general strategies to enhance the personal and collective particularities of the people who participate in the educational teaching process and their growth as human beings, but the modality of development depends on the sovereign decision of the collectives of students and workers of the educational institutions.
2. Principle of unity and diversity. The theoretical and methodological conception of Health Promotion in educational institutions is defined as a result of the political and social conditions, the scientific-pedagogical work, the practical activity, marking the distinctive features of it in the school scenario of the country, but at the same time authenticity is manifested in the implementation of the strategy by adjusting in each case to the particular needs and characteristics of the groups of students, workers and the community where the educational institution is located.

3. Principle of the general and the particular. There are state priorities and objectives to be achieved in schools, among which are those related to Health Promotion that respond to the social demands set forth by the National Education System in correspondence with the ideal of man to be formed in a given society; the gradual derivation of these objectives and the particular application that each center makes to achieve the fulfillment of the priorities, make it possible for the educational institution to set particular purposes, as a result of the identification of needs and goals proposed by the members of their collectives and organize in a peculiar way their systematic teaching process. The educational influence of Health Promotion must be systematically maintained throughout the organization of the school, that is to say, in the activities that are developed in the teaching process and during all grades and levels of education, the dynamics that the process acquires must produce activities that keep articulation with the development process of the learner, In this sense, it is evident that Health Promotion at school is not a campaign of a stage, but a style in the organization and development of the educational activity and must penetrate the whole life of students and educators.

4. Principle of integral, alternative and participative character. Health Promotion at school is focused on the integral development of the personal and collective possibilities of students, employees of educational institutions and the surrounding community. It stimulates each member of the collective to be the main actor of their own life and that of their peers, respects the uniqueness of each group to select and experience the ways to develop health, prepares them to make the right decisions and follow the path of their own development in correspondence with social demands.

5. Principle of multisectoral and multidisciplinary character. The development of health in the school community, as well as the whole educational teaching process in general, demands the participation of all the sectors related to it, Education, Public Health, Culture are priorities, but Commerce, Gastronomy, Ministry of Justice, Housing, student, youth, community organizations and many others are also involved; likewise the technical accompaniment in this process is given in multiple disciplines, a variety that becomes objective from the development of health knowledge that is the responsibility of all disciplines and subjects of the general and school curriculum.

6. Multiplier effect principle. Determined by the result of the educational action exercised by Health Promotion by making each member of the school and pedagogical collective a multiplier promoter of experiences and knowledge in the family environment, the neighborhood and other groups to which they belong, especially in relation to the awareness that each person has real possibilities to face problems with their own potential and find positive and transforming solutions to reality, whose execution will be possible in the real participation they have in the process of organization of school life.
7. Diagnose to transform principle. The decision to promote health in a given group is based on the determination of the priority needs of its members, without this initial diagnosis it is impossible to transform reality and enhance human development; characterizing the initial situation is the starting point of a monitoring process on how the environment is being mobilized and the conditions in which students and workers study and work, and how parents and other members of the community participate; evaluating the results that are obtained allows reorienting actions and setting new goals in search of more health, which means: better living conditions, healthier behaviors, greater participation in achieving them and greater personal growth psychically, socially and physically.

Health promotion in the Cuban educational system has ideological, legal, pedagogical, scientific and technological bases, which are identified as follows:

1. Ideological basis: centered on the Marxist-Leninist approach, the ideology of Martí and Fidel Castro related to education, personality development, care and protection of life.

2. Legal basis: contained in the laws, decrees and regulations of the Government, Education, Public Health and the joint work MINED-MINSAP and the strictest observance of basic human rights, among which are access to education, medical services and health development.

3. Pedagogical basis: understood from the fundamental principles and theoretical conceptions of Pedagogy, from an educational approach focused on the formation of values to change attitudes and create healthy lifestyles.

4. Scientific Base: reflected in the development of Pedagogical Sciences and Medical Sciences.

5. **Technological Base:** which assumes the use of technologies (TV, videos, computers in terms of school health) to contribute to raise the quality of education and with it the possibilities of greater human development towards a qualitatively superior conception of life.

The demands of the teaching work in the current conditions of the Cuban school raise the need to specify the contents of Health Education and Health Promotion that are assumed as a starting point to order, articulate and strengthen the actions of Health Promotion and Health Education in the methodological work system.

School organization in Cuba, from the works coming from the disappeared USSR and Socialist Camp, was conceived as a branch of Pedagogy together with Didactics or Theory of Teaching and Theory of Education; although even then, elements referred to school management were already taken into account within School Organization.

Since the end of the 1980s and the beginning of the 1990s, when there was a boom in studies on "scientific management" in education, School Organization began to be identified as part of school management and even, in the author's opinion, it was somewhat neglected; today its study is being revitalized in view of the imperatives of the changes that are taking place.

When consulting the literature, it can be seen, in the author's opinion, that there is a tendency to imprecision because it’s possible limits are exceeded and/or because all its dimensions are not covered, in fact, precision has not been achieved as to its object of study, however, valuable analyses can be found on the way to overcome these limitations, in this respect, the materials elaborated by professors Morales and Manzano should be mentioned, where a determination of the elements of the organizational structure of the school is found and are mentioned: functions and tasks, management and technical bodies, organizational relations and human, material and functional resources (Morales Pérez...[et al.], (2020, p.)

The author prefers, for the sake of the necessary precision, to contemplate in the School Organization the factors corresponding to the order of those objective conditions that must be available to carry out the pedagogical process.

According to this position, school organization contemplates:

(a) The adequate use of time. School calendars, timetables.

b) The adequate use of space. Premises and areas. Coordination for their use. Adequate maintenance.

c) Proper use of materials. Equipment of different types. Coordination for their use. Maintenance in good condition.

d) The proper functioning of human resources. Functioning of the management and technical bodies. Organizational relationships (of subordination, cooperation)

School organization, as is well known, responds to sociological, pedagogical, psychological and hygienic requirements.

There is a close relationship of interdependence between School Organization and School Hygiene. It is by studying this interrelation that the concept of school environment becomes more evident. In the literature consulted, no precise definitions of this term were found, but there were references to it in three senses:

- As a phenomenon of a physical hygienic type: school building, cleanliness, ornamentation.
- As a social phenomenon. Relations between people.
- Conceived in an integral way. "The school environment should be characterized by culture, tranquility, good relations, hygiene, timely ideological and political messages, seriousness, respect and tolerance... dedication to study and work..." (Cuba, MINED, Colectivo de autores 2000, p. 7).

For the authors, the school environment must be considered in a comprehensive manner and therefore includes:

- The organization that reigns in the school.
- Cleanliness and aesthetics.
- Hygienic aspects of physical type (lighting, ventilation, temperature, noise).
- The qualitative aspect with respect to the relationships and the fulfillment of the functions by the personnel linked to the pedagogical process, where the most important aspect is the way in which the pedagogical personnel influences the relationships and the fulfillment of the functions by the students.

This last aspect is the most important within the school environment because it should be remembered that individuals (of whatever type) contribute to their environment, men do it even consciously and not only in the physical aspects, but also in the social order.

The pedagogical process is repeatedly recognized in the pedagogical literature as needing certain environmental conditions in order to be carried out adequately and achieve efficiency (Del Puerto Quintana, Conrado, 1974; Feijoo, 1986; Bonet, 1994; Martínez, Baxter, 1996; Ochoa, Ximena, 1998; Fuentes, 1998; Pherson, 2004; Villalón, Oscar, 2007; Feijoo, 2009; Cejas, Enrique, 2009). As the pedagogical process is a particular expression of education in its broad sense, which is a social process, core of the socialization process, it is also a process of social character.

In the pedagogical process, due to its social typology, the social conditions are decisive, especially those created by the behaviors that people show when they interrelate during the fulfillment of the tasks related to the school's mission. The social conditions that must exist for the efficient realization of the pedagogical process are more decisive when the school is the University, because the most important thing takes place there, the teacher training process.

Why pay attention to environmental conditions in the pedagogical process?

Why environmental education and health occupy a significant place in the context of Labor Education - Informatics?

Today, in the context of education in general and at the social level, "Environmental Education" acquires relevance, which appears as a learning strategy, master program or transversal axis that, in its content, contemplates health education as an aspect for its prevention, promotion, way of life, lifestyles, quality of life in which health education occupies a place, in which well-being, self-esteem and self-behavior are present.

In the career of labor education - informatics, various means are used, both those that can be transformed and those that are used for their transformation. The former are considered materials of nature and recoverable materials, while those used for their transformation are constituted by machine tools, tools and instruments, devices and accessories. Both are employed in the teaching workshop to construct objects and can be planned in the computer laboratory.

In the teaching workshops and laboratories as environments, the system of biotic, abiotic and sociocultural elements with which the teacher and students interact while adapting to it, transforming it

and using it to satisfy their needs, is present and has evolved through the historical process of education and society.

Among the elements, the following stand out:

- Bióticos: maestros, estudiantes y áreas verdes.
  - Abiotic: ventilation, lighting, noise, school furnishings
  - Sociocultural: communication

These elements can become "Risk Factors" if they are not properly addressed. When we talk about health promotion and disease prevention, we are stimulating the development of attitudes against "Risk Factors", so that their quantitative influence does not become a new negative quality. When we speak of diagnosis, we are trying to recognize and control the damage caused by "Risk Factors", before the resources of the organism and medical science (as its helper) are unable to do so.

The "Risk Factors" are universal and omnipresent, as are the efforts of the organism and medical science to stop or counteract their "movement" and prevent their negative influence from appearing, accumulating, overcoming the office of the beneficial factors and originating new negative qualities (diseases and death). The educational, diagnostic and investigative activities that constitute the tasks of our profession represent the efforts to achieve this objective, thus seeking the preservation and improvement of health.

From this perspective, the aspect that is addressed and the system of actions designed contribute to health promotion, that is, to provide teachers and students as multipliers, the necessary means to improve their health and exercise greater control over it, which as a policy and as an approach, promotes health oriented towards lifestyles; therefore, it should be directed towards the development of concrete action plans.

System of actions to preserve the health of students and teachers

No.	Acciones de prevención	Fecha de cumplimiento	Responsables	Ejecuta
1	Incorporación de este objetivo, prevención de la salud en talleres y laboratorios en todas las visitas	Última semana de	Decano	Jefe de departamento

	que se realicen por todos los funcionarios de Educación, chequeo periódico de la marcha y funcionamiento.	cada mes		y profesores.
2	Desarrollo de tareas de capacitación y divulgación permanente sobre las acciones a desarrollar para contribuir a la prevención en salud en estudiantes y profesores.	4ta semana de cada mes.	Decano y Jefe de Dpto.	Jefe de departamento y Promotores de Salud. Cátedra de
3	Videos debates de materiales de salud e higienización ambiental.	1ra semana de cada mes	Jefe de departamento	Jefe de departamento y Promotores de Salud. Cátedra de salud de la Universidad.
4	Orientación y control a los jefes de colectivo de año y de disciplina de la carrera en el cumplimiento de las normas de seguridad e higiene del trabajo y la potenciación del movimiento FEU, en la lucha contra el mosquito Aedes con la activación de brigadas estudiantiles.	1ra y 4ta semana	Jefe de departamento.	Jefes de colectivo de año, de la carrera y de disciplina
5	Realización del auto focal diario en los talleres docentes y áreas aledañas al iniciar y culminar la jornada laboral.	Diario	Profesor del taller e Integrantes de la Brigada Auto focal.	Estudiantes y profesores
6	Potenciar las charlas educativas e inspección sanitaria por el personal de enfermería, así como el funcionamiento del incinerador para la eliminación de la basura en estos y los desechos sólidos.	Semanal.	Decano y jefe de departamento	Personal de Salud (enfermería)
7	Inspecciones periódicas y monitoreo de los factores de riesgo y de los puntos vulnerables de control	Diario	Decano y jefe de	Personal de Salud

	diariamente, como son sótanos, tanques para residuales sólidos o basuras, áreas o almacén de materiales en desuso.		departamento	(enfermería)
8	Divulgación de las medidas de seguridad e higiene del trabajo que se deben cumplir en los talleres docentes.	Diario	Jefe de departamento	Jefe de departamento y profesores.
9	Salida curricular de las medidas de prevención en salud y cumplimiento de normas higiénicas de trabajo y requisitos, aprovechando las	Diario	Jefe de departamento	Personal docente frente a estudiantes.
10	Limpieza al área circundante a los talleres y la extracción del agua depositada en las áreas aledañas, así como su fumigación periódica.	Según Programa	Decano.	Profesores, estudiantes y trabajadores.
11	Delimitar las zonas de trabajo en los talleres docentes, según las normas establecidas para este fin.	Permanente	Jefe de departamento	Profesor responsable del taller docente
12	Coordinación con el área de salud para la sistematización del fumigado con humo, líquido y el mantenimiento constante de las almohadillas con petróleo y tratamiento químico en los almacenes de materiales.	Según ciclo establecido por Salud Pública.	Decano y jefe de departamento.	Integrantes de la Campaña.
13	Mantener como un indicador para que los talleres docentes sean declarados “Local Listo” cumplir con las medidas recomendadas en la campaña contra el Aedes Aegypty, las normas de protección e higiene del trabajo y el sistema de ambientación del local.	1 vez al mes según Plan	Decano y jefe de departamento. Asesores de Salud.	Jefe de departamento y profesores.
14	Preparación de locales de desinfección de los materiales recuperados y de la naturaleza que son objeto de uso para construir, confeccionar y elaborar artículos en el taller.	Según Programación del centro.	Jefe de departamento	Jefes de colectivo de año, de la carrera y de

				disciplina
15	Recuperación y mantenimiento de la iluminación de los talleres docentes	Según Programación del centro.	Decano y jefe de departamento.	Personal destinado a la actividad.
16	Declarar un día en el departamento como jornada intensiva de higiene, organización de los locales, chapea de los alrededores y limpieza para la eliminación de focos, etc.	Según Programación del centro.	Decano y jefe de departamento.	Jefe de departamento, profesores y estudiantes.
17	Recuperación y mantenimiento de las máquinas y equipos, herramientas e instrumentos, así como su organización en el taller y pañol.	Permanente	Decano y jefe de departamento.	Personal destinado a la actividad.
18	Ubicación de propagandas gráficas en los puntos vulnerables y visibles dentro y fuera del taller docente que faciliten prevenir.	Permanente	Decano y jefe de departamento.	Jefe de departamento y profesores.
19	Mantenimiento de la ventilación y ambientación de los talleres docentes	Permanente	Decano y jefe de departamento.	Personal destinado a la actividad. Jefe de departamento y profesores.

Source: Authors' own elaboration

Conclusions

The environment of the teaching workshops and laboratories provide an important space to contribute to health education, that is, learning opportunities consciously created with a view to facilitating behavioral changes, directed towards a predetermined goal, linked to disease prevention, as a susceptible means to modify behaviors identified as risk factors for certain diseases and to expand the knowledge of teachers and students in relation to health, to develop understanding and personal skills that promote health. The system of actions is intended to discard the narrow conception of environment

and not to reduce it to nature, but to understand the interdependence that exists between human actions and processes, specifically in the construction and manufacturing process, its environment, workshops and laboratories and the determination of risk factors to health, since it promotes physical, mental and social well-being and not only the absence of conditions or disease, it can also contribute to develop personal potential to respond positively to the challenges of the environment in order to contribute to a preventive culture and health promotion. It also ensures that students and teachers have greater control over this aspect to improve their health with a health education in which they work on risk factors and, in turn, are educating and promoting health. It favors well-being related to feelings of self-esteem and the feeling of belonging to a pedagogical community, a high degree of self-esteem that favors a good state of mental health, provides a greater degree of independence that enables teachers and students to choose freely and make free decisions related to health.

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