

Research Article

Vision 2030 of the International Dental Federation a Challenge for Cuban Stomatology

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Abstract

Background: it is necessary to know the challenges that Cuban dentistry and higher education must face in order to act in the face of economic limitations, its relationship with science, technology and innovation, and the training of professional skills to achieve the goal of Vision 2030. **Objective:** assessment of economic limitations and integration with science, technology and innovations in relation to the challenges of 2030 Vision and the level of specific and transversal competencies in the training of professionals in the health area. **Methods:** a descriptive-cross-sectional investigation was carried out, from March to May 2021, at "Marta Abreu" University Polyclinic, in Santa Clara, Villa Clara. Theoretical methods were used: analysis-synthesis and inductive-deductive; empirical ones: survey and documentary review; the mathematical to determine the absolute values and percentage. **Results:** some challenges were identified: absence of appropriate technology, limited adoption of initiatives in health promotion and prevention, understanding of alarm signals, following a path of constant learning and improvement, real restrictions in the integration with science and innovation, and promote practical investigations based on students' researching, communication and knowledge updating skills. **Conclusions:** Cuban dentistry has objective economic limitations, which can be overcome with its integration into science, technology and innovation, and the promotion of skills that allow them to act creatively in the most diverse scenarios.

Keywords

Schools, Dental, Learning, Professional Development, Education, Medical

1. Introduction

One of the educational challenges of the medical university in the 21st century responds to its cardinal role in the promotion of innovation, the assurance of research and the formation of professional skills. [1]

The training of health specialists has faced challenges derived from scientific and technological advances, which have

generated a knowledge society that demands competencies in the work environment aimed at raising the quality of life of people worldwide. [2]

In stomatology, professionals can contribute to the development of their individual capacity through research in public health for a better performance with effectiveness, efficiency,

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Received: 11 February 2025; **Accepted:** 28 February 2025; **Published:** 29 April 2025



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and sustainability and population satisfaction [3]

Therefore, the World Dental Federation (FDI), in its Vision 2030 report, identified strategic challenges that dental professionals must face, as well as skills and research aimed at providing optimal oral health for all in the coming decades; [4] highlights the need to reform education systems for a resilient and responsive profession, inform research-based clinical practice, find ways to transmit and share information, update and educate patients in an emerging technological environment and treatment modalities, in order to meet the three pillars of Vision 2030:

Pillar 1. By 2030, essential oral health services are integrated into health care in all countries, and oral health care of adequate quality is available, accessible and affordable to all. [4]

By 2030, oral health care and people-centered general health care are integrated, facilitating more effective prevention and management of oral diseases and improved health and well-being. [4]

By 2030, oral health professionals collaborate with a wide range of health care workers to ensure sustainable, health needs-based, people-centered health care. [4].

As stated at the closing of the Eighth Session of the Ninth Legislature of the National Assembly of People's Power on December 22, 2021 by the President of the Republic of Cuba, Díaz-Canel Bermúdez: "Science and innovation in terms of health are focused on the new problems we must face and overcome." [5]

The first step is involvement of science and technology in knowledge about the real purposes of the 2030 Agenda. [6], the Cuban stomatology should enhance research in the essential functions of public health in response to the social determinants of health since in order to achieve the Sustainable Development Goals (ODS), healthy life and universal wellbeing is essential. [3]

It was the objective of this research: assessment of economic limitations and integration with science, technology and innovations in relation to the challenges of 2030 Vision and the level of specific and transversal competencies in the training of professionals in the health area.

2. Methods

A descriptive cross-sectional study was carried out from March to May 2021, in the Department of Stomatology corresponding to the health area of the University Polyclinic "Marta Abreu", Santa Clara, Villa Clara. The universe was constituted by 25 undergraduate and postgraduate students who were carrying out their teaching activity in the health care unit; with a probabilistic intentional sampling, 17 were selected (7 undergraduate and 10 postgraduate) who expressed their consent to participate in the research.

Theoretical methods were used: analysis-synthesis, which allowed understanding the information from the decomposition of the parts and then their integration; induc-

tive-deductive, to link the singular and the general in reality.

Empirical methods: a questionnaire was applied on specific and transversal competencies that students and professionals should have to face the challenges of Vision 2030. Rating scale: (1) Knows nothing, (2) Poor, (3) Fair, (4) Good, (5) Very good.

Undergraduate students were assessed for all specific competencies up to week 16 of the study program: prevention and health promotion, preparation of individual clinical histories, questioning, identifying habits, general physical examination, oral examination, dentigram, diagnosis, treatment plan and evolution; in clinical procedures: truncanal anesthesia, infiltrative anesthesia, restoration with resins, pulpo-radicular treatments and exodontia.

In graduate students were assessed in specific competencies: the diagnosis of halitosis and identification of the different odors perceived and possible diagnoses of systemic diseases, the use of dental amalgams, how to place and remove them, the biosafety standards to be met and what they must take into account for this in each dental office, understanding the warning signs of diseases that present notice in the oral cavity, identifying knowledge about practical symptoms and signs of the oral cavity such as: oral aphthous ulcers, halitosis, red spots, white plaques, abnormal pigmentation and their relationship with diseases such as systemic lupus erythematosus, hepatitis; diabetes mellitus, anemia among others.

Within the transversal competencies, the following were evaluated in both groups of students: constant improvement skills (scientific information) supported by knowledge of studies related to dentistry in recent years and their scientific evidence, research skills with participation in events and publications, communication skills: prevention and health promotion work, work deployed in health situation analysis, interprofessional collaboration mainly with primary health care groups with the family physician and nurse, skills in the use of existing technology in the world, as in the case of methods for diagnosing halitosis and cariology, updating skills on dentistry, Minamata Convention and FDI Vision 2030.

Documentary review: an analytical review was made of the subject syllabus of the specialty of Comprehensive General Stomatology for undergraduate and postgraduate, the FDI Vision 2030 report and Minamata Convention.

Mathematical method:

It was determined with the sums of the total that corresponded to each scale in the specific and transversal competencies, and divided by the total number of students, in each case. Percentage analysis was used for the analysis and interpretation of the results.

The quantitative data collected were entered into a database, computed and processed using the SPSS version 11.0 statistical software package. They are presented in tables using absolute numbers and percentages.

3. Results and Discussion

3.1. Results

The results of the analysis of the key challenges of each of the pillars of Vision 2030, considered as weaknesses in the health area of the University Polyclinic "Marta Abreu" of Santa Clara, Villa Clara, are presented below.

Pillar 1. Key challenges:

- (1) Absence of appropriate technologies and low availability of resources.
- (2) Limited adoption of health promotion and prevention initiatives.

Pillar 2. Key challenges:

Understanding of early warning signs

Pillar 3. Key challenges:

- (1) Being recognized as equal members of health care teams.
- (2) Participating in interprofessional collaborations
- (3) Pursuing a path of continuous learning and improvement

Economic constraints and integration with science, technology and innovation:

- (1) Encourage evidence-based, practical research (Low availability of resources, primarily laboratory testing).
- (2) Conduct research with large volumes of data (Limited

access to the Internet).

- (3) Encourage technological solutions such as austere innovation: such as mobile health and e-health (Lack of integration with science, technology and innovation).
- (4) Improve the efficiency of the dental practice and its systems through the development of technologies (Lack of integration with science, technology and innovation).
- (5) Facilitate the use of computerized systems for integrated practice management and electronic records management (Lack of integration with science, technology and innovation).
- (6) Enhance quality improvement through the use of electronic systems for sharing feedback, e.g., systems using electronic dashboards in quality improvement groups. (Lack of integration with science, technology, and innovation)

Specific and transversal competencies

Table 1 shows that in the educational activities, the greatest number of undergraduate students obtained an evaluation of Good (57%), there were 2 with Regular (29%). In the preparation of clinical histories, the most frequent evaluation was Regular (57%). In relation to transversal competencies, research skills and updating presented 71% of those evaluated as poor; however, communication and technological skills were evaluated as good in most of them.

Table 1. Skills in specific and transversal competencies in undergraduate students, University Polyclinic "Marta Abreu", March-May, 2021.

Aspect	Rating scale									
	1		2		3		4		5	
	No	%	No	%	No	%	No	%	No	%
Educational activity	0	0	0	0	2	29	4	57	1	14
Clinical History	0	0	0	0	4	57	2	29	1	14
Clinical procedures	0	0	0	0	1	14	5	71	1	14
Overcoming	0	0	2	29	1	14	5	71	0	0
Investigative Skills	0	0	5	71	2	29	0	0	0	0
Communication Skills	0	0	0	0	2	29	3	42	2	29
Technological Skills	0	0	0	0	2	29	4	57	1	14
Updating Skills	0	0	5	71	1	14	1	14	0	0

Source: survey

Table 2 shows that 60 % of the professionals lacked knowledge regarding the diagnosis of halitosis and its relationship with systemic diseases, 50 % knew the use and precautions of dental amalgam, and on the identification of

warning signs 50 % obtained a rating of Fair. The transversal competencies in the professionals presented evaluations of Poor and Fair, although the technological skills were in 90 % between Good and Very Good, which was praiseworthy.

Table 2. Skills in specific and transversal competencies in postgraduate students, Marta Abreu" University Polyclinic, March-May 2021.

Aspect	Rating scale									
	1		2		3		4		5	
	No	%	No	%	No	%	No	%	No	%
Diagnosis of halitosis/ relationship with systemic	0	0	6	60	3	30	1	10	0	0
Use and precautions with dental amalgam	0	0	2	20	3	30	5	50	0	0
Understanding warning sings in oral cavity	0	0	1	10	5	50	3	30	1	10
Overcoming	0	0	3	30	6	60	2	20	0	0
Investigative Skills	0	0	5	50	4	40	1	10	0	0
Comunication Skills	0	0	3	30	3	30	3	30	1	10
Technological Skills	0	0	1	10	0	0	5	50	4	40
Updating Skills	0	0	6	60	3	30	1	10	0	0

3.2. Discussion

Espinoza Troconi. [3], states that in dentistry it is important to achieve specific qualities: creativity, innovative spirit, permanent motivation towards the work performed, sense of belonging, and aspirations to reach a level of socioeconomic and cultural development, forcing the student to create self-learning skills and connectivity with the available medium. [7]. Acosta et al. state that dental schools should carry out research with the participation of students so that they can develop scientific knowledge production skills. [4] and the undergraduate degree is the way that allows you to integrate knowledge, while at the same time serving as a support for self-learning. [8]. They confirm that dentistry has reached an impressive degree of progress and resolution capacity; therefore, the academic and professional profile has changed with technological development, which has led to better training of its human resources. [4]

The General Dental Council and the America Dental Association include communication skills in the educational programs among the competencies that a recent graduate of the specialty should have [9], therefore Cuban Stomatology although there is no distinction between the indicators of communication skills, must take on the challenge in its Plan E, promoting observation, expression and empathetic relationship skills. [10]

It is important to highlight the current relationship of dentistry and the creation of new materials and raw materials with biotechnology, informatics and telecommunications [8] closely related to the to the studies of Science, Technology and Society (CTS), which constitutes a space for the production of knowledge. [11]

In Cuba, the State policy has created strengths that rein-

force the fulfillment of the general objective of Vision 2030; Article 72 of the Constitution of the Republic of Cuba refers to the right of all Cuban citizens to free health care without any type of distinction; [12] however, this effort is hindered in the current Cuban context by the worsening of the economic blockade imposed by the United States government, which leads to real financial limitations; but this has not stopped the enormous effort to keep oral health accessible and affordable for all.

The authors consider that Cuban stomatology has lacked integration with other sciences and has not been fully involved with technology and innovation in aspects such as: - It lacks similar devices existing in the United States:

- (1) It lacks similar devices existing in the world for the diagnosis of halitosis: -Kim's organoleptic method or Bana test among others-, and this is an entity that constitutes frequent visits to stomatological services, which cannot be diagnosed, nor treated with optimal quality. In addition, undergraduate students are not familiar with these methods.
- (2) The undergraduate students did not perform their pre-clinical practices in times of pandemic, in this profession where practical activity is fundamental. In today's world, virtual learning platforms are used, for example: the use of mannequins as simulators in the United Kingdom, the application of virtual reality systems in a three-dimensional environment, or haptic simulators with virtual reality that consist of equipment that faithfully reproduce the sensation of touch without being in physical contact with patients, existing in private universities in Latin America. [8]

The limitations are not only economic; this study has found a lack of competencies in the training of students:

- (1) They are unaware of the different odors that can be

perceived as is the case of sulfur odor that indicates an intraoral origin of halitosis, this odor combined with a sweet taste may indicate liver disease, to cite just one example.

- (2) Limitations in understanding the warning signs of oral manifestations that constitute early warnings of chronic diseases in other organs such as: oral ulcers, white plaques, red spots, oral pain, hypoesthesia, abnormal oral-facial movements, and dry mouth, among others.
- (3) In a different scenario such as the COVID-19 pandemic period, no novel forms of oral health promotion and prevention were used.
- (4) There is little interprofessional communication with the Basic Work Groups when it is even embodied in the National Comprehensive Stomatology Program.
- (5) They are not aware of the Minamata Convention to which Cuba is a signatory, and which warns about the need to replace dental amalgams due to the risk they represent for the health of professionals and patients, for the environment in general [12] and the FDI Vision 2030, a document that sets out the strategic challenges facing the world dental community. [4]

Achieving the objective of Vision 2030, more than a strategic action, is a necessity, because it calls for empowering the profession to be more capable and to be recognized as equal members of the health care teams; a condition that is acquired when the expectations of reaching a level of competencies such that stomatology in every part of the Cuban geography is equal in all aspects to the best in the world are fully met. [13-15]

4. Conclusions

The authors consider that in order to achieve the objective of the FDI's Vision 2030, the Cuban stomatological community must act on the real economic limitations, integrating itself with science, technology and innovation, and raising the level of competencies in the training of its professionals to act in the most diverse environments, with creativity, critical thinking and teamwork, in short, professionals committed to the advancement and empowerment of Cuban Stomatology.

Abbreviations

FDI World Dental Federation
 ODS Sustainable Development Goals

Author Contributions

Ismaray Contreras Cobas: Investigation
Elizabeth Velázquez del Castillo: Investigation

Conflicts of Interest

The authors declare no conflicts of interest.

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