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Impact on Health Indicators and Music Education

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Introduction

School institutions are units where people (students and teachers) coexist for a large part of the year, bringing together individuals of different ages and backgrounds. In this sense, schools can be considered, if equipped with a health monitoring plan, the most suitable place to quickly and economically analyze the incidence of health issues. This can help prevent their spread from an epidemiological perspective.

However, monitoring the health status of individuals within school institutions is uneven and not guided by a framework of indicators that could be used to evaluate quality of life. In fact, in the various indicator maps dedicated to education, information related to health, whether physical or psycho-social-affective, is hardly found. It is even noteworthy that information related to disabilities, developmental disorders, or learning difficulties with a special incidence in the language area - which are treated independently in another contribution to this roundtable - is not reflected in the indicator maps.

Thus, this work analyzes the indicators commonly used in major evaluative projects in the field of education, mentions the different ones related to music education, and proposes a framework for the design of an indicator system that comprehensively provides relevant data not only for school health care but also as a reference for assessing health in the school population. The reference model is based on the concept of Social Cohesion; a concept identified at the Lisbon Summit of the Council of Europe in 2000 as a reference for the development of public policies, and which is being used by our research team as a basis for designing a systemic model for evaluating institutions and educational systems.

The reference framework is structured by school stages, and dimensions observable by the teaching staff of school institutions are identified, along with others requiring the participation of health specialists (medicine, nursing, physiotherapy, psychology, and speech therapy) and educators (social educators, educational psychologists, and pedagogues).

Given the advancements in the field of Information and Communication Technologies, a priority element is considered to be support through information collection software that would allow input of information from both the educational and healthcare systems, with the results being available to both social care subsystems.

In the year 2000, at the Lisbon Summit of the Council of Europe, the objective of Social Cohesion (hereinafter, SC) was proposed as a guide for the development of public policies. As defined by the Council of Europe, SC in a modern society is understood as: "The society's capacity to ensure the sustainability of the welfare of all its members, ensuring equitable access to available resources, ensuring dignity in diversity and personal and collective autonomy, and enabling responsible participation" [1]. That is, the dimensions of SC are: Social Welfare (for all), Sustainability (throughout life), Equity (in access to resources and opportunities), Integration of Diversity (personal and social), and Participation (social). References regarding this are discussed in Jornet [2,3]. At the Council of Europe Summit held in Nice in the year 2000, it was agreed to design two instruments:

1. Comparable indicators for assessing poverty and social inclusion in the European Union (hereinafter EU), and
2. An open coordination method, allowing the direction of public policies and the monitoring of their implementation.

As a result of European commitments, two major actions were derived: The Laeken Portfolio proposed in 2001 in the Belgian city bearing its name, which was subsequently revised in 2006 and 2009. Likewise, the methodological guide for the development of public policies was first published in 2005, already cited, which brings together various indicators organized according to various sectors of political activity and can, in turn, provide a coherent basis for the design of evaluation indicators [1].

The Laeken Portfolio is a set of indicators designed to monitor and evaluate the evolution of social cohesion in Europe. The indicators included in the Laeken Portfolio are aimed at measuring social exclusion as:

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- a multidimensional phenomenon,
- independent of poverty, and
- dynamically affecting individuals throughout their lives, hindering their social integration.

Figure 1 summarizes the dimensional composition and the number of indicators proposed for the Laeken Portfolio.

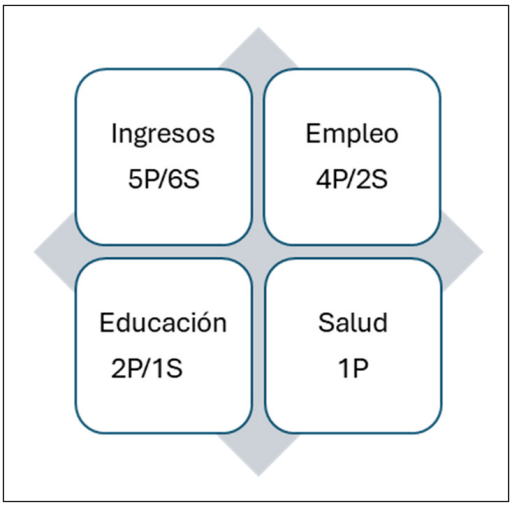

Figure 1: Scheme of indicators proposed by the Laeken Portfolio [4].
Source: own elaboration.

As seen in Figure 1, the types of Indicators are differentiated into primary, secondary, and tertiary. The primary and secondary ones are mandatory for analysis by all participating countries; the tertiary ones can be proposed and integrated by each country based on its particular characteristics or information interests, in order to refine or enhance the information provided by the former. Additionally, they are disaggregated by age and gender, and thresholds, or cutoff levels, are established based on which an interpretation can be made to highlight social gaps.

Two aspects that received a considerable amount of criticism were the treatment of health and education domains. In the case of Health, only Life Expectancy is considered. It is evident that this does not clearly reflect the social efforts made by governments regarding their healthcare systems, although it is a traditional indicator of quality of life. Regarding Education, two primary indicators are considered (Early School Leaving and levels of fifteen-year-old students in reading tests in the PISA project), and one secondary indicator (people with low educational levels).

The truth is that in both cases, as can be observed, the included indicators were not only scarce but also did not represent the efforts made by societies and their governments through policies that foster social cohesion.

On the other hand, in the methodological guide, a greater number of guidelines are established. Therefore, we will dedicate a specific section to it in this work, as it is the basis that guides us in the proposal we make.

Material and Methods

The utility of evaluating educational systems

In this framework, and parallel to this proposal, there has been a promotion in Education, especially since 2000, of conducting national and international evaluative studies aimed at assessing the quality of the educational system.

Several authors have highlighted the limited utility of these evaluations, as it is difficult to infer from them the elements on which action should be taken in the system to promote improvement [5-8].

In this context, the GemEduco team (Measurement and Evaluation Group: Education for Social Cohesion) at the University of Valencia is designing a model for evaluating educational systems - see Figure 2 - with the following characteristics:

- It is a holistic and systemic model that attempts to approach education's functioning globally.
- It is understood that Education is a tool of social and economic policies and, therefore, cannot be understood in isolation.
- Likewise, considering Education independently of the other dimensions of the Laeken Portfolio poses problems for better understanding personal and social development, so we believe it is convenient to relate evaluative approaches that integrate all dimensions.

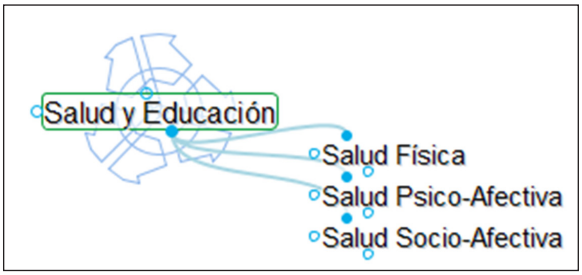

Figure 2: Health and Education. Evaluation Areas

In fact, one of the motivations for considering health-related aspects in relation to education is based on the observation that evaluative studies on educational quality make no reference to students who suffer from any type of health-related problem, whether physical or psycho-social-affective. These studies eliminate cases that may have some kind of problem and work exclusively with what we could call individuals representative of the norm.

Similarly, there are no references to the type of health support services integrated in relation to the educational system. It is striking that, despite having school insurance in many countries, there is no comprehensive information about the types of conditions that occur in the educational context, both among students and teachers.

This disconnection, or partialization, of information prevents coordinated action between the healthcare, educational, and social welfare subsystems. Our proposal is based on attempting to coordinate the three subsystems through processes that allow information sharing among them.

Table 1: Evaluation dimensions of teaching in the classroom from the perspective of education as a promoter of Social Cohesion [9].

Dimensions of Social Cohesion Definition	Constructs or Implicated Dimensions
Social Welfare (for all)	Social and learning climate in the classroom
	Social management of the classroom
	Conflict management in the classroom
	Job satisfaction*
Sustainability (throughout life)	Basic competencies (outlined in the curriculum design):
	- Competence in linguistic communication.
	- Mathematical competence.
	- Competence in knowledge and interaction with the physical world.
	- Information processing and digital competence.
	- Social and civic competence.
	- Cultural and artistic competence.
	- Competence for learning to learn.
	- Autonomy and personal initiative.
	-Competence and emotional development
	Social value of education
	Resilience
Equity (in access to resources and opportunities)	
Integration of Diversity (personal and social)	Didactic methodology (participative, teamwork, student as protagonist of their learning...)
	Evaluation methodology (diversified in methods, situations, tasks, and instruments)
	Teacher collegiality
	Respect, dignity, and recognition
	Inclusivity: Attention to physical, cultural, and/or social diversity
	Collaboration Family-Teaching-School
	Family educational styles
	Teaching educational styles
	Sense of student belonging
	Social responsibility: Self-image of the social role regarding community environments (School, Family, and Society)
*Note: * Elements added subsequently during the research process	Leadership and organization styles*

For this purpose, we rely on concepts and proposals derived from the methodological guide of the Council of Europe regarding the elaboration of indicators, which we describe later.

Methodological Guide for the Design of Public Policies

The Methodological Guide of the Council of Europe includes various types of quantitative and qualitative indicators [1]. It proposes to gather them from various sources of information (periodic statistics, research, surveys to families - subjective indicators: opinions, satisfaction, etc.). As a whole, it aims to respond to the definition of Social Cohesion (SC) by the Council of Europe. Four levels of analysis are identified briefly:

Level I: Evaluation of SC as well-being and quality of life: Access to social rights; Equity in access to rights; Dignity; Autonomy and personal development; Social participation; Responsibility and institutional trust; Association, community values; Knowledge and perceptions for social participation and integration.

Level II: Evaluation of SC from a global perspective: Institutional action in ensuring equity: Equity in satisfaction of rights; Dignity and recognition of diversity; Autonomy and personal development; Participation and commitment of citizens.

Level III: Evaluation of SC by dimensions: Employment; Health and nutrition; Education; Culture; Income and living conditions (housing, consumption capacity, etc.).

Level IV: Evaluation of SC in groups at risk of exclusion: Childhood; Women; Disabled; Immigrants; Elderly.

In the various levels of analysis, elements interrelating education, health, and social welfare can be identified.

It is evident that the concept of SC is complex and difficult to define, but it seems undeniable that at the core of its achievement are the two areas we relate here: Education and Health. This same position can be identified in the Regards sur l'éducation 2008 Report.

Therefore, we assume that educational institutions must share fundamental health-related information with the healthcare and social welfare subsystems.

Thus, in this article, we also wanted to focus on the importance of health indicators in the educational field and the practice of music education since it has a considerable impact on the health and well-being of students.

By integrating music into the educational environment, several health indicators can be observed that demonstrate the benefits of this discipline in the comprehensive development of students. Some of these indicators are presented below:

1. Improvement of Academic Performance: Numerous studies have shown a positive correlation between music education and academic performance. Students participating in music education programs tend to have better cognitive skills, including memory, attention, and problem-solving, which can translate into better performance in other academic areas [10].

2. Brain Development: Music education stimulates brain development in areas related to sound processing, language, and motor coordination. These neurobiological changes can have lasting effects on students' cognitive and emotional health throughout their lives [11].
3. Stress and Anxiety Reduction: Engaging in musical activities, whether singing in a choir, playing an instrument, or simply listening to music, can reduce levels of stress and anxiety in students. Music provides a creative and emotional outlet that can help students cope with academic and social pressures [12].
4. Promotion of Self-expression and Self-esteem: Music education fosters self-expression and creativity, which can strengthen students' self-esteem and self-confidence. Learning to play an instrument or compose music allows students to express their emotions in a constructive and meaningful way [13].
5. Resilience Promotion: Musical practice requires dedication, perseverance, and teamwork, which can promote resilience and the ability to overcome challenges. Students participating in music education programs learn to face adversity and work collaboratively with others to achieve common goals [14].
6. Improvement of Social Skills: Music is inherently social and collaborative. Participating in musical ensembles and group activities promotes social skills such as communication, cooperation, and leadership. These skills are fundamental for personal and professional success throughout life [15].

Results

Music education is not only important for the artistic and cultural development of students but also has significant benefits for their health and well-being. By integrating music into the educational environment, various health indicators can be improved, from academic performance to emotional and social health. It is crucial for educational institutions to recognize and value the role of music in promoting the holistic health of students and to provide resources and opportunities for all students to participate in enriching musical experiences.

The Concept of Educational Institution: School as a Center for Social Integration

One of the elements we aim to address is the conceptualization of the school as a unit of social development. In this regard, we believe that integrating information collection about health-related aspects, or those that lie between the psycho-educational and health sectors, would open up greater possibilities for understanding and assessing whether the process of personal and social development occurs as an expression of social cohesion. Likewise, it would improve information management by being integrated into a single map of indicators that could inform both sectors, which are basic pillars of well-being.

Regarding the educational elements to be considered in education, they have already been presented in various works by the Gem-Educo research group. In this case, we focus on the elements that affect health and education as elements that can and should be addressed more efficiently and effectively within a framework of social development. Thus, in this work, we present the synthesis of dimensions that we believe could be considered in the indicator map, and in the works of Bakieva and Sáncho-Álvarez we exemplify their specification in some dimensions of the same [16,17].

Schools as centers of teaching and learning can be understood from different perspectives [6,18-20]:

- Formal organization and, therefore, addressing various factors of effectiveness and efficiency.
- Educational community, meaning a space for interpersonal relationships, with specific rules and oriented towards educational purposes.
- Organization in continuous development process, maintaining a close relationship of interdependence with the environment in which it is located.

Educational institutions constitute units where people (students and teachers) coexist for much of the year and where individuals of different ages and backgrounds interact. In this sense, schools can be considered, if a health monitoring plan is available, the most suitable place where analyses of health issues can be carried out more quickly and economically. This can help prevent the spread of such issues from an epidemiological standpoint.

However, monitoring the health status of individuals within educational institutions is uneven and not guided by a framework of indicators that could be used to assess quality of life. In fact, in the various indicator maps dedicated to education, it is rare to find information related to health, whether physical or psycho-social. It is even striking that information related to disabilities, developmental disorders, or learning difficulties with special incidence in the area of language - in general, and speech disorders in particular - are not reflected in the indicator maps [21].

Thus, in this work, we propose a framework for the design of an indicator system that comprehensively provides relevant data not only for the care of school health but also as a reference for the assessment of health in the school-aged population in particular and the educational community in general. Likewise, it can serve as a basis for the relationship between the health, education, and social welfare subsystems.

Proposal of a model of indicators on Health and Education based on the concept of Social Cohesion.

Indicator Maps have become a valuable evaluative instrument as they allow visualizing in a synthetic set of statistical information responses to basic or fundamental questions regarding various phenomena, whether educational, economic, social, cultural, health-related, etc. By indicator, we refer to data or results that have a normative relationship with the phenomenon they intend to inform about, so that their variations can express changes in the overall phenomenon under analysis. In this sense, we identify both quantitative indicators (or "indices or ratios," which come from periodic statistics or survey results, for example) and qualitative indicators (which we call "arguments," which can result from synthetic assessments established by judgment). While the former are more common, the latter can complement information that, due to its complexity, is not susceptible to unequivocal quantification. In the case of education, they can refer to the quality of curricular designs or specific school centers, their programming, etc... In the health sector, consider the example of variations observed at the level of diagnostic

classifications in reference manuals, such as the DSM. The definition or identification of new syndromes or their diagnostic reorganization necessarily implies diagnostic activity, which, at its base, is based on arguments, so we understand that especially in the psycho-social-affective sphere, indicators primarily approach these characteristics whenever we refer to diagnostic categories.

The proposal of any Indicator Map aims to satisfy three fundamental principles:

- Effectiveness: achievement of objectives.
- Efficiency: optimization of resources to achieve objectives.
- Functionality: satisfaction of personal and social needs that motivated the implementation of the services that society has been implementing to improve the personal and social situation.

In our case, it is also so. For this reason, the reference framework is structured by school stages, and dimensions that can be observed by the teaching staff of educational institutions are identified, along with others that require the participation of health specialists (medicine, nursing, physiotherapy, psychology, and speech therapy) and educators (social educators, educational psychologists, and pedagogues).

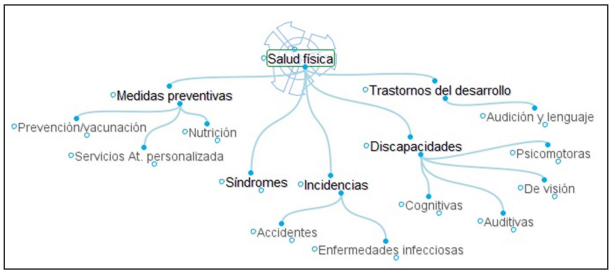

Figure 3: Physical Health in Students. Proposed Indicators

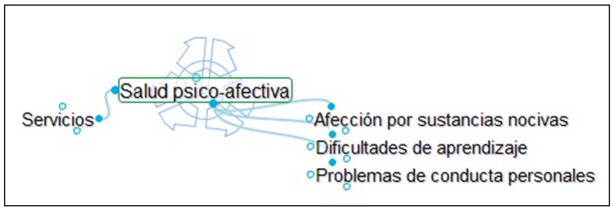

Figure 4: Psycho-Affective Health in Students. Proposed Indicators.

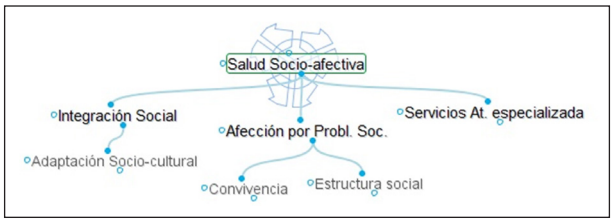

Figure 5: Socio-Affective Health in Students. Proposed Indicators.

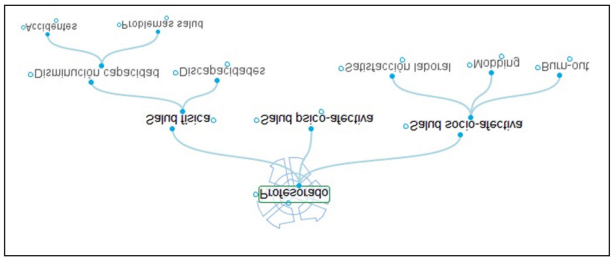

Figure 6: Proposed Indicators of Health in Teachers.

Structuring a Map of Indicators involves making decisions about how criteria guiding the subsequent use of information can be most useful. It's clear that when providing information, we are, to some extent, directing the attention of those who use it to the elements that seem important to those designing the Map of Indicators.

Therefore, we believe it's necessary to discuss the criteria and elements considered in this proposal. In terms of dimensions, we understand that three main areas should initially be considered:

1. **Physical health:** This refers to all aspects affecting health that shouldn't necessarily have a definitive impact on cognitive elements (although they may temporarily impair the individual activity of students or teachers). This includes diseases or syndromes that may temporarily affect individuals, such as sporadic episodes of infectious diseases (flu, mononucleosis, parasites), or other chronic conditions that don't establish with severity, such as isolated episodes of epilepsy, as well as school accidents, gastrointestinal diseases, etc.
2. **Psycho-affective health:** This area encompasses all issues that individually affect the cognitive and affective areas of students and teachers. Concerning students, cognitively, it includes all cases that deviate from the norm and demonstrate diversity, from disabilities to giftedness. In both cases, it's believed that the School, alongside the healthcare and social welfare systems, should specially address these issues. Similarly, attention to teachers, both in their current situation and throughout their lives, is necessary. From an affective standpoint, this refers to all situations personally involving a decline in normal development, whether behavioral or deeper issues requiring specialized attention. For example, among students, enuresis, withdrawal, self-esteem or relational problems - e.g., autism, and among teachers, repercussions of personal issues affecting their performance in teaching activities, or situations responding to specific diagnoses such as depression or moderate bipolar disorders.
3. **Socio-affective health:** Increasingly, cases of integration difficulties or issues related to school violence, bullying, or general school violence are reported. Whatever happens internally within schools is important and should be reported in a comprehensive social map. However, many problems within schools stem from external contexts, families, or neighborhoods with special circumstances. Nonetheless, even if problems originate from the school itself or the surrounding context, if they manifest in internal school issues, it's a special opportunity for detection and addressing, whether for reduction or effective suppression.

When considering socio-affective cases, both the native and migrant populations are integrated into the same dimension. The social evolution facilitated by globalization has led not only to migration due to precariousness in countries of origin but also, particularly now, to refugees. Population movements between countries imply various problems, one of which is particularly important and linked to health, not only of the migrant population but also of the receiving population, which may see previously eradicated problems resurface due to the novelty. Therefore, we understand that the migration phenomenon should be considered as a dimension in itself and should be addressed with the same sub-dimensions considered in the global Map of Indicators. Consequently, the work of Meng, Sancho, and Bisquert assumes all variables that should be considered in addressing the design of an effective, efficient, and functional indicator map, to positively address migration phenomena, regardless of their type or nature [20].

Discussion

About the development of an Indicator Map.

Designing an indicator map, as we have been indicating, requires a theoretical conceptual foundation to guide the selection of issues to address, as well as careful attention to its technical characteristics.

Previously, we mentioned that it should address questions that allow for informing about the effects of the system (effectiveness, efficiency, and functionality), so the indicators to be included must meet, at least, the characteristics of exhaustiveness and exclusivity - already discussed.

The development framework of the Indicator Map is presented below.

As can be seen, five development phases are established, briefly discussed in the table cited:

- **Phase 1:** Determination of evaluative questions to be answered from the Indicator Map
- **Phase 2:** Integration of questions into global aspects of reality analysis contemplated from the Social Cohesion Model.
- **Phase 3:** Validation of the Indicator Map (IM) by a large group of experts
- **Phase 4:** Definition of the computer system and means of disseminating the IM.
- **Phase 5:** Design and preparation of a periodic report on the state of the Health and Education issue.

Table 2: Phases for the Design and Development of the Indicator Map.

Phases	Design Actions	Objectives to Meet	Methodology
Determination of evaluative questions to be answered from the Indicator Map	Judgment committees defining the necessary information to be gathered from the Map. Three specialist committees should be considered: healthcare, education, and social welfare. Subsequently, their proposals should be integrated.	Define relevant information that can be gathered from the three subsystems.	Focus Groups.
Integration of questions into global aspects of reality analysis contemplated from the Social Cohesion Model	Mixed expert committee (healthcare professionals, educators, specialists in social welfare) issuing judgment.	Compose a dual format for information transmission allowing its use in improving service management and provide accountability to society about the situation and measures promoted by administrative/governmental authorities.	Focus Group.
Validation of the Indicator Map (IM) by a large group of experts	Survey of specialists regarding the relevance, pertinence, and susceptibility to change of the elements included in the IM.	Refine the proposal of the Indicator Map, producing a solution that can be assumed to be more representative and, therefore, generalizable.	Survey.
Definition of the computer system and means of dissemination of the IM	Administrative specialists and/or political scientists informing on how it can be better utilized by the general population and researchers regarding the dissemination and distribution of the data included in the IM.	Maximize the utility of the information offered through the IM, for both individual and collective care improvement, administrative management, and research use of the results.	Focus Group.

Phases	Design Actions	Objectives to Meet	Methodology
Design and preparation of a periodic report on the state of the Health and Education issue	Independent specialists (evaluative researchers) producing two types of reports based on the data contained in the IM: a) Primary report, including key data informing the questions raised to be answered through the IM, and b) Secondary report, including specific research informing relevant research elements that can be extracted from it (incidence and prevalence, comorbidity of issues, explanatory-predictive relationships about factors associated with various issues, program management evaluations...).	It aims to meet two major objectives: 1) Inform society and authorities about the state of the Health-Education issue. 2) Provide information to improve the situation, support decision-making, and contribute to knowledge generation.	Evaluative research studies, with complementary perspectives (quantitative and qualitative).

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