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Journal of Philosophy and Daily Life

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The works must be unpublished and refer to topics of ontology, phenomenology, hermeneutics, practical philosophy, and other topics related to Humanities and Behavioral Sciences.

Presentation of Content

As the first article we present, *Impact of the online propaedeutic course of the students of the Faculty of Engineering of the Universidad Autónoma de Campeche, during the last 5 years*, by SALAZAR-UITZ, Ricardo Rubén, CANTO-CANUL, Roberto Carlos, CHAN GONZÁLEZ, Jorge del Jesús and SHIH, Meng Yen, with adscription Universidad Autónoma de Campeche, as second article we present, *The obscured structure of the number in preschool education (pre-symbolic stage). Prime part*, by FOKIN, Sergei Konstantinovich, ARICEAGA-PAREDES, Rafael and AGUILAR-ROMERO, Martha Patricia, with secondment at the Universidad Autónoma del Estado de México, Centro Clínico de Oído, Nariz y Garganta and Escuela Normal No. 3 de Toluca, as third article we present, *Social context and hardiness in selected national athletes of weightlifting*, by PONCE-CARBAJAL, Nancy, RAMÍREZ-NAVA, Rubén, JAENES SANCHEZ José Carlos and CARRANZA- BAUTISTA Daniel, with adscription in the Universidad Autónoma de Nuevo León and Universidad Pablo de Olavide, as last article we present, *Hardiness and coping strategies in selected national diving athletes*, by PONCE-CARBAJAL, Nancy, RAMÍREZ-NAVA, Rubén, TRISTÁN-RODRÍGUEZ, José Leandro and LÓPEZ-WALLE, Jeanette Magnolia, with attachment at the Universidad Autónoma de Nuevo León.

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Impact of the online propaedeutic course of the students of the Faculty of Engineering of the Universidad Autónoma de Campeche, during the last 5 years

Impacto del curso propedéutico en línea en los alumnos de la Facultad de Ingeniería de la Universidad Autónoma de Campeche, durante los últimos 5 años

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Abstract

The use of virtual learning environments has been introduced to schools for a long time, however, in recent years due to the confinement due to the COVID-19 pandemic in 2020, higher education (and at all levels educational) suffered a change too fast and therefore the use of these virtual platforms was accelerated to comply with the confinement regulations implemented by the governments of the world. For this reason, the implementation of the online preparatory course to enter engineering and level their knowledge, considering the previous situation, becomes significant as it impacts the training of the engineer. To apply the online propaedeutic course, a survey was carried out before and after it in Google Form with the aim of knowing the perception of the use of this modality of the course. What led to relate what was specified in other studies where it is expressed that today's youth are digital natives, but without a doubt we are also sociable by nature, so we need to interact to learn and relate, which requires the intervention and guidance of a teacher.

College preparatory course, On-line, Mathematics, Khan Academy

Resumen

El uso de los entornos de aprendizaje virtual se fue introduciendo a las escuelas por mucho tiempo atrás, sin embargo, en los últimos años a causa del confinamiento por la pandemia del COVID-19 en el 2020, la educación superior (y en todos los niveles educativos) sufrió un cambio demasiado rápido y por ello se aceleró el uso de estas plataformas virtuales para cumplir con las normas del confinamiento implementadas por los gobiernos del mundo. Por este motivo se hace significativo como impacta a la formación del ingeniero la implementación del curso propedéutico en línea para ingresar a la ingeniería y nivelar sus conocimientos considerando la situación precedente. Para aplicar el curso propedéutico en línea se levantó una encuesta antes y después del mismo en Google Formulario con el objetivo de saber la percepción del uso de esta modalidad del curso. Lo que condujo a relacionar lo precisado en otros estudios donde se expresa que la juventud de hoy son nativos digitales, pero sin duda también somos sociables por naturaleza, por lo que necesitamos interactuar para aprender y relacionarnos, lo cual requiere de la intervención y orientación de un profesor.

Curso propedéutico, En línea, Matemáticas, Khan Academy

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Introduction

Virtual learning environments have been present for a long time as complementary strategies in the teaching-learning processes, in which the use of ICTs stand out for their great benefits and contributions in the face-to-face or blended learning modality (Morales-Alarcón, et al., 2021).

Since 2018, the Faculty of Engineering of the Autonomous University of Campeche (UACAM), presented the initiative to implement an online or virtual propaedeutic course, due to the need of students to level or regularise them with the basic knowledge of mathematics and successfully pursue the chosen engineering. Therefore, the academy decided, due to the calendar and the work structure of the UACAM (Canto Canul & Salazar Uitz, 2019), for a self-managed online propaedeutic course for new students, taking care of the basic mathematics topics for their review. The web-based learning platform Khan Academy (KA) was chosen, which has a variety of functionalities, allowing the scheduling of activities and the creation of personalised courses, with an extensive variety of educational material (Pérez Armijo, 2021).

From 2018 to 2022, the self-management virtual propaedeutic course has been developed through the KA platform, the acceptance of this resource in incoming students, from March 2020, takes relevance, given that the National Education System has faced an unprecedented challenge, implementing distance classes before the temporary closure of schools, impacting both the conclusion of the 2019-2020 school cycle and in the current 2020-2021 cycle (INEGI, 2021). Because of the mandatory confinement, not allowing people to travel meant that classes were online synchronously or asynchronously. Given this situation, questions arose as to whether this educational system could be adequate, and the objective of the study was to explore the quality of education in higher education in times of pandemic by the COVID-19 (Malpica Rodríguez, et al., 2022).

Therefore, it is significant to study how new students perceive the virtual mode course? The studies on how the training of engineers is impacted by classes in a virtual environment are as follows and some coincide:

Most of the students prefer to take mathematics classes face-to-face, because the

virtual environment is not the same, and they do not have stable internet access, which means that they have to review the recordings afterwards, which causes them to lose interest (García Avalos, et al., 2022).

The results indicate preferences for face-to-face classes, insufficient mastery of digital tools and applications and the need to improve the online modality. Progress was noted in the development of digital competences and in adapting to the new model (Banda Muñoz, 2022).

The results obtained indicate that the level of e-learning is at a regular point, where it is considered that the virtual modality should be different from the face-to-face one. However, most students are moderately satisfied with the virtual classes. Finally, this new modality is influenced by numerous factors such as the technological access of the students and the methodology of the teaching staff, among other factors (Rivera, et al., 2021).

It is said that our youth belong to a digital generation and for them it is natural to use and access technology. However, they are social beings, students need to interact with their peers (Diaz-Garay, et al., 2021).

On the other hand, it should not be forgotten that engineering education has an eminently practical component. It is important that the educational process is characterised by being interactive and collaborative, under the guidance of the teacher (Diaz-Garay, et al., 2021).

Methodology

The virtual propaedeutic course, which has been carried out through the KA platform since 2018, presents a series of activities to prepare students in Engineering with basic mathematics topics. Table 1 shows the number of activities and the number of students who took the course:

Propaedeutic Course	Year				
	2018	2019	2020	2021	2022
Activities	182	182	168	189	187
Students	266	244	270	231	225

Table 1 Number of activities and students in the propaedeutic course from 2018 to 2022

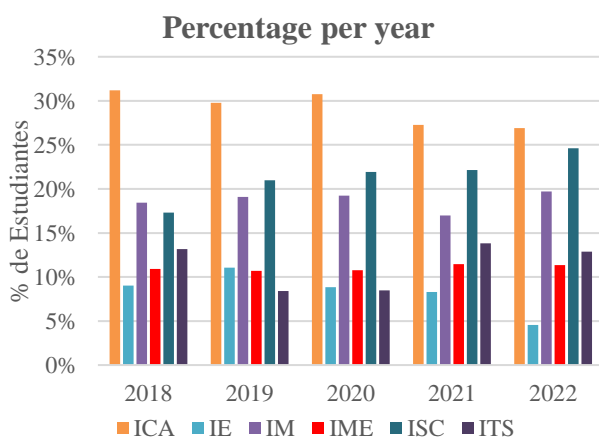
Source: Own elaboration

Every year a number of activities are selected to be taken from the KA platform, these vary only because the contents are updated on the platform, these activities are chosen due to the need exposed in the academy of basic sciences and mathematics of the Faculty of Engineering. The activities are as a whole: Videos, Exercises, Quizzes, Tests and Articles.

The students take a diagnostic exam before doing this activity, the duration of the course is one month before the first day of classes, then when the course ends and the activities are overdue, they take a final exam to measure how well they have taken advantage of the course.

The diagnostic exam and the final exam are conducted through the Google Form platform and are divided into two sections: the first is a survey on how they perceive the use of this course modality and the second section is a test of knowledge of basic mathematics, before and after taking the course.

The propaedeutic course was aimed at new students entering the Faculty of Engineering: Computer Systems Engineering (ISC), Civil Engineering and Administration (ICA), Mechatronics Engineering (IM), Electrical Mechanical Engineering (IME), Energy Engineering (IE) and Software Technology Engineering (ITS), from 2018 to 2022, as presented in Graph 1, the engineering with the highest income is ICA followed by ISC and IM.



Graphic 1 Percentage of incoming engineering students by year

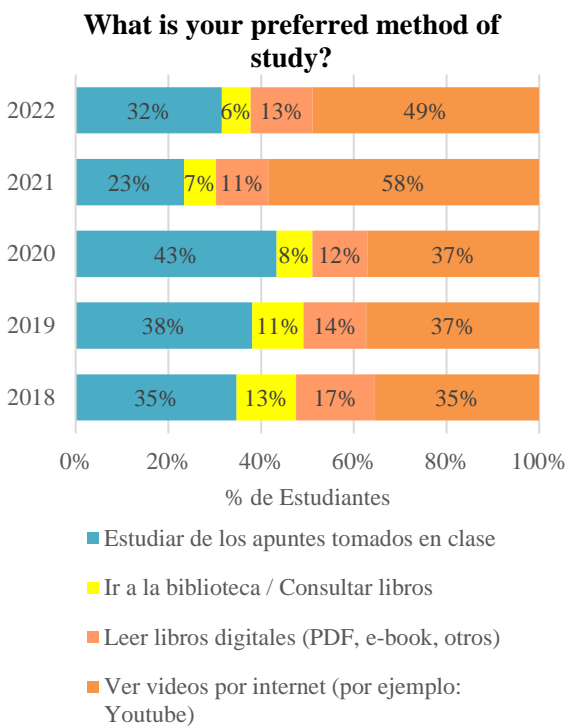
Source: Own elaboration.

Results

In the diagnostic survey the question was asked: Which study method do you prefer to study, the possible answers were:

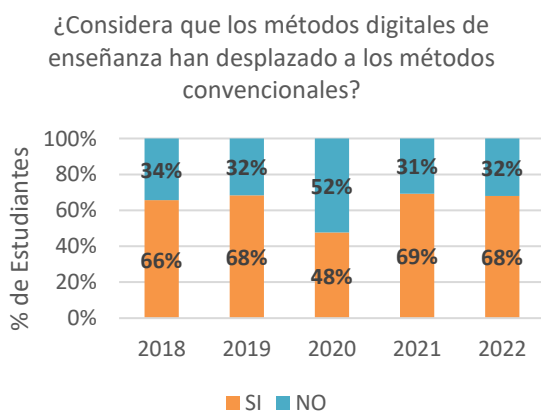
1. Studying from notes taken in class.
2. Going to the library / consulting books.
3. Reading digital books (PDF, e-book, other).
4. Watching videos on an internet platform (e.g. Youtube).

Graphic 2 shows the study preference of the students before presenting the virtual propaedeutic course by year, in 2018 and 2019 the study preference remained constant and approximately the same for both Studying from notes taken from classes and Watching videos on an internet platform, for 2020 the preference for Studying from notes taken from classes increased by five percentage points, it is worth highlighting the most notable change in preference that occurred from 2020 to 2021 where the preference for Watching videos on an internet platform increased by 21 percentage points. However, by 2022, the preference to Watch videos on an internet platform decreased by 9 percentage points and the same percentage increase in the preference to Study from notes taken from classes. While Going to the library/Consulting books and Reading digital books (PDFs, e-books, other) have remained at a minimum, it is noted that the preference Going to the library/Consulting books in 2022 is less than half of what it was in 2018.



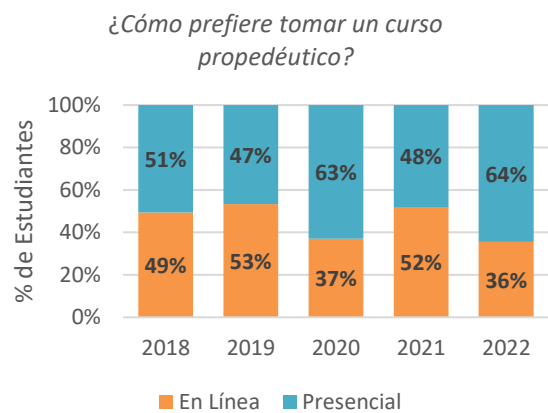
Graphic 2 Initial survey question: Which method do you prefer for studying?
Source: Own elaboration

In the same survey, the following question was asked: Do you consider that digital teaching methods have displaced conventional methods, with two possible answers YES and NO as shown in Graph 3. In 2018 and 2019, the majority of students (66% and 68% respectively) considered that they had been displaced. However, in 2020, 48% of incoming students considered that conventional methods had not been displaced. In the following two years, 2021 and 2022, the trend returned to the previous trend with 69% and 68% respectively of students considering that conventional methods had been displaced by digital methods in teaching.



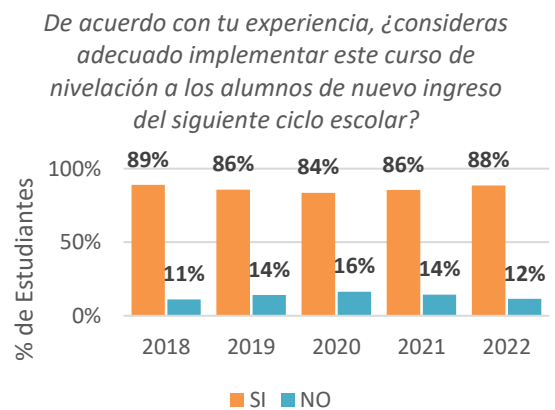
Graphic 3 Initial survey question: Do you consider that digital teaching methods have displaced conventional methods?
Source: Own elaboration

Another question asked in the diagnostic test was: How do you prefer to take an introductory course? The result is shown in Graph 4: in 2018 and 2019 the course had a preference of approximately 50% and 50% face-to-face and online respectively; on the other hand, in 2020 the face-to-face course rose 13 percentage points, in 2021 it returned to an approximate preference of 50% both face-to-face and online, however, for the year 2022 it again had an upturn of 14 percentage points.



Graphic 4 Initial survey question: How would you prefer to take an introductory course?
Source: Own elaboration

In the final exam, the question was asked: According to your experience, do you consider it appropriate to implement this leveling course for incoming students for the next school year? Graph 5 shows that more than 80% of incoming students, who took the virtual propaedeutic course from 2018 to 2022, agree with this modality.



Graphic 5 Final survey question: Do you consider it appropriate to implement this leveling course for incoming students for the next school year?
Source: Own elaboration

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Conclusions

The study methods used by incoming students at the Faculty of Engineering of the UACAM, according to the survey, as shown in Figure 2 are very questionable, during the years prior to the COVID-19 pandemic, a similar preference is maintained between choosing to study from notes taken from classes and watching videos on an internet platform. However, by 2021, once accustomed to confinement and online classes, the preference for Watching videos on an internet platform is reversed. This shows that a higher percentage of students prefer to study in class after a few months of confinement; on the other hand, there is also a trend, considering that more than a year of confinement has passed, that watching videos on an internet platform tends to be more preferred by students. In 2022, with the opening of schools and the regularisation of face-to-face classes, the study preference will again tend to normalise as before the pandemic, with the expectation that next year, in 2023, it will return to the same percentages of preference as in 2018 and 2019. This can be associated with that studied by García Avalos, Velázquez López, Vargas Almeida, & Sepúlveda Palacios in 2022 (García Avalos, et al., 2022), Banda Muñoz in 2022 (Banda Muñoz, 2022) and Rivera, Gutiérrez, Solis, & Araúz-Takakuwa in 2021 (Rivera, et al., 2021).

In Graph 3 Initial survey question: Do you consider that digital teaching methods have displaced conventional methods, a similar reasoning can be used, as virtual learning environments were being introduced to the day-to-day student activities, about 70% of students considered that these digital teaching methods were displacing conventional teaching methods, until before 2020 when the change to distance learning modality came virtually, approximately the same percentage of students considered that conventional methods had not been displaced and vice versa, showing a resistance to this modality. A similar trend can be seen in the study methods used, normalising after a year and a half of being in confinement.

Graph 4 shows that the online and face-to-face propaedeutic courses have approximately equal numbers of followers, about 50% for both preferences in 2018 and 2019, but in 2020 there is about 10% more preference for the face-to-face course, and the same in 2022.

The previous paragraphs, which refer to the surveys before presenting the online propaedeutic course, relate to what Diaz-Garay, Noriega-Aranibar, & Ruiz-Ruiz stated in 2021 (Diaz-Garay, et al., 2021), we are social beings by nature, which is why we resist the distance learning modality at the beginning of the pandemic; we need to interact to learn and relate, which requires the intervention and guidance of a teacher.

Graph 5 is the result of the survey after presenting the online propaedeutic course, more than 80% of the students who participated in the course every year, in the 5 years that this course has been applied, consider it appropriate to continue implementing it. This can be related to what was stated by Diaz-Garay, Noriega-Aranibar, & Ruiz-Ruiz in 2021 (Diaz-Garay, et al., 2021), where it expresses that today's youth are digital natives (Prensky, n.d.).

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The obscured structure of the number in preschool education (pre-symbolic stage). Prime part

La estructura oscurecida del número en la educación preescolar (etapa pre-simbólica). Primera parte

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Abstract

The article highlights certain aspects of the obscured structure of the number, which occur irregularly in the teaching of numeracy in Preschool Education. Its absence, as an effect, leads to the child's misunderstanding of the concept of number. In the pre-symbolic stage, the number is taught through the word. Structural particularities are found in the semantics and phonetics of the number word and are substantial in the processes of speech and listening. The objectives are to make known the obscured structure of the number and its elements and to analyze the nature of the name of the number. It is justified that the basis of the word "ONE" are the first sound manifestations of the infant. It states that there is the same and equal relationship between the acquisition of knowledge of language and speech with the acquisition of knowledge of number through the development of tonal auditory balance. Methodology: the theoretical analysis of the structural parts (semantics and phonosemantics) of the number and the identification of reciprocal correlation between the constructions of the knowledge of spoken numeral word in Preschool Education through the implemented technology. Contribution: the development of the method for learning the concept of number.

Number, Darkened structure, Word

Resumen

El artículo destaca ciertos aspectos de la estructura oscurecida del número, que se presentan irregularmente en la enseñanza de aritmética en Educación Preescolar. Su ausencia, como efecto, conduce a la incomprensión del concepto de número por parte del niño. En la etapa pre-simbólica el número se enseña a través de la palabra. Las particularidades estructurales se encuentran en la semántica y fonética de la palabra del número y son sustanciales en los procesos del habla y la escucha. Los objetivos son: dar a conocer la estructura oscurecida del número y sus elementos y analizar la naturaleza del nombre del número. Se justifica, que la base de la palabra "UNO" son las primeras manifestaciones sonoras del infante. Hace constar, que existe la relación idéntica e igual entre la adquisición de los conocimientos del lenguaje y del habla con la adquisición de los conocimientos del número mediante del desarrollo del equilibrio auditivo tonal. Metodología: el análisis teórico de las partes estructurales del número y de la identificación de correlación recíproca entre la construcción del conocimiento de nombre de número y su expresión verbal en la Educación Preescolar. Contribución: el desarrollo del método para aprender el concepto del número en la etapa pre-simbólica.

Número, Estructura oscurecida, Palabra

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Introduccion

Pointing out something mysterious in the title of the article, for example, an obscured structure of a number may immediately cause rejection as unrelated to the academic field, or perhaps even help to look at the reasons that led the authors to state the problem.

A review of the academic content and processes that are developed in initial teacher training (SEP, Plan de Estudios. Licenciatura en Educación Preescolar., 2022) in the field of preschool education makes it possible to make a diagnosis and determine the object and medium of study on the subject analysed in this article. At the same time, from this process the problem in relation to the topic of analysis of the "Concept of number" is glimpsed, since despite its study over a long period of time in the training of pre-school students, the way in which its learning is gestated has not been clear. One of the factors is the lack of understanding of the meaning of the notion of number. The subject of numbers, their relations and characteristics is studied in arithmetic, which is a division of mathematics. The object of number is a notion. The notion of number is presented by means of the word. The word spoken by the teacher (transmitter) and perceived by the pupil (receiver) manifests itself as an idea and is registered in the child's mind. In other words, numbers, which appear in the form of ideas in the classroom subjects, need to be expressed verbally.

Then, with the help of oral expression, the number is conveyed, its verbal meaning is remembered and people consistently arrive at real arithmetic, real in the sense that the word-number becomes a sound-idea-image. Now it can be said, that the obscured structure of number, which is fragmentarily studied by different sciences, in our understanding, is the word.

The academic process in Pre-school Education (SEP, Plan de Estudios de Educación Preescolar, Primaria y Secundaria., 2022) from the initial teacher training is to teach to understand the number through its name. In this sense, it is worth mentioning an agreement and then disagreement with Polanyi's theory of tacit knowledge. Tacit knowledge is a type of knowledge that includes knowledge that cannot be easily transferred to others.

In general, agreeing with his view on the pedagogical process as a learning process, acting in three ways, such as action teaching methods, teaching signs and latent learning, and on the important role and operating principles of language, expressed in linguistic representation and in the operation of symbols to ensure the thinking process, at the same time, it is noted that "every time, as Polanyi says, when we use a word to refer to something, we are performing an act of communication and at the same time certifying (verbally or mentally-verbally) that we have performed this act. It follows that the use of this word makes it possible to give a name to a class or thing" (Polanyi, 1962). In our case, this provision is made concrete later, the word "UNO" in English does not correspond to any thing or phenomenon, so nothing allows its use, but it is used. For example:



Figure 1 One watermelon plus one watermelon plus one watermelon

Source: Own elaboration

There is a situation in which there is a word, but there is no thing. However, Polanyi states affirmatively, and it is true, that "we acquire our knowledge of things denoted by words mainly from experience" (Polanyi, 1962). Continuing to expose the disagreement and take into account Polanyi's assertion, the argument is complemented by the following expression: "If there is nothing denoted by the word "ONE", then there is no experience. Therefore, if there is no experience, then there is no knowledge. In other words, if there is knowledge that there is no experience, then there is knowledge that there is no knowledge. And this is a complete absurdity.

As many historians of mathematics point out, the reason for the emergence of arithmetic, which is one of the oldest sciences, was the practical necessity of counting, with which, perhaps, it would not be difficult to agree.

The world of man, represented by the exchange, buying and selling of essential commodities, needed to count and calculate, demonstrating the equality and identity of the results of labour. The first thing that was expressed in this act and pronounced as a magic word, was the name of the number, which equalised the ownership of people.

Life was determined by the word and the world became the word. The world becomes word. The world is word.

Development

According to Bellustin (Bellustin, 1909), it cannot be known who laid the foundations for arithmetic, and who was the first to say the word "ONE" in "inventing" the odyssey of number. The ability to count, at least in small predestines, as well as the need to count, is inherent to all thinking beings. Just as a living human being breathes and eats without fail, so a person living a conscious life thinks, speaks and, by the way, counts. Therefore, one cannot speak of any special invention of counting, for this need is peculiar to all people. Therefore, the beginning of arithmetic is drowning in the same unforeseen depths of distant centuries, as well as the beginning of humanity. Meanwhile, the naive authors of ancient textbooks sought, at all costs, to indicate the person or persons to whom the account owes its origin. This honour is attributed to the ancient sage Pythagoras or "Cyrus, son of Asidor", who wrote this numerical philosophy, i.e. this philosophy of arithmetic in the Final Letters". The Byzantine historians of the Middle Ages were still far away and did not hesitate to admit directly the miraculous origin of Arithmeticians: it was promulgated on earth by the Phoenix, the grandson of the god Neptune. The Phoenicians are also credited with the invention of the letters of the alphabet.

The early stages of the numbering system

As our ancestors, who lived in ancient times, long before the birth of Christ, believed, it is impossible to estimate, let alone judge this directly and clearly. From the point of view of mathematical archaeology, the written scrolls have not been preserved, and could not have been, because the development of written accounts depends on the general development of education, and our earliest predecessors were certainly at the lowest levels of education. But broadly speaking, and this is historically and understandably attested, the great figures of science and education, such as Pythagoras, Plato and Aristotle, are still at a place of unattainable knowledge. In other words, humanity as a whole has not yet mastered the science of mathematics and its fundamental object, arithmetic: the number.

We can assess the first steps of arithmetic only by conjecture, comparatively; the means of comparison are those peoples who are lost in the remote corners of the interior of some continents, who, having the traditions of antiquity of number and counting, are at present just coming out to enjoy and use the modern intellectual treasures of technology, science and education. We present some assertions from Bellustin's examples (Bellustin, 1909). The Tamanaca Indians use fingers and toes in counting. Incidentally, the Eskimos, the inhabitants of the cold countries of North America, say "20" and "100" five persons. The Carais in the West Indies and along the Orinoco River give the first four numbers special names, but 5 is replaced by the words "four and one", 6 - "hand and one", 7 - "hand and two", 20 - "as many as arms and legs", 30 - "as many as arms and legs, and 2 more superfluous hands". The Zulus in South Africa use a very similar custom. They do it without legs and do calculations with one hand. They start counting with the little finger of their left hand.

In this way, fingers for those people who can hardly count are an invaluable and convenient aid. We can see this in all countries of the world and in all people. To count, they need a visual aid, and what kind of manual is closer to a person, if not their own fingers? They are especially loved by young children. Almost all civilised peoples of the ancient and modern world introduced the decimal system of counting. Where did such an amazing agreement of all people come from? Why does everyone have the same counting system? It is inconceivable to suppose that the inhabitants of different parts of the world have arranged something like a conscience, upon which they have settled down to adopt a common system. The key, obviously, lies in the following.

Abstract counting began among all peoples in the same way, by observing and touching their fingers. What is closer to the fingers and easier to touch? To be fooled by illiterates, small children and old women, when they cannot count even small numbers without fingers: this is in vain, because the need for a visual representation of ideas with the help of objects is inherent in human nature, and every person who is underdeveloped, looking for a visual aid, strives to choose the most convenient one and involuntarily stumbles upon his fingers in our case.

Finger systems and figures of men as hieroglyphs are more ancient and common

In its original form the hieroglyph resembles paintings of strings and bones, which were used in visual counting. Later, the Chinese numbers changed a lot and took on some species. They have different figures: ancient-Chinese, trade, scientific and for governmental acts. The figures of the ancient Chinese are very figurative and intricate, and it is quite possible that it was an alteration of the initial hieroglyphs; it was written on the leaves not in a line, but in a vertical column, located from top to bottom.

Thus, among the Egyptians, Chaldeans and Chinese, we see differences of ancient origin, resembling hieroglyphs, or images of those objects which are found in relation to a given number. Another main root that gave rise to numbers are the names of numbers. These figures are already more than later, since for their representation it was necessary to develop the alphabet, literacy, the need to write and the sufficient art of writing.

Among some peoples, as, for example, among the Phoenicians, the names of numbers were written in their entirety, through letters and words: the Phoenicians wrote the numbers directly, according to their pronunciation, in words, and did not use special icons: numbers.

Sometimes the same method was adopted by the Greeks, but the Arabs were especially fond of it. There is a complete textbook on arithmetic from the Arabic Alcarja (in the 11th century AD), where there is not a single digit, and all calculations, even quite complex ones, are done verbally.

But it is obvious that writing numerical names is extremely inconvenient and tedious. Because of this, the names of numbers began to be abbreviated. And the initial letters of the names of numbers began to be considered numbers. The word became a number.

Let us briefly repeat once again that the numbers of all peoples and times fall into three categories: 1) numbers that originated from hieroglyphs and became conventional signs; 2) numbers formed from the letters of the alphabet and representing the initial letters of numerical names; and 3) numbers in the order of the letters of the alphabet.

The second category of numerals has also changed, like the first, in some cases beyond recognition, so that the conventional signs were formed from the letters. Today, however, it is scabrous to say, that the problem of the "Number" has been solved definitively.

The initial name of the number

The formation of the numerical names followed the development of numbers. It is very rare to mention anything reasonable in this matter, after all, a strange tautology is immediately revealed. Therefore, it would be fair to say, that an affirmative answer has to be given to the following questions: what was the first thing, a count, as described in most books on the history of arithmetic, or a number? It is simple and clear to confirm in our deep conviction, that the first thing was neither counting as the basis of number, nor number as the basis of counting. The beginning of number was the "Word".

The language-savvy philologists worked not a little and with great skill on the question: how did the words expressing numbers - "one", "two", etc. - come into being? They recognised that, in fact, the first number of names is taken from those things which are always in a certain quantity, and precisely in a number like the number itself.

Therefore, peoples who were reputed to be educated long ago, from time immemorial, have developed special numerical names which are not similar to the names of any objects. That this happened a long time ago can be seen in the name of the Indo-European family of peoples, and this is demonstrated by this consideration.

It is easy to see, that the first number names are very similar and consonant in all Indo-European languages, and from this we are entitled to deduce that these number names developed in that remote epoch when there was no large settlement of peoples, and when the whole Indo-European family lived in the world and used a common language.

We know, that number exemplifies certain peculiarities of reality and everyday life, such as: counting, magnitude, quantity, measure and order, forming a concept. The concept of number traditionally represents a system of different structures.

They are structures of name, symbol and meaning. Viewing a system in this way, a view is formed that the core of the article is the nature of the natural number.

Historians of mathematics believe that the history of number originated in prehistoric times, when man learned to count objects, cows and bulls, sheep and lambs, products of his labour such as shoes and bread, learned to bend and unbend his fingers. Arithmetic arose from everyday practice, from man's vital needs.

The formation of mathematical concepts, among which number is given an important place, occupies a considerable period of historical time. Its beginning in some theoretical sources dates back to 30 000 years BC.

According to Dantzig (Dantzig, 1947), the origin of number is hidden behind an impenetrable veil in the mists of time. Whether this concept was born out of experience or the accumulation of experience contributed to the manifestation of what was implicitly already present in a latent form in the abysmal depths of the ancient mind is a fascinating subject for metaphysical reasoning. Dantzig, continuing his contribution on the belonging of number to metaphysics, discovers in man a gift, which he will call "the sense of number". Thousands of years passed, and Pythagoras' cherished dream, "The world is number", became reality.

Therefore, it would be possible to turn the whole entity in the most ordinary and usual way into a natural number, a concept possessed by 99% of the world's population. To possess is not to know. To have knowledge it is necessary to understand where the notion of number came from.

The concept of number has been investigated from the moment it appeared, but in history its analysis is centred on counting as the basis of all arithmetic systems in the ancient world, such as those of the Egyptians, Babylonians, Mayans, and its appearance emerges from the need for men to exchange their products of production.

The problem arises from the lack of knowledge of a structure that makes up the number: the word, which, therefore, does not provide a basis of understanding for its teaching in pre-school students, presenting a field of linguistics that in this paper is identified as an obscured structure since it has not been addressed in the history of arithmetic. Up to a certain age, different for each child and little dependent on external conditions, occupations, plans and programmes, of teaching and learning, children are not able to understand and cannot learn the concept of number.

There is a factor of great importance related to the topic of number, which affected the higher education of teacher training for Pre-school Education, defined as the creation of constructive mathematics, founder of logicism Gottlob Frege, in response to the problems of justifying science and achieving the goal of distancing arithmetic from the sensible world with a caveat, which, according to Tselishev (Tselishev, 2014), "mathematical objects exist outside and independently of human consciousness, they are timeless, extra-dimensional entities belonging to the sphere of extrasensory reality".

In a great feature, and it is necessary to realise and admire, that mathematization of science is a process of great importance and feasibility. Every thing or phenomenon, when it appears, must have its conclusion. As an example, the introduction in Proclus' "Principles of Physics" of the description of the mathematization of Plato's "Timaeus" can serve as an example.

According to Mesiats (Mesiats, 2001), The extension of mathematics to the whole field of knowledge teaches the soul to see in everything - in nature, in the soul, in politics - incorporeal mathematical entities. The general programme of mathematization of the whole sphere of knowledge, formulated by Proclus in the "Introduction", was implemented in three of his works: "The Principles of Physics", "The Principles of Theology" and "Commentaries on the Timaeus". In support of what has been said, Rényi (Rényi, 1948) is quoted as saying that the meaning of the mathematization of knowledge is to use the mathematical apparatus not only to describe established facts, but also to predict new patterns, the course of phenomena and, therefore, to be able to control them.

The trend of mathematization of knowledge, which lasted for centuries and millennia, and Frege's logicism is due to the need to determine certain stages of knowledge, but at the same time, it negatively affected the didactics of mathematics, both in LEP and in pre-school education.

Just a newly born data, which can justify a serious problem in Pre-school Education that was detected in professional practices to obtain information for a degree thesis, which to the word is said: "when attending the School Technical Councils (CTE) in a Kindergarten "X" in the months of March, April and May of the year 2023, the titular educators manifest on various occasions that an educational lag is noted in the field of academic training in mathematical thinking, especially in the curricular organiser of number, This is at the institutional level, but when working with the third grade group "F", 85% of the children in the group show that they are still challenged by the numerical series from 1 to 10, counting, the graphic representation of numbers and their uses in everyday life" (Sánchez Salazar, 2023).

The purpose of this article is to make known that element of the obscured structure of number, which is the name of the number represented by "the word". Number is word.

In order to form in the pre-school child the idea of number, on the one hand, the affirmation and agreement with Kant's methodological establishment is considered (Kant, Critique of Pure Reason. Introduction, translation, notes and indices by Pedro Ribas, 2016), which in words is said: that "...there are two main trunks of human cognition, which perhaps arise from a common but unknown root, namely sensuality and reason: by means of sensuality objects are given to us, and by reason they are conceived"; and, on the other hand, following two paths related to the obscured structure of number the word. A word represents a number, for example: one, two, three, etc., and number is taught and learned orally, as: "oral communication", "oral number line", "oral confrontation".

The pre-symbolic stage of number is a period when teaching and learning is organised and based on the process of oral communication, without the demonstration of the number, i.e. without the graphic display of the symbol. Here it is appropriate to quote Piaget's words on the acquisition of mathematical terms by a child. According to Piaget (Piaget, 2001), "it is a great mistake to think that the child acquires the concept of number and other mathematical concepts directly in learning. On the contrary, to a large extent he develops them independently, independently and spontaneously. When adults try to impose mathematical concepts on a child prematurely, he learns them only verbally, the real understanding coming only with his mental growth".

This process appropriates the following characteristics of oral communication: speaking-saying and hearing-listening. Oral communication, and this is the subject of the LEP courses, is established in the pre-school classroom between teacher and pupil, where one speaks and the other listens and vice versa, developing the presentation and imagination of the number in its phonetic-phonological quality. In other words, in the oral communicative process the sound idea of number is developed in auditory perception with its next phase of transformation into presentation and imagination. We need to clarify the connection of the above-mentioned.

The teaching of the concept of number in the number system is organised verbally between teacher and pupils through the process of speaking-saying and hearing-listening. Teacher says-student listens. Through the auditory perception in the mind of the pupil the processes of presentation and imagination of the word or number name take place.

Let us briefly follow this communicative process and consider it in parts, starting with the reception of a sound signal at the input of the peripheral part of the auditory system of a 3-6 year old child and ending at the output with the result of thinking. Special attention should be paid to the act of misunderstanding the subject of the concept of the number "ONE" for students in pre-school education.

As already mentioned, the object of the number is the concept represented by the word "ONE". If in the plane "P" we take the point "M" (name) with the coordinates x, y , where "x" is notion, "y" is things. Wherever the point M ($N = 0, 1, 2, 3$) is, it is impossible to say with certainty what place it occupies, since the word "ONE" does not correspond to anything. This is the first call of semantic uncertainty that leads to misunderstandings. Semantic field of the word "ONE".

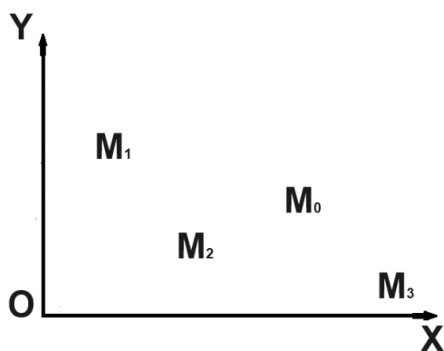


Figure 2 Plane P
Source: Own elaboration

Now it is worth considering the student's perception of the sound side of the word "ONE" and the appearance of sensation and representation. The graph of the tones with which the teacher "speaks" in the Q-plane is shown. It establishes a relationship between the pronounced name of the number (physical value) and the thought name of the number (mental value). The ideal situation is when the two values are equal. That is to say that $f(\text{StG5})$ is equal to $f(\text{RSG5})$, otherwise, when the two values are not equal, an alteration of the thought is determined, which produces an uncertainty and in the end an incomprehension on the part of the pupil. So, on the OX-axis, the pitch (f Hz) is plotted, on the OY-axis - energy E (dB), on the OZ-axis - time (t). OA is sensation, OB is representation.

The reception of a sound signal $f(\text{StG5})$ at the input of the peripheral part of the auditory system.

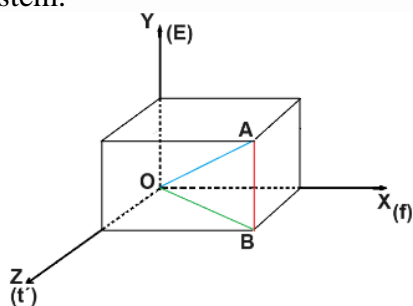


Figure 3 Plane Q
Source: Own elaboration

The synthetic signal representation of the "meaning" (P) and sound $f(\text{StG5})$ (Q) of the word "UNO".

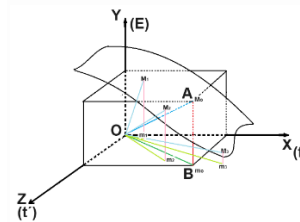


Figure 4 P and Q Plans, Own Elaboration

The mental process of thinking the tone of the word "ONE" with $f(\text{RSG5})$ (Q). The situation is: $f(\text{StG5})$ is equal to $f(\text{RSG5})$

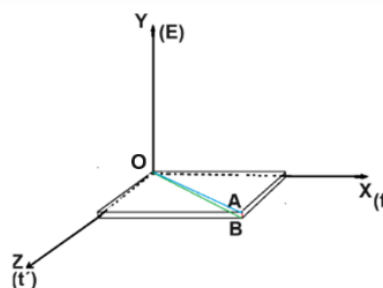


Figure 5 Plane Q
Source: Own elaboration

The altered mental process of thinking the tone of the word "ONE" with $f(\text{RSG5})$ (Q'). The situation is: $f(\text{RSG5})_1$ is NOT the same as $f(\text{StG5})$.

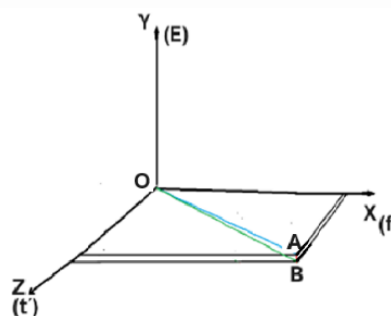


Figure 6 Plan Q' with alteration
Source: Own elaboration

This is the call of the second phono-semantic uncertainty of the word "ONE", which leads to misunderstandings.

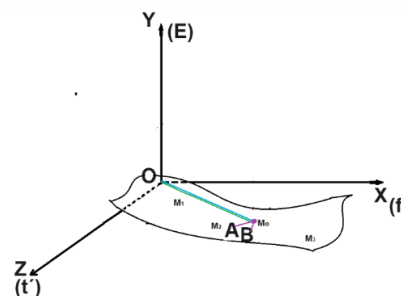


Figure 7 Plans P and Q
Source: Own elaboration

The result of the thought: there is a double uncertainty due to the auditory alteration and presence of tonal imbalance.

If it is impossible to define the semantic field of the word "ONE" and its.

If it is impossible to define the semantic field of the word "ONE" and its meaning, then it is necessary to develop a phono-semantic a phono-semantic ability.

The teaching of the first arithmetical representations in the long historical period of education can be historical period of education can be conventionally divided into stages. According to Petrova (Petrova, 2013) the first stage included empirical development of the method: various counting, proverbs, sayings, riddles, nursery rhymes were a good material for teaching children to count, they allowed the child to form the allowed the child to form the concept of numbers, shape, magnitude.

Later, at this stage, the idea of the idea of the necessity of mathematical development of pre-school children was raised. preschool children. Prominent thinkers of the past, such as Komensky, Pestalozzi, Ushinsky and notorious figures such as Montessori and Froebel realised that, without a mathematical that without a preliminary mathematical education and the important role of teacher-pupil relationships, it would be teacher-pupil relationships it would be difficult for children to master the school curriculum.

School curriculum. It may also be significant and necessary to comment on Vygotsky's fair criticism of Piaget. Piaget did not attach importance to the psychic as a phenomenon of cultural-historical practice, that is, he simply ignored it, he ignored it. Vygotsky in the discussion with Piaget showed that, although he agreed with Piaget's theory, he did not agree with it. He agreed with his theory, he mentioned, that Piaget rejected the social phenomenon of speech, which meant to speak social phenomenon of speech, which meant talking to the other and this could lead to the exclusion of speech. To the exclusion of speech, and the effect could be the absence of communication with the other.

Since then, the development of the child's mathematical thinking is spontaneous and sporadic, exhibits ignorance of things and disorientation in the learning of number. learning of numbers. In such a situation, there is a lack of experience of meaning and the annihilation of the children of sense and the sensory basis for counting is annihilated: there is no oral communication, no auditory communication, nor auditory perception, nor the presentation and imagination of the sound idea of number. Sound idea of the number, so there is no knowledge of the number itself.

It can be realised, that the idea of number in the pre-symbolic period, i.e. the one in which there is no graphical is linked to the idea of the number in which the pronounced and perceived word will appear, which is word pronounced and perceived, which represents it. For this purpose, the word is analysed as a syllabic organisation (Fokin, Ariceaga Paredes & Perez Perez, Intelligent system in sensory and cognitiv development for the pre-reading stage, 2021), which has a phonetic-phonological basis (the phonological basis (the tones of the word).

The syllabic organisation of the word "UNO":

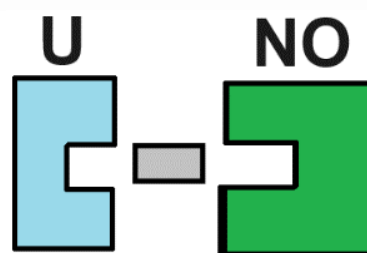


Figure 8 Division in "U" and "NO"

Source: Own elaboration

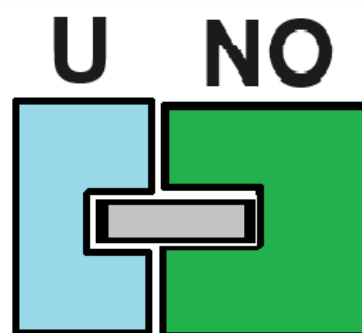


Figure 9 Word in construction

Source: Own elaboration

The syllabic organisation and construction of the word "ONE" allows the child, firstly, to continue with the acquisition of knowledge of the number name on the same basis as he/she is using for acquisition-construction-formation of language knowledge; secondly, to equalise the processes by constructing the image and idea of it, and thirdly, to obtain auditory comprehension of the number name and to develop number sense.

NUMBER IDEA, which represents the name of the number, contains the following fields:

- Semantic field (Meaning, Reason and Name).
- Phonetic-phonological field (Word, Syllable, Letter, Rhythm and Tone).

The analysed structure, which includes the idea of the number, is formed by the meaning and the feeling. To form the idea, the first thing that is needed is to perceive, listen and think. Paraphrasing Kant, "We cannot think sound without hearing it by thinking" (Kant, Werke. Zweisprachige deutsch-russische Ausgabe, 2001-2006).

It is obvious that later on, the vision of the graphic sign will be of great help in this process of number recognition.

Starting from the idea of number without the symbolic representation, the figurative thought of number will be constructed by means of the word, a sound object which is represented by the tone and the syllable. After some considerations, a digression is necessary. Approaching the subject of the teaching and learning of number, one finds something in common. It is the acquisition of the knowledge to build the auditory image of the number and to build the image of the word. The former are necessary for arithmetic and the development of the fields of mathematics and the latter are necessary for language, reading and communication. In this sense we come to a very important conclusion about the knowledge formed for language and communication and mathematical thinking:

- The common basis is the thought/pronounced and perceived/thought word, which is analysed from above mentioned fields.
- Syllabic division of the word
- Correspondence of transmitted and perceived tones of syllables

We know that the acquisition of knowledge of the world by man begins from the first day after birth and is organised in a system of experiences.

Through the processes of sensory perception, man acquires information about the world around us, activates cognitive processes and begins to develop skills and abilities to memorise, differentiate or match objects. The basis for the accumulation and assimilation of sensory information is language, and in the early stages of child development primitive language is the basis for the accumulation and assimilation of sensory information.

At the same time a set of mental presentations and imaginations about the world are formed, which are accommodated in different areas of the brain and at the first request of the baby's will are explored by the mind in speech. The sensory and cognitive processes are repeated once, twice, three and more times until the mastery of language appears which allows the individual to accumulate and consolidate into a mental and sensory image of which word he wants to speak in most of its sensitive part depending on the periods of development of the human being. The precision of the sensory and cognitive processes to clarify the movement of thought in the maze of argumentation is completed with the background information on the formation of auditory knowledge of the number word, which has the name "ONE" and the object of study is the obscured structure of the number in pre-school education, where the age of the child corresponds from 3 to 7 years.

To become a part of the child's mental system as a concept of number, the word "ONE" in its structure, should pass the whole sequential procedure of its auditory formation and relevance in the already established image. That is to say that the word transmitted by the teacher in the form of speech and heard by the child should be equal to the one thought by him.

The correlation of the assimilated information about the name of the number can be understood as the encoding of a certain fragment (reason) and section (feeling) of the mental image of the word "ONE" by linguistic means.

The process of human cognition, which consists in the development of his auditory ability for arithmetic, is the process of formation of meanings, reasons, on the one hand, and signs, including sound, of language, on the other hand. According to Ushakova (Ushakova, 2011), the ability of human being to use language and speech has become the subject of study of many sciences: psychology, linguistics, psycholinguistics, linguistic philosophy. For all that, the nature of speech and language remains largely mysterious.

We agree that language is a system of signs through which individuals communicate with each other. Among these signs are: sonorous - speech, bodily - gesture and graphic - writing. Let us continue with Ushakova's thoughts. There is no convincing explanation for the cardinal basis of the speech process: the transition from immaterial thought to the matter of sound (in speaking) and from the matter of sound to an idea, understanding (in listening).

For almost everyone, and for psychologists, and linguists, and psychophysicists, the developmental stages of speech and listening in the first and second year of life take the form of shouting, humming, babbling and singing, forming the first words. On the basis of the selection of periods there is a change in the nature of sound reactions (individual sounds, sound chains, etc.), i.e. the stages of mastery of linguistic means occur. The background of the construction and formation of auditory knowledge of the word "ONE" is in the early period of speech acquisition. The basis is a set of auditory vowel knowledge acquired in childhood from its origin as psychic and mental abilities and appears as cognitive functions. The stages of development of children's vocalisation are divided into several periods.

As is evident and deserves much attention, the works of the analysed theorists Kuhl, Meltzoff, (Kuhl, 1996, October); Brunner (Brunner, 1981), have as their object of study only the development of speech from birth, which are physiological, communicative and psychological speech. He gives a certainty, that the basis of the formation of auditory knowledge of speech as a structure of different fields, mentioned above, is infant vocalisation. Brunner's main idea is also that the development of speech follows cognitive development. This is true, but in this chain there is a missing link, namely sensory development, to be precise, that is auditory development.

Pre-verbal period of development of children's vocalisation

According to Titova (Titova, 2003), the child begins the assimilation of language from the most electronic level, with the development of basic types of intonation, gradual mastery of the speech sound system and the periods of humming and babbling are a kind of preparatory stage for the pronunciation of words. Stark, R. E. (Stark, 1980), "...Children do not pronounce their first words until they are about 12 months of age, the ability to pronounce speech sounds begins to develop at a much earlier age". Wichman, M. M. (Wichman, 1996), "...Infants make a variety of sounds, similar to vowels and consonants, which they combine into longer and longer sequences. The formation of vowel sounds (as early as 2 months) precedes the formation of consonants.

Based on the data of the research results it is safe to conclude that the basis of the word "ONE" is a set of auditory vowel knowledge acquired in infancy from its origin as psychic and mental abilities and appear as cognitive functions. The period of the child's development that follows is the stage from 3 to 6 years, preschool age.

Conclusions

The objectives of the research to make known the obscured structure of number and its elements and to analyse the nature of the number name were achieved.

It is proposed to use as the principle of sensory and cognitive development for the acquisition and formation of number in the child of preschool education the Balance of the tonal ear, also the Syllabic organisation of the word and the Evolutionary Method Learning to read, which includes: software TOTEM 1.0 and 1.2, NOMOS 1.0 and Learn to read. At the same time a set of mental presentations and imaginations about the world are formed, which are lodged in different areas of the brain and at the first request of the baby's will are explored by the mind in speech. The sensory and cognitive processes are repeated once, twice, three and more times until the mastery of language appears which allows the individual to accumulate and consolidate into a mental and sensory image of which word he wants to speak in most of his sensitive part depending on the developmental periods of the human being. The precision of sensory and cognitive processes to clarify the movement of thought in the labyrinth of argumentation is completed by the background of the formation of auditory knowledge of the word number, which has the name "ONE" and the object of study is the obscured structure of number in pre-school education, where the age of the child corresponds from 3 to 7 years.

To become part of the child's mental system as a concept of number, the word "ONE" in its structure must pass the whole sequential procedure of its auditory formation and relevance in the already established image. In other words, the word transmitted by the teacher in the form of speech and heard by the child must be equal to the one thought by the child. The correlation of the assimilated information about the name of the number can be understood as the encoding of a certain fragment (reason) and section (feeling) of the mental image of the word "ONE" by linguistic means.

The process of human cognition, which consists in the development of his auditory capacity for arithmetic, is the process of formation of meanings, reasons, on the one hand, and signs, including sound signs, of language, on the other hand.

According to Ushakova (Ushakova, 2011), the ability of human beings to use language and speech has become the object of study of many sciences: psychology, linguistics, psycholinguistics, linguistic philosophy. However, the nature of speech and language remains largely a mystery.

We agree that language is a system of signs through which individuals communicate with each other. These signs include: sonorous - speech, bodily - gestures and graphic - writing. Let us continue with Ushakova's reflections. There is no convincing explanation for the cardinal basis of the speech process: the transition from immaterial thought to sound matter (in speaking) and from sound matter to an idea, understanding (in listening).

For almost everyone, and for psychologists, and linguists, and psychophysicists, the developmental stages of speech and listening in the first and second year of life take the form of shouting, humming, babbling and singing, forming the first words. On the basis of period selection there is a change in the nature of sound reactions (individual sounds, sound chains, etc.), i.e. the stages of mastery of linguistic means take place. The background of the construction and formation of auditory knowledge of the word "ONE" is in the initial period of speech acquisition. The basis is a set of auditory vowel knowledge acquired in childhood from its origin as psychic and mental abilities and appears as cognitive functions. The stages of development of children's vocalisation are divided into several periods.

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To be continued ...

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Social context and hardiness in selected national athletes of weightlifting

Contexto social y personalidad resistente en atletas seleccionados nacionales de levantamiento de pesas

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Abstract

The objective of this research is to identify relationships between social context dimensions and hardiness in elite weightlifting athletes. Methods: The design: non-experimental, cross-sectional and correlational, the participants were 20 athletes who belong to the elite as the national team of Mexico, they are between 19 and 28 years of age, $M = 22.05$ $SD = 2.91$, 8 men (40%) and 12 women (60%). 2 instruments were used, the first is the Perception of Factors Related to Excellence in Sport (PFED), (Simón, 2009) consisting of 54 items 6 variables, coach, environment and resources, athlete, family, nature of training and characteristics of the training and the second the questionnaire of hardiness in Central American and Caribbean Athletes (PRDCC) (Ponce, 2017; Ponce-Carbajal et al. 2015) of 18 items and three variables, commitment control and challenge. In the procedure, a file was created in google forms and coaches who are in charge of athletes from the Mexican national weightlifting team were contacted. The statistical analyzes used were frequencies, descriptive, reliability, and Spearman's bivariate correlations. Results: Adequate internal consistency in almost all the variables, between .40 and .92 in the 2 questionnaires. In the correlations between variables of the social context and those of the hardiness, relationships were evidenced between the total resistant personality and the nature of the training with an $r = .767^{**}$ and the challenge variable correlated with two, the first is the nature of the training $r = .834^{**}$ and with the characteristics of training $r = .671^{**}$. Conclusion, the relationships between the variables of the social context and the resistant personality are confirmed.

Challenge, environment, stress

Resumen

El objetivo de esta investigación es identificar relaciones entre las dimensiones del contexto social y la personalidad resistente en atletas de elite de levantamiento de pesas. Métodos: El diseño: no experimental, transversal y correlacional, los participantes fueron 20 atletas que pertenecen a la elite como selección nacional de México, están entre 19 y 28 años de edad, $M = 22.05$ $DT = 2.91$, 8 hombres (40%) y 12 mujeres (60%). Se utilizaron 2 instrumentos el primero es el de Percepción de Factores Relacionados con la Excelencia en el Deporte (PFED), (Simón, 2009) consta de 54 ítems 6 variables, entrenador, entorno y recursos, deportista, familia, naturaleza del entrenamiento y características del entrenamiento y la segunda el cuestionario de Personalidad Resistente en Deportistas Centroamericanos y del Caribe (PRDCC) (Ponce, 2017; Ponce-Carbajal et al. 2015) de 18 ítems y tres variables, control compromiso y desafío. El procedimiento se creó un archivo en google forms y se contactó a entrenadores que tienen a su cargo deportistas de la selección nacional de levantamiento de pesas de México. Los análisis estadísticos utilizados fueron frecuencias, descriptivos, fiabilidad, y correlaciones bivariadas de Spearman. Resultados: Consistencia interna adecuada en casi todas las variables, entre .40 y .92 en los 2 cuestionarios. En las correlaciones entre variables del contexto social y las de la personalidad resistente se evidenciaron relaciones entre la personalidad resistente total y la naturaleza del entrenamiento con un $r = .767^{**}$ y la variable del desafío correlaciono con dos, la primera es la naturaleza del entrenamiento $r = .834^{**}$ y con las características del entrenamiento $r = .671^{**}$. Conclusión, se confirma las relaciones entre las variables del contexto social y la personalidad resistente.

Desafío, Entorno, Estrés

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Introduccion

Historically society has been influenced by its various factors, everything we grow up with around us is part of the learning by imitation or adaptation, family education, religion, culture, school, politics, the clubs you attend, friends, siblings and other agents of coexistence have an effect on the life of each person (Real Academia Española, 2014), which makes them unique and unrepeatable, therefore the influence of the environments is of vital importance for the formation of children and young people according to the models that the family nuclei consider important for their development. Calle (2014), for his part, calls external influences all those ways in which we culturally learn, with our own examples of self.

Urie Bronfenbrenner, proposed a theory which he called Bronfenbrenner's ecological theory, where he established that the dynamics and how the human being develops in the different social circles Bronfenbrenner (1979) described a microsystem referring to the immediate circle such as the family, a mesosystem referring to third parties such as work and a macrosystem to which he integrated culture.

Later one of his students described it in a sporting environment, stating that athletes have a somewhat more complex dynamic than people who are not, adding to the circles proposed by his mentor a mirror of activities where he integrated in the microsystem the coach along with his school teachers, mesosystem to his training partners, opponents and the macrosystem also to his sports association and his federation so, their interactions as we can see is double the social interactions which I call ecological theory in sport (Henriksen, 2010).

The social context in sport has been studied specifically by Símon in 2009, he conducted a study with a group of hammer throw athletes establishing some factors that influence athletes such as the coach, environment and resources, athlete, family, nature of training and training characteristics and has also been studied in high performance athletes in various sports (Ponce, 2017), also university athletes and high divers (Ponce et al. 2022; Aranda et al. 2022).

In recent years, sport psychology has focused on investigating variables that contribute to the development of high-performance athletes, as it has been proven the influence they can have on the rest of society (Bauman, Bellew, and Craig, (2014). Encouraging athletes as a consequence activates a large part of the population, which is why it is especially important. Young people, by continuing to practice exercise and sport, develop skills that allow them to digest problems in the right dimension and not become emotionally overwhelmed by stressful situations that may occur throughout their lives, leading to a healthier life on an emotional level as mentioned by Ponce, 2022a; Ponce-Carbajal et al. 2022b; Ponce-Carbajal et al. 2021).

In research with retired athletes they confirm that sport helped them to identify a solution to their problems in a more adequate way, because in sport they are permanently making decisions in competitions that easily have many possibilities of being stressful or worrying because they are constantly being evaluated (Ponce-Carbajal, López-Walle, and Méndez, 2021a).

Sport in this case as well as the resistance to stress to which these young people are subjected play a protective role against illness, as some authors (Jaenes, 2008, Ponce, 2017) and Kobasa (1979) in his work mention that the concept of the resilient personality is referred to the resistance to stress has a mediating effect between health and illness.

The resilient personality is a concept developed by Salvatore Maddi and Suzanne Kobasa (Maddi, 2002), since a student reported in his work that there were some people who were ill due to prolonged periods of stress, but other subjects, on the contrary, were empowered and aware that this situation would lead to growth and development in their lives, so they were strengthened, this caught Maddi's attention (Maddi, Kobasa, Maddi and Puccetti, 1982).

The resilient personality is composed of three variables or dimensions that are control, commitment and challenge, and have been investigated in various contexts such as university athletes (Ponce-Carbajal et al. 2020) or in various high-performance sports (Ponce, 2017) or high diving (Villareal-Aranda et al. 2022).

The aim of this research is to confirm the existence of a relationship between some of the variables of the social context and the variables of resilient personality in Mexican national weightlifting teams. It is necessary to mention that there is not much information regarding these variables, considering the importance of this study, it has been taken as a line of development to offer new knowledge to coaches, parents and other agents that contribute to the development of athletes and can guide them on variables to encourage in athletes.

Description of the method

The research design is non-experimental, as it was conducted in a natural context and without manipulating any variable; cross-sectional, as it was a single intake, and correlational, because relationships between variables were established (Hernández, Fernández-Collado, & Baptista, 2006; Monje, 2011). The participants were 20 high performance athletes from the Mexican national weightlifting team, the athletes were between 19 and 28 years of age, $M = 22.05$ $SD = 2.91$, 8 men (40%) and 12 women (60%).

In this study two instruments were used, the first is the one referred to the social context, called Perception of Factors Related to Excellence in Sport (PFED), (Simon, 2009) consists of 54 items 6 variables, trainer as an example of item "His desire to do better and better" (11 items), environment and resources example item "Confidence in my possibilities" (10 items), athlete example item "My concentration in training" (12 items), family example item "Your parents' concern" (8 items), nature of training example item "Psychological work" (8 items) and characteristics of training example item "3. Demanding sessions" (5 items) and a response scale from 1 to 10, where 1 refers to the least contribution, and 10 is the greatest contribution. It has been used in several investigations showing adequate internal consistency values ($\alpha > 0.7$) (citations).

The second one refers to resilience to stress and is the Resilient Personality in Central American and Caribbean Athletes questionnaire (PRDCC; Ponce-Carbajal et al. 2015; Ponce, 2017), composed of 18 items, and three variables, such as control, as an example of item "What guarantees success in competition is to be in control at all times" (1 to 6) commitment, as an example of item "Daily training is the key to success in my competition" (7 to 12) and challenge, as an example of item "I love new and difficult exercises, even if they involve more effort" (13 to 18) of 6 items each dimension.

Resilient personality has been treated as a unifactorial (Kobasa, 1979; Kobasa, et al. 1982) and trifactorial concept, because its psychometric properties show that it has adequate indices to be used in both ways, this questionnaire is formed by three variables control, commitment and challenge (Jaenes, et al, 2008; Ponce, 2017; Villareal-Aranda et al. 2022). This instrument has a Likert-type response scale from 0 to 3 where 0 is "strongly disagree" and 3 is "strongly agree". Generally in both cases as global or individual, the variables have demonstrated in their analysis of internal consistency properties are adequate ($\alpha > 0.7$) so it is used in both ways.

The procedure, by means of the digital tool google forms, the form with the questions of the questionnaires and instructions for proper response was made, then, coaches from different states of the Mexican Republic, who are in charge of athletes of the national weightlifting team of Mexico, were contacted for their support and to ask for their support and to pass the questionnaire, to request their support and to pass the link through social networks, making sure that their athletes were informed that their participation was anonymous and completely voluntary, and that it would take them no more than 20 minutes to answer it, and that they could withdraw from the study at any time, for any reason they considered, without any problem..

The statistical analyses were means, standard deviation, frequencies, descriptive, and normality of data by kolmogorov-smirnov, Cronbach's alpha reliability (α) and bivariate correlations with Spearman's correlation coefficients, the analyses were performed with the Statistical Package for the Social Sciences (SPSS) version 25.

Results

The internal consistency of the instruments showed moderately adequate properties. It is worth mentioning that the reliability could be low in conditions of few items as in this case the social context training characteristics variable and the challenge variable are below $\alpha > 0.7$ (see Table 1).

Variable	α
Trainer	.84
Environment and resources	.96
Athlete	.76
Family	.92
Nature of training	.71
Characteristics of training	.60
Commitment	.40
Challenge	.50
PRtotal	.71

Note: PRtotal refers to the Resilient Personality instrument in its unifactorial form.

Table 1 Reliability of the variables of the perception of factors related to excellence in sport and resilient personality questionnaires

The results showed three positive and significant correlations. The nature of social context training variable with total resilient personality with a value of $r = .767^{**}$, and the nature of social context training variable with the personality variable resist challenge with a value of $r = .834^{**}$ and training characteristics with challenge $r = .671^{**}$; challenge.

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Conclusions

It is concluded that the nature and characteristics of the training, such as video review, psychological work, competition simulations, the relationship between work and rest, together with the length of the training sessions, or the variety of the exercises and the demands of their coach, are currently proving to be a challenge,

This shows once again the resistance to stress that the athletes have and that in spite of this, they carry out their competitions with a challenging struggle but full of learning, accepting the challenges that this entails, overcoming the difficulties for the benefit of their competitive development.

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Hardiness and coping strategies in selected national diving athletes

Personalidad resistente y estrategias de afrontamiento en deportistas seleccionados nacionales de clavados

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Abstract

The objective is to identify the relationships between resistant personality variables and coping strategies with diving athletes. Methods: The design is cross-sectional, non-experimental, and correlational, the sample consists of 13 athletes from the national diving team, between 18 and 23 years of age, $M = 20.31$ $SD = 1.54$, 7 men (53.8%) and 6 women (46.2%). 2 instruments will be used, hardiness in Athletes from Central America and the Caribbean (PRDCC) by Ponce et al. (2015) of 18 items. The other is the Approach to Coping in Sport Questionnaire, ACSQ-1, in the Spanish version (Kim et al., 2003), the questionnaire is made up of 28 items. The procedure was completely online, the link was sent with the instruments to the coaches of the national diving team of Mexico and Colombia. Statistical analyzes were performed on frequencies, descriptive, reliability, and Spearman's correlations. Results: Adequate internal consistency in almost all the variables, between .62 and .92 in the 2 questionnaires. The existence of relationships between the variables of hardiness and approach to coping in sport is confirmed in most of its variables and as a whole. Conclusion, athletes are capable of solving their problems with a certain calm of mind if they let stress influence their decisions.

Stress, Control, Coping

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Resumen

El objetivo es identificar las relaciones existentes entre variables de la personalidad resistente y las estrategias de afrontamiento con deportistas de clavados. Métodos: El diseño es transversal, no experimental, y correlacional, la muestra son 13 atletas de la selección nacional de clavados, entre 18 y 23 años de edad, $M = 20.31$ $DT = 1.54$, 7 hombres (53.8%) y 6 mujeres (46.2%). Se utilizaron 2 instrumentos, Personalidad Resistente en Deportistas de Centroamericanos y del Caribe (PRDCC) de Ponce et al. (2015) de 18 ítems. El otro es el Cuestionario de Aproximación al Afrontamiento en el Deporte (Approach to Coping in Sport Questionnaire, ACSQ-1) en versión en castellano (Kim et al., 2003), el cuestionario está integrado por 28 ítems. El procedimiento fue totalmente en línea, el link se mandó con los instrumentos a los entrenadores de la selección nacional de clavados de México y Colombia. Los análisis estadísticos que se realizaron son frecuencias, descriptivos, fiabilidad, y correlaciones de Spearman. Resultados: Consistencia interna adecuada casi todas las variables, entre .62 y .92 en los 2 cuestionarios. Se confirma la existencia de relaciones entre las variables de personalidad resistente y aproximación al afrontamiento en el deporte en la mayoría de sus variables y en su conjunto. Conclusión, los deportistas son capaces de resolver sus problemas con cierta calma mental si dejar que el estrés influya en sus decisiones.

Estrés, Control, Afrontamiento

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Introduccion

The health of the masses through physical exercise can prevent chronic degenerative diseases, but not only in this area has its benefits, but also at the psychological, spiritual and social relations of people (Desiderio et al, 2021), in addition to the fact that as a result sport helps to improve the quality of life (Romero, García-Mas and Brustad, 2009). In other research with a sample of retired athletes, they stated that the fact of having practised sport left them with a greater ability to face and solve problems in a better way, identifying the best option to solve them (Ponce-Carbajal, López-Walle, and Méndez (2021a). In this sense, sport has a direct contribution to health but also to the way in which problems are perceived, for a sedentary person the possibilities of solving a problem are lower, but for those who have practiced sport can feel the problem smaller, not so strong or even make decisions more easily, this thanks to the competitive environments in which it is involved and so many times that the really strong problems the athlete is perceived capable of choosing an appropriate solution, overcome, and solve.

Bauman, Bellew, and Craig, (2014), in their research establish the influence of highly competitive sport on society, as the masses are infected by the excitement of international, world and celebrity athletes that incite young people to experience the process of discovery to exercise and sport for individual interest, where many make it their systematic and permanent activity in a timeline that makes them healthier and more likely to make important decisions in their lives, presumably appropriate, turning these experiences into virtuous circles.

Athletes experience many stressful situations, properly caused by the countless ways in which they are evaluated daily, but at the same time there is an emotional burden, which needs to be controlled, because just as conditions can be perfect, they can also be a disaster, all sport of the stress resistance that has the athlete and the ability to maintain balanced the emotional part (Jaenes, Godoy, and Román, 2008; 2009) taking into account the coping strategies (Carrasco et al, 2010) these resolution skills promote stress control and overcoming difficult moments in competitions or training (Márquez, 2004).

The resilient personality is a topic focused on the study of resilience to stress, and the reasons why people get sick when they remain for a long time under stressful situations and why others see an opportunity for growth and development, and see the challenges as goals to be achieved and that over time leave important lessons. (Maddi, 2002; Jaenes, Godoy, y Román, 2008; 2009).

Salvatore Maddi and Suzanne Kobasa (Maddi, 2002), became interested in this concept thanks to the findings of one of their students, who described in his research that some of the subjects became ill after being exposed to stress for a long time, such as taking care of a sick person, and others, on the contrary, after passing the stressful test, take the events as a learning experience and decide to grow and learn (Maddi, Kobasa, Maddi and Puccetti, 1982). Jaenes (2008) in his work mentions that a higher resilient personality is a protector against stress and illness, therefore, being an athlete teaches you to have a higher tolerance to difficulties and a lower resilient personality can trigger diseases.

Hence the importance of strengthening resilience to stress and encouraging the general population to practice sport to increase the chances of making better decisions when a difficult situation arises.

Stress, seen from the point of view of coping, is understood as the behavioural or cognitive efforts that people make to cope with the emotional discomfort caused by problems that affect the balance of the subjects, causing varying degrees of stress (Lazarus & Folkman, 1984).

Lazarus & Folkman, (1984; 1986), in their book mention that strategies are the process by means of which people manage the demands between the individual and the environment that he/she could identify as stressful and the emotions that this generates. Lazarus in 1993 specifically for sport made a basic division of coping in athletes, the first referred to problem-focused coping (task-focused coping), centred on acting on the problem directly and the second to avoidance-focused coping (emotion coping and distancing coping) with the aim of not dealing with the situation in the hope of modifying its interpretation or simply avoiding the problem.

The Approaching Coping in Sport instrument has been used and promoted by several researchers (Kim, 1999; Kim, Duda, & Ntoumanis, 2003; Márquez, 2006; Ponce-Carbajal, López-Walle, & Méndez, 2021b).

In a sport context, the way in which the athlete decides to face the stressful situation, hinders or helps to obtain a competitive result, but it is a very brief moment, in which the athlete will face the problem or avoid it, Márquez (2006), has described in his work that facing a problem, has different possible responses in stressful situations with the aim of controlling and/or neutralising a situation.

Both the resilient personality and coping strategies are topics that have been little addressed previously, which is why their study is so important, since the aim is to generate useful and new knowledge for new and current generations. In the works of Ponce (2022a) and Ponce et al. (2022b), both instruments have been studied in university and nationally selected athletes, and they have also found adequate internal consistency properties for their samples.

The aim of this work is to identify the relationships between resilient personality variables and coping strategies in diving athletes.

Description of the method

The design of this study is empirical associative, simple correlation and cross-sectional (Ato, López-García, & Benavente, 2013), 13 athletes from the national diving team of Mexico (8 elite athletes corresponding to 61.5%) and Colombia (5 athletes corresponding to 38.5%), between 18 and 23 years of age, $M = 20.31$ $SD = 1.54$, 7 males (53.8%) and 6 females (46.2%).

In this research two instruments were applied, the first one is the Resilience to stress with the Resilient Personality in Central American and Caribbean Athletes questionnaire (PRDCC; Ponce-Carbajal et al. 2015; Ponce, 2017) this questionnaire is composed of 18 items, and by three variables: commitment (7 to 12), control (1 to 6) and challenge (13 to 18) of 6 items each.

In some research, resilient personality has been treated as a unifactorial concept since its creation (Kobasa, 1979; Kobasa, Maddi and Kahn, 1982) but it has also been analysed in a trifactorial way, since this scale is integrated by three variables such as control, commitment and challenge (Jaenes, Godoy-Izquierdo and Román, 2008), generally in both cases this instrument in its reliability analysis properties are adequate ($\alpha > 0.7$) so it is used in both ways. This instrument has a Likert-type response scale from 0 to 3 where 0 is "totally disagree" and 3 is "totally agree".

The second is the Approach to Coping in Sport Questionnaire (ACSQ-1), this questionnaire was developed by Kim and Duda (1997) and was translated into Spanish by Kim, Duda, Tomás and Balaguer (2003). It is composed of 5 variables, Emotional Calmness (7), Active Planning/Cognitive Restructuring (6), Mental Withdrawal (6), Risky Behaviours (4), and Seeking Social Support (5), using 28 items, with a 5-point Likert format, where 1 takes the value of "never" and 5 the value of "always". This scale has validity based on its internal test structure and its relationship with other variables, as well as adequate levels of reliability ($\alpha > 0.7$) (Kim, Duda and Ntoumanis, 2003).

The procedure began with the design of the digital questionnaire using google forms. The link to the test bacteria was sent to the coaches of the national teams of Mexico and Colombia, and they, in turn, sent the questionnaires to the athletes. The form clearly stated that participation was voluntary and anonymous and also explained the importance of their participation and finally the informed consent.

The statistical analyses performed were frequencies, descriptive, means, standard deviation and normality of data by means of kolmogórov-smirnov, Cronbach's alpha reliability (α) and bivariate correlations with Spearman's correlation coefficients, with the Statistical Package for the Social Sciences (SPSS) version 25.

Results

The results evidenced with respect to the internal consistency of the instruments showed that the reliability is confirmed as adequate for almost all variables, between .62 and .92 only one is below the α of .70, it is worth mentioning that the reliability could be low in conditions of few items as in this case that the variable of mental withdrawal has only 6 items see Table 1.

In the Spearman correlations, the results showed a positive and significant relationship in most of the variables.

Specifically, the results showed the existence of relationships between the variables of resilient personality and approach to coping in sport, correlations $r = .557^*$ between the total resilient personality and the variable of emotional calmness and with mental withdrawal with $r = .723^{**}$. Between variables, control and social support seeking $r = .676^*$; control and mental withdrawal $r = .627^*$; engagement and mental withdrawal $r = .687^{**}$; challenge and emotional calm $r = .802^{**}$; challenge and cognitive restructuring $r = .828^{**}$ and with Total Resilient Personality and emotional calm $r = .557^*$ and Total Resilient Personality with Withdrawal $r = .723^{**}$.

Variable	Alpha
Control	0.76
Commitment	0.89
Challenge	0.72
PRtotal	0.91
Emotional Calming	0.81
Cognitive restructuring	0.92
Seeking social support	0.76
Mental withdrawal	0.62
Risk behaviours	0.80

Note: PRtotal refers to the Resilient Personality instrument in its unifactorial form

Table 1 Reliability of the variables of the Resilient Personality and Approach to Coping with Sport questionnaires

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Conclusions

The conclusion of this research is that athletes presumably have a higher resistance to stress and therefore have the ability to adapt very quickly to changes and face their problems more calmly and if the problem does not have a clear solution they are able to adapt to new conditions.

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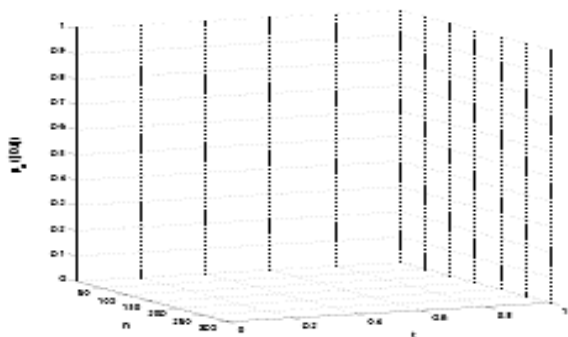
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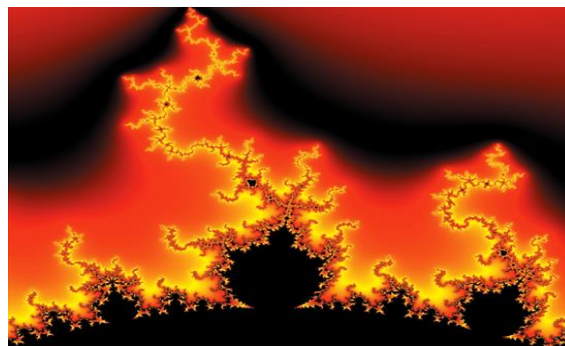


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