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Journal Basic Education

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Presentation of Content

In the first article we present, *Impact of choral singing on the formation of responsibility value in students* by RODRÍGUEZ-JUAN, Arién, RICARDO- RODRÍGUEZ, Sandra Yanet, OSA-RICARDO, Arlena and JONES- SÁNCHEZ, Elisneisis, with adscription in the Universidad Autónoma de Zacatecas, Coro del ICRT, Cuba, Escuela Elemental de Música Alejandro García Caturla and Universidad de Ciencias Médicas, as the following article we present, *Participatory and democratic school management for the development of safe and inclusive learning environments in special education services*, by MEDINA-ROMERO, Rodolfo Ernesto, SALAS-NAME, Sagrario Lizeth, MONREAL-ESQUIVEL, Claudia Elizabeth and SOTO-RIVERA, Jesús Abraham, with adscription in the Secretaría de Educación del Estado de Durango and Universidad Juárez del Estado de Durango, as the following article we present, *Eating habits in students of a University Campus in Jalisco, Mexico* by CAMPOS-BRAVO, Carlos Alberto, GÓMEZ-CRUZ, Zoila, NÚÑEZ-HERNÁNDEZ, Alfonsina and LANDEROS-RAMÍREZ, Patricia, with adscription in the Universidad de Guadalajara, as the following article we present, *Automatic identification of sentiment in unstructured text* by MORALES-CASTRO, José Carmen, PÉREZ-CRESPO, José Armando, PRASAD-MUKHOPADHYAY, Tirtha and GUZMÁN-CABRERA, Rafael, with adscription in the Universidad de Guanajuato.

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Impact of choral singing on the formation of responsibility value in students

Impacto del canto coral en la formación del valor responsabilidad en los educandos

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Abstract

This research constitutes a response to the current need to contribute to the formation of the responsibility value of the 7th grade students of the ESBU: "Desembarco del Granma". Starting from the determination of the problematic situation, choral singing actions are elaborated with different periods, indications and ways of realization that intertwine their implementation with technical-formative elements, as well as general considerations addressed to the selected students. Research methods are used for the theoretical and methodological study with international and national authors in relation to the subject in question, which allow assuming scientific positions and empirical methods were applied for the initial diagnosis. The proposal is implemented in 150 students; it will be evaluated by 5 specialists. The evaluation of the results in practice will be carried out through the application of observation, together with the systematization of experiential experiences, which, when contrasted, will be consistent and will allow confirming the need and effectiveness of choral singing actions, a significant contribution in the practice, with social relevance and scientific novelty, which makes it relevant for the contribution to the formation of the responsibility value of the 7th grade students of the ESBU: "Desembarco del Granma".

Choral singing, Value responsibility

Resumen

Esta investigación constituye una respuesta a la necesidad actual de contribuir a la formación del valor responsabilidad de los estudiantes de 7mo grado de la ESBU: "Desembarco del Granma". A partir de la determinación de la situación problemática, se elabora acciones de canto coral con diferentes períodos, indicaciones y vías de realización que entrelaza su implementación con elementos técnicos-formativos, así como consideraciones generales dirigidas a los estudiantes seleccionados. Se emplean métodos de investigación para el estudio teórico y metodológico con autores internacionales y nacionales en relación al tema en cuestión, que permiten asumir posiciones científicas y se aplicaron métodos empíricos para el diagnóstico inicial. La propuesta se implementa en 150 estudiantes, será evaluada por 5 especialistas. La valoración de los resultados en la práctica, se realizará mediante la aplicación de la observación, junto a la sistematización de las experiencias vivenciales, que al contrastarlo será congruente y permitirá confirmar la necesidad y efectividad de las acciones de canto coral, un aporte significativo en la práctica, con pertinencia social y novedad científica, que lo hace relevante para la contribución a la formación del valor responsabilidad de los estudiantes de 7mo grado de la ESBU: "Desembarco del Granma".

Canto coral, Valor responsabilidad

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Introduction

Singing is an activity of the human species, a natural means of expression common to all races. Its origins go back to prehistoric times, naturally to man's fascination with rhythm, the emission of sounds to identify objects, phenomena and people. These very elementary sounds in their beginnings would later form the inflections of language.

In order to express themselves, primitive man used singing as a means of communication, where he linked his activity to the rhythmic process, i.e. when hitting one stone with another, when clapping his hands in joy for a good hunt or the arrival of rain, when drawing his living reality, as well as other ways of manifesting his primitive art or culture.

According to Hurtado, A (2003), the emergence of music is related to singing because man gave a characteristic stamp to his voice to stimulate the animals that accompanied him in his agricultural tasks or to help himself with the rudimentary farming instruments. Thus appeared the work songs that exist and are used today in some countries. In periods such as the Palaeolithic, Mesolithic and Neolithic, this type of singing was also used, and constitutes the antecedents of what would later receive the name of choir.

According to Saimí Risquet (2012), the word chorus comes from the Greek *ronda*. He also states that Greek choirs were formations of men, women, mixed, or men and children who sang only monodic music (in one voice), usually in the theatre (p.8).

The name choir as we know it today comes from the Middle Ages, a time when the Catholic Church curbed the imagination of the creators of music conceived for collective singing, by establishing strong dogmas in this respect. The chorus arose in ancient Greece as a collective musical and theatrical expression and the term corresponded to the place destined for the dancers in tragedies and comedies. Later the dance itself was called chorus and the number of singers accompanying it was also called chorus. Choral singing was used to worship their deities (gods). In other cultures, such as Hinduism, it was also used to tell legends about the creation of the world.

In Rome, its presence is recorded in musical acts of the Flavian circus, at the time of the emperor Claudius. In ancient Egypt, only men were allowed to sing, because music was considered the immediate hierarchy of the pharaoh and the main musicians in the orchestra of the royal palace were like relatives of the king. In Mesopotamia, it was intimately associated with rites of worship of the stars and gods, and women's choirs were also organised when they received men returning victorious from war.

The existence of organised choirs in Israel is documented in the Old Testament. They were scholastic choirs with instrumental accompaniment whose repertoire was passed down from generation to generation. The choirs were composed of adult men only, although children were allowed to join in.

In the Middle Ages, liturgical chant was formalised, derived from the East: Ambrosian chant, Hispanic chant and Gregorian chant; the first motets appeared, and a primitive polyphony appeared: the organum and the discanto.

In the Renaissance, new forms of choral singing appeared, exchanging melodic themes with profane chant: masses, motets and other religious compositions. Indeed, several secular songs, such as *L'homme armé*, were given the name of masses because their melodies were borrowed by church composers (the procedure was banned at the end of the 16th century). Profane songs are found at carnivals, in the courts and salons of the aristocrats of the time.

At the beginning of the 10th century, in the period known as *Ars antiqua*, polyphony appeared, which made the development of vocal ensembles possible. At first it was sung in two voices and later in three and four voices, although not in the form of a choir but as soloists, trios and quartets. In the 14th and 15th centuries, in the period known as the *Ars Nova*, children became part of the choirs, constituting the treble voices in polyphonic works. The 16th century saw an increase in the number of members and the voices were named according to their tessitura (cantus, altus, tenor and bassus).

In the 17th and 18th centuries, in the periods known as Baroque and Classicism, choirs continued to increase in number and the voices designating their tessitura were named with the current terms (soprano, contralto, etc.). The number of real vocal parts increases. This is the time of the great choral works of Handel, Bach, Vivaldi, Haydn and Mozart (15th-19th century).

Stereophony appeared at this time: these were masses with eight, twelve or even fifty voices, written by the masters of the time; in these masses, several choirs were distributed spatially in the churches, which explains the high number of voices. Even Baroque composers such as Vivaldi used this technique, which then disappeared.

From Classicism onwards, professional choirs sang in concert halls rather than in churches, the space that invited multiple formations disappearing, in order to encourage composers to adapt to the new topology. In the 19th century, during Romanticism, there was a revolution in the world of choral singing with the megalomania of the choral ensembles that came to group together more than eight hundred members and the phenomenon of socialisation, with choirs being considered as a means of solidarity and training for individuals.

In the 20th and 21st century, choral singing continues to have a socialising impact and fulfils inherent functions in the life of a people, both as a means of expressing community feelings and as a resource of religious, political and even military utility.

As choral singing is an artistic manifestation with a great social and educational meaning, individual and collective efforts are essential.

Particularly in young people, choral singing reveals itself as an attractive, enriching and formative alternative that teaches to live together, to share, to be disciplined and to respect others, by communicating life experiences; this is why it is of significant importance in the movement of amateur artists, because it contributes in a positive way to the integral formation of the personality, fundamentally in this stage of human development.

The choir is a representative institution within the universities of the world. Within the artistic-cultural universe of this educational level, it has been present, in one way or another, in the formative process. Choral singing is of special interest due to its characteristics, because it allows integration and the acquisition of values that make a group of students ethically and aesthetically committed human beings, by incorporating the conscience of the individual and collective act.

The presence of choral singing in Cuba dates back to the beginning of the 16th century, but very few references have survived to the present day. This absence is evident in the so-called process of acculturation, defined by the North American culturalist school as: the approximation of one social group to another by contact, that is, the simple transfer of cultural elements from one social group to another.

With the arrival of the colonisers in Cuba, and their interest in establishing their dominion and taking possession of the natural wealth, an attempt was made to exterminate the native population and with it their traditional songs and culture in general. With the Spanish and African migrations, a new culture was formed with manifestations and practices from both cultures.

With the creation of new professional and amateur choirs, the existing repertoire became scarce. Some choral conductors were forced to venture into the world of composition, such as Miguel García (1927), Octavio Marín (1929) and Electo Silva (1930).

This boom was irregular due to the economic situation in Cuba in the 1990s. These groups were summed up in the CTC Choir, the Communications Union Choir, the Havana University Choir, the choirs of the University of Matanzas and the University of Havana Choir.

With the triumph of the Revolution, the rise of choirs increased as a fundamental element in the work with the masses, rescuing the forms and values of our identity. Along with this, new choral groups were formed, such as the Coro del Teatro Nacional de Cuba (1960), which became the Coro Polifónico Nacional, directed by Serafín Pró (1960), the Coro del Teatro Lírico and the Coro del ICRT, as well as various amateur choirs.

In 1961, given the boom in choral work on the island, Santiago de Cuba, today the country's choral capital, created the National Choir Festival, later International (1992), which is attended by the best choral groups in Cuba and foreign guests.

Another important event was the creation in 1963 of the Choral Conducting course at the Amadeo Roldán Conservatory and the National School of Art, where new professionals began to be trained, who were then sent to other socialist countries to complete their studies at different times from 1969 until the 1980s.

The first were Carmen Collado López and Digna Guerra Ramírez, students of Manuel Ochoa at the Municipal Conservatory, followed by another group made up of Argelia Frago, María Felicia Pérez Arroyo and José Antonio Méndez Valencia, graduates of the National Art School with the Hungarian teacher Agnes Kralovszky.

In the 1970s, the amateur movement took a great consolidated development in the National Encounters of University Choirs, the Festivals with Amateur Artists, as well as the preparation of large choral masses for political events such as the first graduation of the Escuela Formadora de Maestros de Topes de Collantes with two thousand voices; the celebrations for the first of May and others.

To achieve this purpose, choral singing can be a way for the integral formation of the student, and build a relationship of trust and cohesion with classmates; singing in a group, consciously and unconsciously incorporates human values, appreciates harmony in order and discipline, both personal and collective, since to sing all together, one must go to the same rhythm, follow the conductor's guidelines, tune and intonation well, as well as knowing how to listen.

On the basis of the experience in choral singing, the student learns musical elements, through technical-vocal exercises, the qualities of sound, vocal typology, the texts of the songs; he/she gets to internalise knowledge about vocal education, in order to be able to apply it to other contexts and create from them. In addition, it develops the affective-volitional sphere and enriches interpersonal relationships with ethics as an important aspect.

When consulting different authors, who deal with topics related to choral singing in professional training, important studies have been revealed, which are reflected in master's and doctoral theses, scientific articles at national and international level such as: Estrada, A.T and Hernández, M (2001); Castillo, J. A (2008); Guerra, D and Sánchez, P (2008); Rivas, M, Bastanzuri M.A, Olivera, M (2013); Alessandroni, N and Etcheverry, E (2013); Fernández, Y, Ramírez, C.Y and Briceño, J. M (2013); Duque, M.C (2015) and Narain, J (2016).

As a result of this exploratory stage, the fundamental deficiencies were revealed, which led to the following scientific problem: How to contribute from choral singing to the formation of the value of responsibility of the 7th grade students of the ESBU: "Desembarco del Granma"? and the objective was set: To elaborate actions of choral singing that contribute to the formation of the value of responsibility of the 7th grade students of the ESBU: "Desembarco del Granma".

Development

According to EcuRed, choral singing is an artistic manifestation of a collective nature, by means of which the vocal technique (singing) is developed in the individual, its organisation and distribution in a choir, as well as the assembly of different national and international works that are interpreted. It is performed in unison or by elaborate strings.

There are various definitions of choral singing, but in general it is said that choirs are samples of the culture of all times because they have been the ideal vehicle in which the masses have grouped together to express themselves musically, as well as making available to a group of people the satisfaction of making music together with few means, since the instrument is possessed by the individual himself: the voice.

At different ages, singing can be collective, individual or organised in small groups or large choral masses, such as those carried out by Villalobos H (1959) in Brazil, of thousands of singers or by means of cantorias, choirs and other vocal combinations.

The pedagogical work of Cuban specialists of recognised scientific value such as Sánchez, P (1998), an illustrious pedagogue of the Enrique José Varona University of the University of Oriente, Borlot, A (2000), Bonne, M (2000), among others, whose results and contributions in research carried out in the field of music education constitute the theoretical and methodological foundations of the continuous improvement of this speciality, adapted to the conditions of the country, the needs and demands posed at different historical moments.

Therefore, it is necessary to take into account the social significance of education, which ensures the transmission and development of cultural heritage; it deploys the adoption of pedagogical models, since it transmits skills acquired and developed by the subjects.

In this sense, the criterion of the Cuban pedagogue Sánchez, P (1998) is assumed, where she takes up musicalisation and its repercussions on the preparation of the music educator. Her criterion favours the formation of an integral general culture, which will contribute to the improvement of the cognitive, affective and psychomotor spheres of the personality, as part of the formation of the individual's personality, for its expression in daily performance. Choral singing as a musical expression contributes to the standards of proper education and social coexistence of human beings in the 21st century.

Choral singing is a form of expression and communication, through the use of music as an artistic manifestation, involving auditions, song, technique and repertoire. For its development, singing skills are necessary, procedures and technical-musical elements are used, it favours the formation of human values and an aesthetic attitude, which are subsequently applied to other contexts, in a way that allows it to enrich interpersonal relationships, on the platform of the ethics required by this discipline. In addition, it allows the expression of accumulated historical and social experience, based on feelings, emotions, moods and experiences.

For this research, choral singing as a musical expression is inserted within the formative process, as an option within the artistic area at school.

When considering the art of group singing from Marxist-Leninist conceptions, it can be used as a suitable tool for social awareness, where aesthetics stands out as a specifically artistic form of understanding reality. In the thesis on educational policy, it is stated that aesthetic education "is aimed at developing in individuals the ability to express and perceive, understand, feel and enjoy artistic beauty and the ideals and feelings that are manifested through art in its various forms".

In this sense, the above is shared, since it is a category that expresses, and concretises in its most generalised form, man's attitudes towards reality, which are multifaceted, as diverse and inexhaustible is the historical and social practice, in whose evolution feelings are formed, needs arise and value criteria about aesthetic categories are consolidated.

According to Frómeta, (1997), the aesthetic categories have a very complex object of study, within which the general laws of the sensitive appropriation of the world by man, the structure and the laws of the development of the artistic activity of society are recognised.

Both small choral groups, as well as large choirs, require a conductor with mastery in the organisation and direction of the group, which constitutes an important social commitment. For this, he/she will use his/her skills as an educator, where his/her image and demands will allow him/her to prepare the rehearsal, to attend punctually, to establish an atmosphere of respect, patience and tenacity become indispensable characteristics.

The correct methodology of choral singing depends essentially on the conductor's ability to guide its members towards a homogeneous work towards truly achievable goals. In this way, it contributes not only to acquiring vocal faculties, but will also benefit the individual with human values that serve his personal integrity. Therefore, it is stated that choral singing encompasses a set of formative actions that in the light of this research requires special attention for its application in students of different educational institutions, for it, with suitable linkage of theory and practice, experience and consciousness, thought and language, stimulating in students a value response shaped by the supreme entity of action.

Values are an important part of the spiritual and ideological life of society and of the inner world of individuals, they are a production of consciousness (social and individual) in the context of social relations given in the activity of the subject and exist in unity and difference with anti-values.

"The word value comes from the Latin valor, valere (strength, health, to be healthy, to be strong). When we say that something has value we affirm that it is good, worthy of appreciation and esteem. In the field of ethics and morality, values are qualities that we can find in the world around us.

Within the value system of society are political, legal, moral, aesthetic, religious, philosophical and scientific values. The content of the value system is a specific expression of the economic, social and class conditions of a particular historical epoch, in its dialectic with the universal human content they contain.

In order to organise the methodological conception of values, it is necessary to take into account a philosophical, sociological and psychological foundation which will provide us with the principles that will illuminate the way for the training we want to carry out. These principles have the dialectical-materialistic approach to the spiritual and ideological nature and the historical-social essence of values.

Karl Marx argued that the essence of man is the whole of his social relations, i.e. that man's personality is an individual reflection of the whole of the social-historical conditions of life. This man moves in the general relations of the society in which he lives, but concretely in the family, the community, in the group where he lives his life, assimilating its norms of conduct, principles, convictions, motivations, receiving daily influence.

Nancy Chacón Arteaga presents different principles that we will assume. By way of example, here are some of them.

1- Multifactorial character of values and the process of their formation: values, as part of the spiritual and ideological life of society and of the inner world of individuals, are influenced and influenced or impacted by multiple factors in the context of social reality, both in the macro and micro social environment in which people are born and develop.

2- Dialectic of the objective and the subjective: The spiritual and ideological nature of values expresses in the form of conceptions, feelings, points of view, ideals, qualities and attitudes, the objective conditions in which people live. In this sense, values are a subjective manifestation (internal construction by the subject in the form of principles, norms, scale of values, convictions) of the material conditions of their existence (socio-economic situation, class position, family environment, quality of life) which generate in the individual the needs, interests, motives and intentions of their relationships, their actions and to a large extent provide the nuance of the social, positive or negative significance that the facts or phenomena have for society and for the individual himself.

Values guide the activity and actions of people towards human improvement and their living conditions by proposing objectives, goals and aims. When taking into account the psychological level, it is mandatory to deal in this work with some essential aspects of the personality that facilitate the understanding in the formation of values.

The authors of this research, that is why, among so many human values, we dedicate special attention to responsibility, for conferring the subject the capacity, which allows him to fulfil his duties, consciously involved, which is demonstrated in the coherence between saying and doing, directed towards a fair moral activity and assuming the consequences of his actions.

The definition of Guillermina Zaldívar Córdón is assumed, who expresses that responsibility is a value cell, each one of the spiritual values intrinsically carries in itself, for its full development, responsibility; this in turn becomes a dimensional value that includes other values; that is why the criterion of the value of responsibility is presented, highlighting among its indicators: the fulfilment of duty, discipline, participation, constancy, decision and the capacity to consciously assume the consequences derived from the action.

In order to achieve the formation of the value of responsibility in students, it is necessary to incorporate content related to some artistic manifestation, and it is therefore of great interest to the author to highlight choral singing as one of the forms of collective musical expression, which contributes to the development of knowledge, skills, habits, personal and social aspects in students, which helps in the acquisition of a solid basic competence, as stated in the current Ministerial School Regulations.

The pianist of Shola Cantorum de Venezuela, Raga (2005) expressed: "Choral singing is therapeutic, it facilitates the identification of people, it allows them to accept themselves as they are through the magic of the union of many diverse people for a common good (...). Choral singing is a school of life". (In: EcuRed. 2019, p. 3)

This approach is assumed by the author of the research, since choral singing stimulates secondary school students, has a mobilising effect, allows the knowledge of socio-cultural roots and constitutes an ideal tool in the restoration of human balance, so that it is applicable for life; it is a successful representation to use time usefully and creatively, to channel concerns and simultaneously performs in the individual an ethical and aesthetic elevation, as well as the possibility of expressing through singing, feelings, emotions and perceptions of the world.

Choral singing, besides forming in the participants the value of responsibility, develops collectivism, humanism, solidarity, patriotism, anti-imperialism, respect, honesty, honesty, modesty, simplicity, humility, selflessness, unselfishness, a sense of fairness, love of study and work, among other values that improve the behaviour of the individual and enhances the way of acting in the personality.

An example of this vision is expressed by the pedagogue Ponsoda (2005) who stated that "choral singing is very important for the pleasure derived from the effort to achieve good collective music, providing disciplined men and women, and of noble character, its value in this aspect is incalculable" (p.79).

The practice of choral singing favours social awareness, the understanding of reality, which is concretised in some way in the formative and cultural policy carried out by the Cuban Revolution throughout its history, contextualised to the concrete historical moment, to the demands of the Ministerial Programme of Educational Teaching in Cuba and with the relation of the academic components, respectively.

Consequently, it is important to highlight in the proposal that the form of organisation used is the workshop, where the author follows the criteria of Calzado, D (1998), which states that it is "a form of organisation, (...) that agrees with the problematising and developmental conception of education insofar as, in it, the aim is to bridge the dichotomy that occurs between theory and practice; production-transmission of knowledge, skills-habits; research-teaching; thematic-dynamic" (p.12).

Conclusions

The evaluation of the theoretical references of Choral Singing, had as a general starting point, the historical background and the benefits that Choral Singing provides to the formation of the students' value of responsibility. Theoretical-methodological considerations of Choral Singing were deployed for the usefulness and development of vocal and educational skills, which strengthen in a positive way, not only the musical skills, but also the personal qualities of the students.

The analysis of the referential theoretical framework allowed an approach to the reality and actuality of the subject, its particularities in Cuba, which made possible the conceptual positionings established by Sánchez P (2003) and Báxter E. (2006), by constituting the premises in the benefit and importance of Choral Singing for the formation of the value of responsibility of the students, an opportune aspect due to its pertinence in this formative scenario.

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Participatory and democratic school management for the development of safe and inclusive learning environments in special education services

La gestión escolar participativa y democrática para el desarrollo de entornos de aprendizaje seguros e inclusivos en los servicios de educación especial

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Abstract

Safe and inclusive learning environments represent an option for the attention of children with special needs in education services in accordance with the goals of the 2030 agenda, a proposal ratified by the New Mexican School through participatory and democratic management. Objective: to describe how participatory and democratic school management can influence the achievement of safe and inclusive learning environments in special education services. Methodology: a desk research was conducted as recommended by Uddin (2010), gathered data in bibliographic sources related to participatory and democratic school management, safe and inclusive learning environments and special education services, mainly informative desk research resources were used according to Esmeral (2022); in order to formulate a range of possibilities for the development of safe and inclusive environments in special education services taking into account the objectives of participatory and democratic management. Contribution: a vision of how participatory and democratic school management can favor the development of safe and inclusive learning environments in special education services is presented.

Participatory and democratic school management, Safe and inclusive learning environments, Special education services

Resumen

Los entornos de aprendizaje seguros e inclusivos representan una opción para la atención de las y los niños con requerimientos de atención de los servicios de educación de acuerdo con las metas de la agenda 2030, propuesta ratificada por la Nueva Escuela Mexicana a través de la gestión participativa y democrática. Objetivo: describir la manera en que la gestión escolar participativa y democrática puede influir en el logro de entornos de aprendizaje seguros e inclusivos en los servicios de educación especial. Metodología: se efectuó una investigación documental como recomienda Uddin (2010), reunieron datos en fuentes bibliográficas relacionados con la gestión escolar participativa y democrática, los entornos de aprendizaje seguros e inclusivos y los servicios de educación especial, se utilizaron sobretodo recursos de investigación documental informativa de acuerdo con Esmeral (2022); a fin de formular un rango de posibilidades para el desarrollo de ambientes seguros e inclusivos en los servicios de educación especial teniendo en cuenta los objetivos de la gestión participativa y democrática. Contribución: se presenta una visión de la manera en la que la gestión escolar participativa y democrática puede favorecer el desarrollo de entornos de aprendizaje seguros e inclusivos en los servicios de educación especial.

Gestión escolar participativa y democrática, Entornos de aprendizaje seguro e inclusivo, Servicios de educación especial

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Introduction

Education is a powerful instrument for improving the quality of life of the population. A commitment voluntarily accepted by the Mexican state, which joins the international proposals that promote its improvement. These proposals are ratified in its educational policies and designed by its actors to offer better learning opportunities to the population that attends, in this case, special education services.

In this regard, safe and inclusive learning environments represent an option for the care of children with special needs in education services in accordance with the goals of the 2030 Agenda. Likewise, the commitment of the staff of special education services is broad as they accept their role to contribute to the improvement of the service provided in line with international and national proposals that seek to improve the quality of educational care for the population with special education care requirements, putting into practice innovative proposals such as participatory and democratic school management in order to create safe and inclusive learning environments, as proposed in the New Mexican School (NEM) project.

Objective

To describe how participatory and democratic school management can influence the achievement of safe and inclusive learning environments in special education services.

Theoretical framework

The theoretical support that underpins the situation presented here presents in hierarchical order the information identified as fundamental to the subject matter of this inquiry. In 2015, the objectives of the 2030 Agenda for Sustainable Development for Latin America and the Caribbean were approved. Sanctioned in a general assembly by the 193 member countries of the United Nations (UN), of which Mexico is a member, through the Economic Commission for Latin America and the Caribbean (ECLAC, pp. 15-16).

There are 17 goals defined for sustainable development associated with this agenda, planned to contribute to the sustained, inclusive and harmonious development of the region.

In relation to the education sector, the goal for sustainable development is: to ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all.

Likewise, with the goals that make up this objective, the aim is in relation to special education enrolment:

- To have education facilities that are sensitive to the needs of children and persons with disabilities and gender differences, and that safe, non-violent, inclusive and effective learning environments are provided for all.
- Ensure equal access to education and job training for vulnerable people, including persons with disabilities, indigenous peoples and children in vulnerable situations (e.g. street children, those displaced by insecurity, and those with health problems, among other conditions).
- The achievement of relevant and effective learning outcomes.
- Developing skills for employment, decent work and entrepreneurship.
- Significantly increase the supply of qualified teachers.

The New Mexican School

The NEM is a structure that prioritises attention to disadvantaged populations in order to guarantee equal learning opportunities for all Mexicans. Its proposal guarantees inclusive, equitable and quality education in line with purpose 4 of the 2030 agenda (SEP, 2019, pp. 3, 8, 9). It proposes the promotion of lifelong learning opportunities for all, visualising the achievement of the above through the integration of the community in the management processes of educational services.

The NEM's conception of education promotes the transformation of society as a democratic mechanism for social transformation and highlights the principle of respect for human dignity, appreciation for individuals, non-violence and the pursuit of the common good.

Thus, under the principle of promoting a culture of peace, it aims to encourage constructive dialogue, the search for agreements and coexistence within a framework of respect for differences at all levels and in all forms of education.

Two pedagogical proposals have so far been promoted for the NEM:

- Participatory and democratic school management.
- Day-to-day educational practice.

Participatory and democratic school management

The NEM promotes a participatory and democratic school management with the effective commitment of all members of the community and also promotes new forms of interaction between the different educational actors, for the achievement of the pedagogical intentionality in and with the active participation of the educational community (SEP, 2019, p. 17-18).

In terms of this pedagogical proposal, 3 main objectives can be seen in order to transform the actions of the educational actors:

- Collaborative work
- Dialogue
- Accompaniment

Collaborative work is conceived in the NEM as the active participation of all educational actors in a constant exchange of knowledge, opinions, experiences and suggestions for the strengthening of the teaching and para-teaching functions; in order to weigh up the tasks that should be maintained, because they are carried out in a recommendable manner, and to determine those that should be modified. The challenge is to make the processes and participation of the actors involved in educational action more dynamic.

It is therefore important to establish the conditions for an active dialogue that allows for permanent questioning and the evaluation of new courses of action.

This in turn implies undertaking reflective processes that lead to concrete actions in the classroom, avoiding the monopolisation of decisions and encouraging the participation of all members of the educational community.

In terms of practical accompaniment, it is suggested to be attentive to changes in school dynamics in daily practice, in order to strengthen the work of teachers and para-teachers. Therefore, the interaction of teachers, para-teachers, technical pedagogical advisors and management staff in feedback processes that motivate them to become decisively involved in teaching and learning is considered fundamental.

In order to achieve the purposes of the pedagogical proposal of the NEM, it is suggested to generate learning communities in which all actors have the same opportunities to be included and to participate by sharing and valuing opinions, experiences and proposals for the improvement of learning and teaching and para-teaching competences and therefore the sustained progress of the school and learning community.

“A learning community is a collective that is involved in an educational project, in a cooperative and supportive process based on a diagnosis, especially of its strengths in order to improve its weaknesses. It is based on alliances and networks with the inclusion of community referents, professionals, educational agents and different institutions. In order to produce the desired effects, it must have as its starting point the conviction of the school and the staff” (Krichesky, 2006, pp. 30, 37, 48).

It involves participatory and democratic institutional work (a process of recognition of the educational institution and the community, with shared work) for the benefit of the action of each of the actors involved (educational authorities, teachers, para-teachers, administrative staff, families and students), to complement each other and ensure safe and inclusive care.

Safe and Inclusive Learning Environments in Special Education

Rephrasing Carletti (2014) the contributions of participatory and democratic educational management outlines a series of considerations in its various dimensions (pedagogical, administrative, organisational and community) to be taken into account for the development of safe and inclusive learning environments (pp. 1,4,7,8,9).

Special education services in our country are characterised by the changes in educational principles and practices that, since the 1940s, have been bringing them closer to the creation of welcoming and accepting communities that are gradually approaching the creation of safe and inclusive learning environments.

These spaces constitute a system of values, beliefs and attitudes; with a strong commitment of its actors for the achievement of educational objectives and intentions, with the intention that students learn what they have to learn and teachers develop the competences that allow them to do so, promoting innovation and change in schools, adapting to current educational proposals such as those currently proposed in the 2030 agenda and the NEM, for the development of safe and inclusive learning environments in special education services with the support of participatory and democratic school management.

Methodology

In order to develop this paper, desk research was conducted as recommended by Uddin (2010) for social research. In view of the objective of this research, data collected from literature sources related to participatory and democratic school management, safe and inclusive learning environments and special education services were gathered.

In such a way that mainly informative documentary research resources were used according to Esmeral (2022); with the intention of deriving a range of possibilities for the development of safe and inclusive environments in special education services taking into account the objectives of participatory and democratic management.

Procedure

In the procedure followed for the elaboration of this paper, a logic of data reduction and presentation was followed for the extraction and verification of conclusions that allowed us to visualise how the implementation of the objectives of participatory and democratic school management can contribute to safe and inclusive learning environments in special education services.

The definition of the situation to be analysed, the statement of the objective and the elaboration of arguments around the aforementioned theme were the first steps that guided this research.

Once the information had been gathered, it was organised and systematised in order to present the results found, categorising the data found in a coherent and orderly manner with the aim of reaching conclusions that made it possible to propose some possibilities for the promotion of safe and inclusive spaces in special education services, taking into account the objectives of participatory and democratic school management.

Outcomes

Among other goals of the 2030 agenda, it is necessary to have educational environments that take into account the needs of children and people with disabilities (ECLAC, 2015, pp. 15-16), outstanding abilities and learning disabilities, in order to provide safe, non-violent, inclusive and effective learning environments for all.

Participatory and democratic school management is the pedagogical approach of the NEM that drives the development of safe and inclusive learning environments in special education services.

The mass of data collected gained meaning by giving it structure in the process of organising it with the intention of describing how the implementation of the aims of participatory and democratic school management influences the achievement of safe and inclusive learning environments in special education to ensure inclusive, equitable and quality education while promoting lifelong learning opportunities for all.

The purposes of participatory and democratic school management are aimed at fostering collaborative spaces for dialogue between the actors of the communities formed in special education services to identify good practices in the implementation, monitoring and evaluation of educational proposals in order to also generate proposals for accompaniment for the achievement of this task.

Conclusions

The conclusions derived from this research were obtained by visualising the social and economic conditions in which education is provided in our country, the proposals of the NEM and the scope of participatory and democratic school management for the achievement and improvement of safe and inclusive learning environments in special education.

According to ECLAC, Mexico is located in a territory where poverty is not the biggest problem. The greatest difficulty lies in inequality (2015, p. 5).

Likewise, Mexico is a country considered to be very inequitable and unequal, especially in the economic, social and educational conditions experienced by people with few resources, those of indigenous origin, migrants, women, inhabitants of rural regions and the population with disabilities, outstanding skills and any disorder that conditions their learning (Educación Futura, Public Interest Journalism, 2022, paragraph 1).

Therefore, after a careful documentary review, the exploration focused on the objectives that characterise participatory and democratic school management for the achievement of safe and inclusive learning environments in order to base the analysis on the educational requirements detected by international organisations such as ECLAC and the agreements signed and ratified by the Mexican government, despite the socio-economic conditions of our country.

Participatory and democratic school management is a resource that can foster safe and inclusive learning environments in special education services.

Therefore, to manage is to make educational purposes possible by creating the conditions for deep reflection and projecting it in institutional projects (Carletti, 2014, p. 14) from participatory and democratic management so that students with special education requirements receive care in safe and inclusive environments.

Proposal

This point proposes a range of possibilities for promoting safe and inclusive spaces in special education services, taking into account the theoretical references found:

Guarantee equitable access to special education services for the population with disabilities, outstanding abilities or any disorder that conditions the achievement of learning.

Promote safe and inclusive learning environments in special education services, strengthening their capacity to fully develop the objectives of participatory and democratic school management.

Promote inclusive, democratic and participatory education focused on the potential of learners, with the decisive, differentiated and linked intervention of each member of the educational community (management, teachers, para-teaching staff, administrative staff, students and community representatives).

Ensure that special education care is provided in safe and inclusive environments for both students and staff.

All of the above linking the search for proposals with an investigative stance that allows us to unveil the shaping aspects of each institution, in order to make truly significant changes in school management that allow us to overcome the obstacles and barriers (Carletti, 2014, p.16) that prevent special education services from being safe and inclusive environments.

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Eating habits in students of a University Campus in Jalisco, Mexico

Hábitos alimentarios en estudiantes de un Centro Universitario en Jalisco, México

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Abstract

The objective of the work was to know the eating habits of students of the University Campus of Biological and Agricultural Sciences, in Jalisco, Mexico. An online questionnaire was applied to 229 students, about the frequency of food consumption, grouping them into three categories of food (not healthy, unhealthy and healthy), hours and number of meals per day, influence of stress on the amount of food consumed and information about breakfast. The results showed that 29.3% of the students followed an not healthy diet, 40.6% unhealthy and 30.1% healthy; 55.5% had the three main meals, 62.9% did not comply with meal times. In stressful situations, 52.4% ingested a greater amount and 31% a smaller amount of food; 96.9% usually eat breakfast. The students surveyed presented an inadequate diet, with a deficient intake of fruits and vegetables, in addition to omitting some meal time and not complying with the recommended feeding schedules. It is essential to promote healthy eating habits in students, as well as implement strategies to access healthier foods in the university environment that allow improving the quality of the diet, which can influence health and academic performance.

Eating habits, Students, Food consumption

Resumen

El objetivo del trabajo fue conocer los hábitos alimentarios de estudiantes del Centro Universitario de Ciencias Biológicas y Agropecuarias, en Jalisco, México. Se aplicó un cuestionario en línea a 229 alumnos, sobre la frecuencia de consumo de alimentos agrupándolos en tres categorías de alimentación (no saludable, poco saludable y saludable), horarios y número de comidas realizadas al día, influencia del estrés sobre la cantidad consumida de alimentos e información del desayuno. Los resultados mostraron que 29.3% de los alumnos seguía una alimentación no saludable, 40.6% poco saludable y 30.1% saludable; el 55.5% realizaba las tres comidas principales, 62.9% no cumple con los horarios de comida. En situaciones de estrés el 52.4% ingiere una mayor cantidad y 31% una menor cantidad de alimentos; el 96.9% acostumbra desayunar. Los alumnos encuestados presentaron una alimentación inadecuada, con una ingesta deficiente de frutas y verduras, además de omitir algún tiempo de comida y no cumplir con los horarios de alimentación recomendados. Es fundamental promover hábitos de alimentación saludable en los estudiantes, así como implementar estrategias de acceso a alimentos más saludables en el entorno universitario que permitan mejorar la calidad de la dieta lo que puede influir en la salud y el rendimiento académico.

Hábitos alimentarios, Estudiantes, Consumo de alimentos

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1. Introduction

For adolescents, the start of university studies is an important stage that represents a period of increased responsibility in different aspects of life. At this stage, food choices and healthy lifestyle practices acquired in childhood often change and therefore many students do not have the experience of food shopping, planning and preparing their meals (Papadaki *et al.*, 2007). In addition, decision-making and independence increase, as university entrance for many students involves family separation, meeting new fellow students, and managing high levels of stress and time (Fernández and López, 2019). Numerous studies have observed inadequate eating habits among university students in different countries. Various reasons affect food choices in this young population such as migrating to another city with the consequent uprooting of the family, little money available, as well as the increased supply of fast food and less time available to prepare food (Irazusta *et al.*, 2007; Papadiki *et al.*, 2007), factors such as work and school schedules affect the choice and consumption of meals during the day (Duarte-Cuervo *et al.*, 2015).

The university stage is a critical period from the point of view of consolidating healthy lifestyle habits, both in terms of eating and physical activity, since habits are acquired at this stage that in most cases will continue into adulthood (Robledo *et al.*, 2014). Ibarra *et al.* (2019), point out that maintaining the development of healthy eating habits is essential for the learning process and academic achievement. A healthy and balanced diet is characterised by being varied with respect to food and adequate in terms of quantity and quality, so that it allows for proper functioning and ensures nutrition (Ibarra *et al.*, 2019). Diet is of enormous importance not only to ensure adequate growth and prevent specific nutritional deficiencies, but also to prevent diseases that can occur in adulthood (Pérez, 2020), both the amount of energy consumed and its distribution during the day and the balanced combination of the different food groups are important (Martín-Aragón & Marcos, 2008). According to the Mexican Ministry of Health (SS, 2013), the recommendation for an adequate diet is to eat three full meals a day at regular times and to incorporate one food from each food group at each meal.

Several studies highlight the influence that breakfast has on physical and intellectual performance in morning activities and it is considered one of the most important meals in an individual's diet (Kalen *et al.*, 2011). In this regard, López-Sobaler *et al.* (2018) report that eating a sufficient, varied and quality breakfast is associated with multiple nutritional and health benefits, which are part of a healthy dietary pattern. Muñoz *et al.* (2020), point out that some authors describe the importance of breakfast in young people as it has a positive effect on thinking functions, especially in aspects related to analysis, attention, class performance and academic performance.

Diet and nutrition are very important in promoting and maintaining good health, especially in university students as they can influence their lifestyle and academic performance. Therefore, the aim of this study was to learn about the dietary habits of students at the University Campus for Biological and Agricultural Sciences of the University of Guadalajara.

2. Methodology

This is a descriptive and cross-sectional study that was carried out at the University Campus for Biological and Agricultural Sciences (CUCBA) of the University of Guadalajara, through an online survey, a questionnaire was applied to 229 students using the Google Forms tool to find out about their eating habits.

The purpose of the study was explained to the young people and the information was collected, obtaining their informed consent and guaranteeing their confidentiality. The protocol for this study was endorsed by the Departmental College of the Department of Public Health and the Research Coordination of the University Campus of the University of Valencia.

Students who provided incomplete data were excluded from the study. The questionnaire included questions on the frequency of food consumption (1-2 times, 3-4 times, and 5-7 times per week), the description of the foods according to their category or group is shown in table 1.

Based on the frequency of food consumption, the surveyed students were grouped into three food categories: “not healthy”, “unhealthy” and “healthy”; they were asked about the number of meals eaten per day, whether they considered having a correct diet and eating adequate portions of food, meal times, influence of stress on the amount of food consumed, and they were also asked about breakfast.

| Food groups | Description of food |
|-----------------------|--|
| Food of animal origin | Beef, pork and chicken, eggs and fish. |
| Milk | Milk and yoghurt. |
| Fruit | Apple, banana, orange, tangerine, mango, etc. |
| Vegetables | Chayote, pumpkin, carrot, broccoli, cauliflower, etc. |
| Cereals | Tortilla, biscuits, pasta, rice or oatmeal. |
| Legumes | Beans, broad beans, chickpeas or lentils. |
| Sugars | Soda, jam, sugar, honey, sweet breads or biscuits. |
| Fat | Butter, lard, frying oil, mayonnaise, cream or dressing. |

Table 1 Food groups and their description

Source: Direct

3. Results

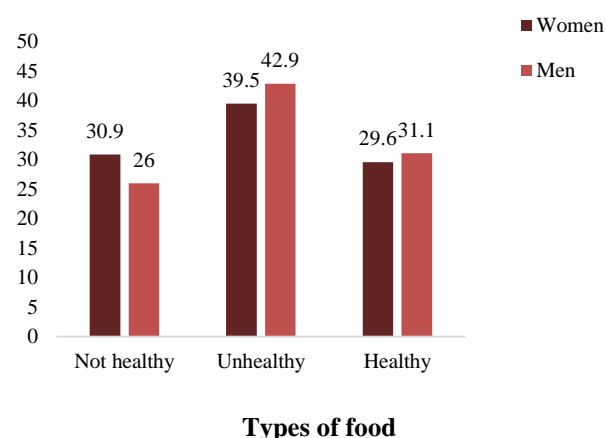
A total of 229 students were surveyed, 66.4 % (n=152) female and 33.6 % (n=77) male, with a higher proportion of students aged between 18 and 23 years, the distribution by age group is shown in table 2.

According to the frequency of food consumption, in general it was observed that 29.3% (n=67) of the students surveyed had an not healthy diet, 40.6% (n=93) had an unhealthy diet and only 30.1% (n=69) had a healthy diet, the results by gender are shown in graph 1, highlighting that a higher percentage of females had an unhealthy diet compared to males.

| Age group | Women n (%) | Men n (%) | Total n (%) |
|-------------|-------------|------------|-------------|
| 18-20 years | 57 (24.8) | 26 (11.4) | 83 (36.2) |
| 21-23 years | 67 (29.2) | 27 (11.8) | 94 (41.0) |
| 24-26 years | 15 (6.6) | 15 (6.6) | 30 (13.2) |
| > 26 years | 13 (5.7) | 9 (3.9) | 22 (9.6) |
| Total | 152 (66.4) | 77 (33.6%) | 229 (100) |

Table 2 Distribution by age group and gender of students

Source: Direct



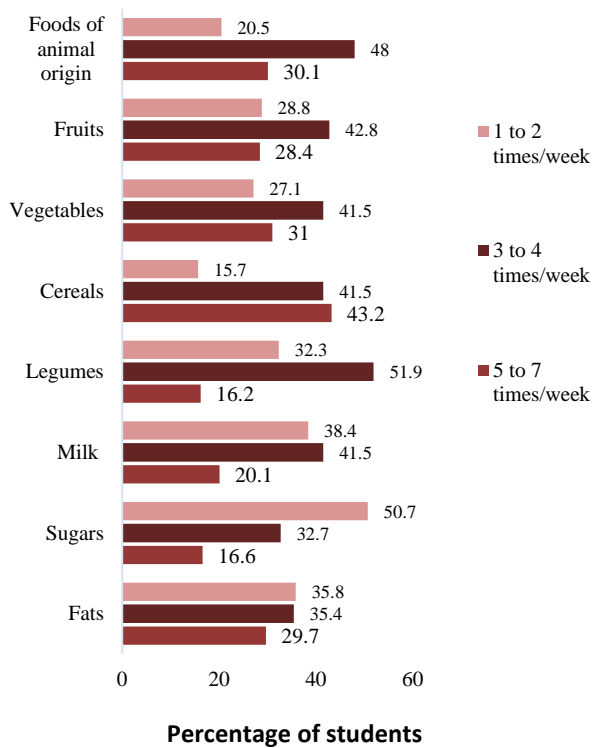
Graph 1 Type of food of the surveyed students at the University Centre

Source: Direct

The frequency of consumption by food group is shown in graph 2, showing that in the frequency of adequate consumption (5 to 7 times per week), only 30.1 % of the students consume animal foods, 28.4 % and 31 % eat fruit and vegetables respectively, daily or almost daily.

In relation to the number of main meals (breakfast, lunch and dinner) eaten per day, 55.5% (n = 127) consumed all three meals, while 38% (n = 87) mentioned eating only one or two meals. In terms of meal times, 37.1% (n=85) of the students stated that they follow these times, while 62.9% (n=144) do not, the main reasons being the time they spend travelling to the University Campus, school timetables, work and/or other activities.

Of the students surveyed, 18.8% (n=43) consider that they have an adequate diet, however, the majority (81.2%, n=186) think that they do not eat properly, of these, 46.3% (n=106) mention that this is due to the activities they do (homework, work, etc.), 13.5% (n=31) do not have enough money and 21.4% (n=49) say that due to lack of time.



Graph 2 Frequency of food consumption in students of the University Center
Source: Direct

Regarding the portions of food consumed by students, 32.8% (n=75) think that the portions are adequate, while 31.4% (n=72) believe that they are not, and 35.8% (n=82) do not know. When asking about the influence that stressful situations have on food intake, the results showed that 52.4% (n = 120) of the students surveyed ingested a greater amount, 31.0% (n = 71) a smaller amount and only 16 % (n = 38) maintain their normal consumption.

Regarding breakfast, 96.9% (n = 222) of the students mentioned having this meal time, of these, 39.7% (n = 91) used to have breakfast in the cafeteria or in the food stalls of the University Campus, 37.1% (n=85) at home, 20.1% (n=46) in the CUCBA gardens and 3.1% (n=7) said they did not eat breakfast.

4. Discussion

International organizations such as the World Health Organization (WHO) and the Pan American Health Organization (PAHO) point out that "maintaining a healthy diet throughout life prevents not only malnutrition in all its forms, but also a variety of non-communicable diseases and other health conditions" (OMS/OPS, 2022).

This study reveals an not healthy and unhealthy diet in 69.9% of the students surveyed, when analyzing the results according to the frequency of consumption (daily or almost daily) a low percentage was observed in the consumption of fruits and vegetables, similar to what was found by other authors (Mardones *et al.*, 2021; Ponce *et al.*, 2019), and which differ from what was reported by Díaz-Muñoz (2018).

Becerra-Bulla *et al.* (2015), mention the importance of these food groups for their nutritional contribution (antioxidants and fiber) as a health benefit. Troncoso (2011) and Valdes-Badilla *et al.* (2015), point out that carrying out a healthy diet is the basis for having optimal health as well as preventing the development of certain diseases, in the case of university students it is of special importance since several studies relate a good diet with adequate academic performance adequate academic (Hernández *et al.*, 2020; Pinos *et al.*, 2019; Stea & Torstveit, 2014).

Díaz-Muñoz (2018), in a study carried out on university students, found that 75% of the students habitually consumed the three main meals (breakfast, lunch and dinner) while in this study 55.5% of the students ate these meal times, data that coincides with what was reported by Martínez-Hernández *et al.* (2021), in this regard Becerra-Bulla *et al.* (2015), indicate that the exclusion of a main meal may be due to the academic load such as excessive homework and evaluations, separation from the family, the time spent traveling to the university campus, economic problems, lack of knowledge on nutritional aspects, etc., Pi *et al.* (2015), refer to the fact that the consumption of 3 to 4 daily intakes seems to be associated with an adequate energy intake and better control of body weight.

Various studies indicate that students perceive their eating behaviors as inappropriate, some of the reasons being the lack of time to make meals at school, or the lack of habits to comply with eating schedules (Concha *et al.*, 2019; Troncoso and Amaya, 2009).

Montero *et al.* (2006), indicate that the state of mind influences the choice of food, who affirm that both stress and sadness, anxiety or boredom affect in a different way the way we relate to food, sometimes increasing the intake as is the case of stress or decreasing in situations of sadness. In the present study it was found that academic stress situations influenced the consumption of a greater amount of food, Ramón-Arбуés *et al.* (2019), showed that not healthy eating is associated with some level of anxiety, depression and stress, in addition, there are other factors that influence eating habits such as emotional state, advertising, the preference of certain foods and the company from other students, which encourages young people to eat not healthy foods (Troncoso and Amaya, 2009).

Breakfast is considered an important part of a healthy lifestyle, several studies have linked the association between breakfast and health benefits, including better nutritional status and lower cardiovascular risk (Deshmukh-Taskar *et al.*, 2013; Odegaard *et al.*, 2013). In the present study, it stands out that the majority of students eat breakfast daily, either at home, in the cafeteria or in food stalls at the University Campus; these results are similar to other studies (Karlen *et al.*, 2011; Ponce *et al.*, 2019) and differs from what was found by Duarte-Cuervo *et al.* (2015) and Ratner *et al.* (2012). Although most of the students mentioned eating breakfast daily, the nutritional quality of these foods was not investigated in this study.

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Conclusions

According to the data found, the university population studied presented an inadequate diet regarding the consumption of certain food groups, with a deficient intake of fruits and vegetables, as well as omitting some meal time, in addition to not complying with eating schedules recommended.

It is important to promote the education of adequate eating habits in students, as well as to implement strategies for access and availability of healthier foods in the university environment that allow improving the quality of their diet and therefore their health and academic performance, associated with institutional support to create permanent support and follow-up programs for students who live in a state of vulnerability in the field of food and nutrition.

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Automatic identification of sentiment in unstructured text

Identificación automática de sentimientos en textos no estructurados

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Abstract

The constant increase of information in digital format forces us to have new tools that allow us to download, organize and analyze the information available on the web. One of the analyses performed on unstructured information is polarity identification. In this paper we present a method to carry out polarity identification in unstructured texts. Specifically, texts downloaded from the social network Twitter are used. The current popularity of social networks, has caused a great prominence among different users for the generation of information day by day. Twitter presents us with a great challenge in the automatic processing of natural language, mainly when the number of opinions is very large and automatic processing is required. In our case, in the determination of the polarity contained in a tweet. In this paper we present results obtained using different machine learning methods widely known in the state of the art, such as: Support Vector Machine, Naive Bayes, Logistic Regression, Nearest Neighbors and Random Forest, which are used in two implemented classification scenarios: cross-validation and training and test sets. Two data sets are used for the evaluation of the implemented methodology. The best results are obtained with Support Vector Machine for both datasets, the obtained accuracy values higher than 83 % allow to see the viability of the implemented methodology.

Machine Learning, Natural Language Processing, Text Polarity

Resumen

El incremento constante de información en formato digital nos obliga a contar con nuevas herramientas que nos permitan descargar, organizar y analizar la información disponible en la web. Uno de los análisis que se realiza a la información no estructurada es la identificación de sentimientos. En este trabajo se presenta un método para llevar a cabo la identificación de sentimientos en textos no estructurados. Específicamente se utilizan textos descargado de la red social Twitter. Los textos utilizados para la evaluación de la metodología propuesta corresponden a opiniones emitidas en el marco de las elecciones realizadas en la India en el año 2019. En este trabajo se presentan resultados obtenidos utilizando distintos métodos de aprendizaje automático ampliamente conocidos en el estado del arte, como son: Support Vector Machine, Naive Bayes, Regresión Logística, Vecinos más cercanos y Random Forest, los cuales son utilizados en dos escenarios de clasificación implementados: Validación cruzada y conjuntos de entrenamiento y prueba. Para la evaluación de la metodología implementada se utilizan dos conjuntos de datos. Los mejores resultados son obtenidos con Support Vector Machine para ambos conjuntos de datos, los valores de precisión obtenidos superiores al 83 % permiten ver la viabilidad de la metodología implementada.

Aprendizaje Automático, Procesamiento de lenguaje natural, Polaridad de textos

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1. Introduction

Natural language processing is a branch of artificial intelligence that deals with the production of computer systems that allow computer-human communication through natural language, providing different efficient computational communication mechanisms, as well as the comprehension of texts written in the same language, where a large part of human knowledge is digitised. Natural language processing makes it easier to analyse these large volumes of available textual information [1]. The use of these tools has led to the emergence of several areas of technological development, among which we can highlight text mining and information retrieval.

We must bear in mind that text mining is a discipline that allows us to extract relevant information from large amounts of text. The type of text that can be found can be structured or unstructured content, the former is characterised by having a pre-established order in its content while unstructured content lacks some kind of order or structure [2]. Table 1 presents examples of structured and unstructured documents, as well as their definition.

| Text | Example |
|--|---|
| Structured: Text written in a format or template, usually xml or html, with tags for each part of the document. | -Research articles -Newspaper articles -Magazine archives -Books |
| Unstructured: Data that lacks an identifiable structure or architecture. | -Opinions expressed on social networks: YouTube, Facebook Twitter, LinkedIn, Etc. |

Table 1 Definition and examples of Structured and Unstructured Texts

Sentiment identification, specifically the identification of polarity, i.e. the positive or negative charge of an unstructured text, is still an open research topic and several authors make their proposals to contribute to the solution of this problem.

For example, in [3] they use the machine learning algorithms Naive Bayes, Maximum Entropy and Support Vector Machine (SVM) that present greater accuracy when trained with data containing emoticons. To train them emoticons were taken as noisy labels, e.g. a tweet containing ":)" indicates a positive sentiment and ": (" indicates that the tweet contains negative sentiment, then they remove emoticons from the training data as leaving emoticons can have an inverse impact on the accuracies/results of the Maximum Entropy and SVM classifiers, but a minor effect on the Naive Bayes classifiers, this is due to the inequality in the arithmetic models and the aspect weight selection of Maximum Entropy and SVM. In terms of feature space they use unigrams.

However, automatic processing in unstructured text is not only applied in polarity identification, for example in [4] they apply different related data mining techniques to identify possible eating disorders in users, collecting data from the social network twitter and using a tool called T-Hoarder, which allows selecting tweets related to certain keywords or a specific user via Twitter's streaming API. They then apply text mining and natural language processing techniques to generate predictive models using different supervised machine learning techniques such as random forests, neural networks and a model known as Bidirectional Long Short-Term Memory; managing to generate predictive models capable of classifying tweets and being able to determine whether or not the tweets belonged to people suffering from an eating disorder, informative or opinion tweets and tweets of a scientific nature or not, obtaining an 87.5% accuracy rate with the BERT model.

In [5] they implement different preprocessing techniques on a corpus with misogynistic opinions in the Spanish language through tools and libraries such as Freeling, NLTK, Spaceling among others in order to train a classifier that shows us whether a tweet has misogynistic content or not. For this, the author trained 4 models with 21 different corpora generated with the combination of different preprocessing techniques where 20 of these sets showed an accuracy greater than 75%, obtaining the best result using Artificial Neural Networks with bigrams with 82.59% for the detection of misogyny.

In [6] the authors present some techniques used for the review of sentiment analysis, which help to automatically determine the polarity in a text, the most common being those based on machine learning which is an important part of Artificial Intelligence, as it develops programs through learning algorithms and knowledge generation capable of learning to solve problems, within the possible applications that can become as useful as different, It is worth mentioning that sentiment analysis is not only focused on identifying polarity in opinions expressed through subjective texts, as this task can go much further, even allowing the identification of particular feelings such as the classification of primary feelings such as joy, sadness, anger and fear among others.

The present work addresses the problem related to the processing of short texts extracted from the social network Twitter, in order to identify the positive, negative or neutral orientation in the texts about the acceptance or discontent of the Hindu society related to the topic of the elections in India in the year 2019, where the extracted texts belong to messages issued in this social network.

The aim of this paper is to identify the polarity of an opinion expressed. Generally, polarity ranges from negative (-1) to positive (1) through neutral (0), the latter value meaning that no sentiment or opinion has been expressed [7]. Table 2 shows some examples of tweets from this database.

| Tweet/Comentario | Polarity |
|---|----------|
| For your own benefit you may want read living Buddha living Christ thich nhat hanh you might find an... | 1 |
| Jesus was zen meets jew | 0 |
| Does evil include the lady pai chunked | -1 |

Table 2 Examples of positive, negative and neutral tweets from the database used

The main objective is to be able to classify the orientation of a short text in an effective way, using different machine learning algorithms, where the methodology of the work consists of obtaining the database that contains all the necessary information to be analysed, once this data has been processed, machine learning algorithms will be used to help us predict the polarity of the text, and thus be able to compare the results obtained and calculate the efficiency of the algorithms used.

Different organisations and institutions need to use this type of methodologies in order to obtain evaluations about the product or service they offer and to be able to have, in this way, a feedback that has an impact on the improvement of the product or service. [8].

Twitter has had a great boom in recent years becoming an important part of the social landscape [9], twitter currently has about 345.5 million users, which is why this social network is currently widely used for the development of numerous investigations including sentiment analysis or opinion mining, where sentiment analysis is defined as the process of determining opinions based on attitudes, ratings and emotions about specific topics [10].

2. Problem statement

To achieve the classification of tweets in order to observe their positive, negative and/or neutral orientation about the Hindu leader Narendra Modi using machine learning, which is a branch of artificial intelligence which is applied in the development of the project by the need for a machine to be able to perform the classification, and already with the classified tweets to train a machine so that it can make the prediction in the orientation in short and unstructured texts.

3. Methodology

In this work the classification of tweets was carried out, as an evaluation set we used a set of data that corresponds to opinions that were issued on twitter, they are of the order of 163 thousand tweets which are labeled as: positive, negative and neutral.

Figure 1 shows the diagram illustrating the methodology implemented in this study.

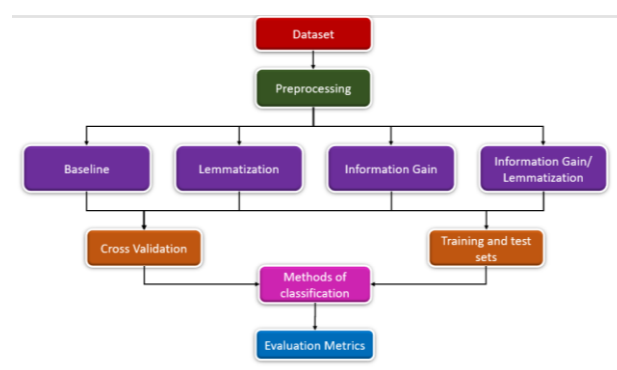


Figure 1 Methodology implemented in the work

To test the proposed methodology it was divided into two sets where the first dataset is made up of 3000 tweets in total divided equally where 1000 tweets contain a positive tag, 1000 tweets a neutral tag and 1000 contain a negative tag, meanwhile the second database used handled a total of 15000 tweets which are part of the aforementioned database. The tweets and/or comments were made about Narendra Modi and other leaders, as well as the opinion in society towards the next prime minister of the nation (in the context of the general elections held in India in 2019), which is available online.

The database was our first step in constructing the classifier, the texts are labelled with values from -1 to 1, where:

0 indicates a neutral Tweet/comment.

1 indicates a positive sentiment

-1 indicating a negative tweet/comment.

We performed an analysis to observe which classification scenario shows us a better percentage in accuracy, for this work two scenarios were used, the first one is Cross Validation, which is one of the most used re-sampling methods to evaluate the generalization ability of predictive models and thus estimate the true prediction error and parameter tuning [9], the second one is based on training and test set which is an important part of the evaluation of data mining models. Normally, when dividing a dataset into a training set and a test set, most of the data is used for training and a smaller part is used for testing; using in both classification scenarios the following learning methods:

Support Vector Machine (SVM) Which is a method that is based on learning and gives us support in problem solving by classification and regression, which is based on training and solving phases, this method proposes an answer (output) to a set problem [11].

This learning method focuses on theoretical learning theory with roots in statistical learning theory; which maps documents into a high dimensional attribute space and tries to learn the hyperplanes of a maximum margin between the two categories of documents.

Naive Bayes (NB). This is a classifier that helps us to calculate the probability of an event by having information about it based on the theorem and additional hypotheses. This learning method focuses on probabilities that refer to the likelihood and represent the probability of observing the value X , given the class value " Y " [12].

KNN is a non-parametric classification method of supervised machine learning type that estimates the value of the probability density function or directly the probability that an element belongs to a class from the information provided by the set of prototypes [13]. It is used to classify values by finding the most similar data points learned in the training stage and making guesses of new points based on that classification. In K-Nearest Neighbour the k stands for the number of neighbouring points we take into account in the vicinity to classify the n groups that are already known.

J48 is a decision tree shown as a prediction model whose main goal is inductive learning from observations and logical constructs. They are very similar to rule-based prediction systems, which serve to represent and categorise a set of recurrently occurring conditions for the solution of a problem [14]. The J48 classification algorithm allows us to evaluate decision trees, this algorithm builds a tree from data, it is built iteratively by adding nodes or branches that minimize the difference between the data.

The following is a description of each of the pre-processing steps shown in Table 3:

Lemmatization is a technique that deals with the retrieval of data from information systems, and that serves to reduce the morphological variants of the forms of a word to its common roots all this in order to improve the ability to improve the queries in the documents [15], this means that the lemmatization is to find the corresponding lemma of a word in its inflected form, the lemma of a word is the word that we can find in a normal and traditional dictionary.

| Graphic words | Lemma |
|------------------|-------|
| Could, able | can |
| are, am, were | be |
| come, I will go, | go |

Table 3 Examples of Lemmatisation

Stopwords or empty words refer to those words that do not have or have a register and which are meaningless when written on their own or without a keyword [16].

They are basically conjunctions, articles, prepositions and/or adverbs.

| Stopwords (English) | Stopwords (Spanish) |
|---------------------|---------------------|
| I | Como |
| Me | Yo |
| My | Ella |
| she | El |
| he | Más |

Table 4 Examples of stopwords or empty words in English and Spanish

Information gain is a property of statistics that helps us measure how well a given attribute separates training examples according to their classification goals [17]. Therefore, information gain can be understood as the measure of relevance that an attribute has within a dataset. An attribute with a high gain will be highly relevant in the dataset.

The formula with which the information gain is calculated is as follows:

$$Gain(A) = E(S) - E(S | A) \geq 0 \tag{1}$$

Where:

$E(S)$: corresponds to the entropy of "S".

$E(S | A)$: corresponds to the expected value of entropy after "S" has been partitioned with respect to "A".

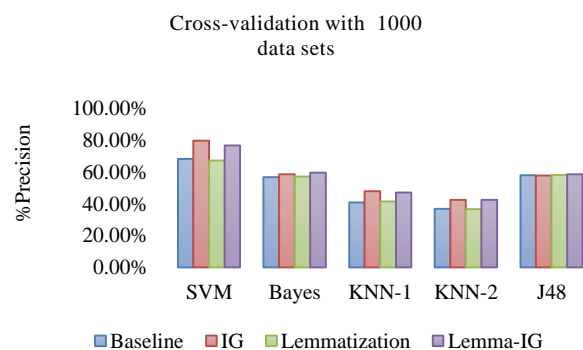
The experiments were performed in Weka, which is a free Java-based software, composed of text pre-processing techniques, natural language processing and machine learning algorithms; where it can also include data mining problem solving methods [18].

Four different files were created for each dataset which consist of the set without any preprocessing which we call as "Baseline" the second set was subjected to preprocessing with lemmatization, the third was subjected with Information Gain and finally the fourth with both preprocessing Information Gain and Lemmatization, resulting in 8 sets of the 2 databases mentioned above.

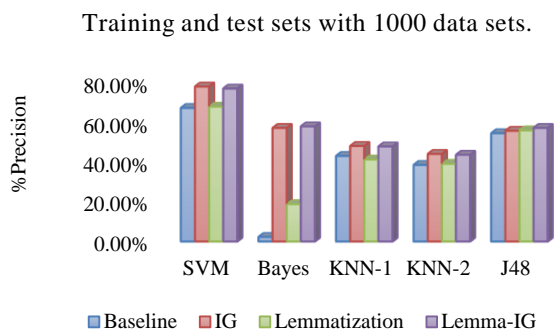
The scenarios we used for our work were cross-validation and training and test sets which are two methods of re-sampling that have been used to evaluate predictive models and thus determine the true errors of prediction and adjustment of different parameters, finally we performed an analysis to observe which classifier shows us better results in accuracy and thus to observe how many instances were classified correctly.

4. Results

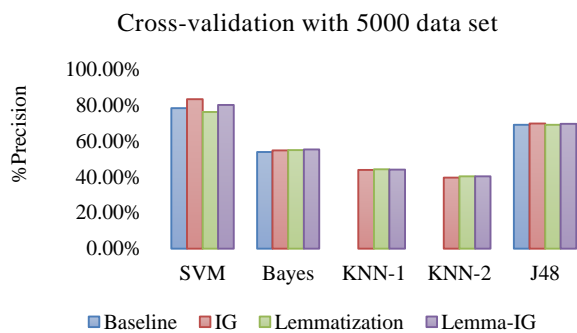
In the following graphs we can observe the best results for each of the sets created for each of the files created in the pre-processing, using both classification scenarios following the sequence performed in the Weka platform, finding the best values of accuracy which is a performance metric that applies to data retrieved from a collection, corpus or sample space; it is also known as positive predictive value which is a fraction of relevant instances among the retrieved instances in order to detect the percentage of correctly classified instances.



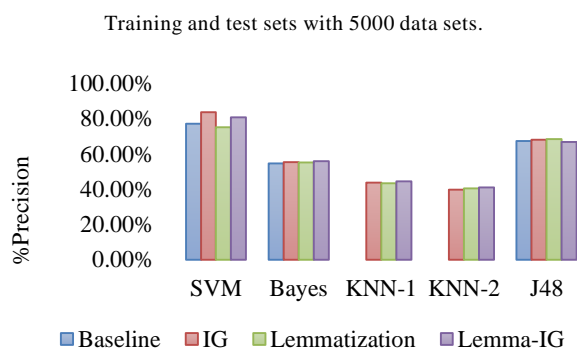
Graph 1 Results for Cross-validation with a total of 3000 data sets



Graph 2 Results for Training and test sets with a total data set of 3000 data sets



Graph 3 Results for Cross Validation with a total of 15000 data sets



Graph 4 Results for Training and test sets with a total data set of 15000 data sets

5. Conclusion

As a conclusion we can visualize that in both datasets we have as the best classification method Support Vector Machines (SVM), for the first dataset with 1000 positive, 1000 negative and 1000 neutral values the best result was obtained in the Cross Validation scenario with the pre-processing with information gain achieving an accuracy of 79.79%, while for the set corresponding to the 5000 positive, 5000 negative and 5000 neutral values.

In the Training and Test Set scenario also for the SVM classifier an accuracy percentage of 83.76% of correctly classified instances was obtained also in the data with information gain.

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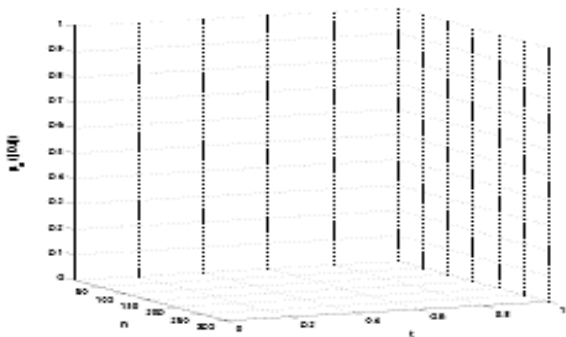
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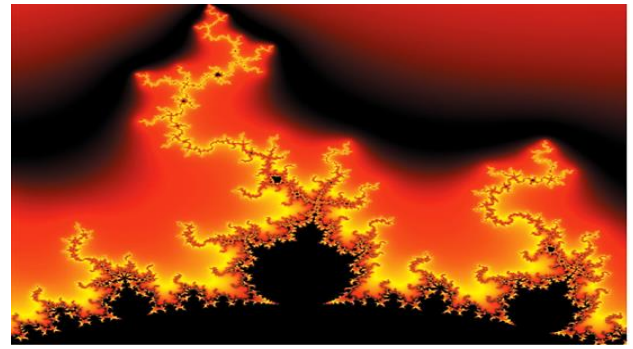


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