An informational interpretation of the Aveyron's Wild Child: L'Enfant sauvage (1970)

Hans CONTRERAS-PULACHE^{1,2,3}, Alexa Ivonne JOYA QUISPE¹, Dafne Solange MOYA-MALDONADO^{1,2}, Angello Jesús OSCANOA CHÁVEZ¹, Yumi Shannon PÉREZ LY¹, Jeel MOYA-SALAZAR^{1,2,4}

¹Escuela de Medicina Humana, Facultad de Ciencias de la Salud, Universidad Privada Norbert Wiener, Lima (Peru). ²Grupo de Investigación en Neurociencias Aplicadas-GRINA, Universidad Privada Norbert Wiener, Lima (Peru). ³Centro de Desarrollo Integral RINCONADA, Lima (Peru). ⁴Hospital Nacional Docente Madre Niño San Bartolomé, Lima (Peru).

Correponding author: Jeel Moya Salazar. E-mail address: <u>jeel.moyasalazar@icloud.com</u>, <u>jeelms@outlook.com</u>

Received 21 January 2019; accepted 5 March 2019.

How to cite this paper: Contreras Pulache H, Joya Quispe Al, Moya Maldonado DS, Oscanoa Chávez AJ, Pérez Ly YS, Moya-Salazar J. An informational interpretation of the Aveyron's Wild Child: L'Enfant sauvage (1970). J Med Mov [Internet] 2019;15(4): 221-30.

DOI: http://dx.doi.org/10.14201/rmc2019154221230

Summary

On the basis of the film: L'enfant Sauvage (1970) by François Truffaut, we proposed to discuss the following concepts: humanization and socialization, from the perspective of the Sociobiological Information Theory. And then, we made an interpretation of the changes that occur in the nervous system of a wild (feral) child at the (belated) inception of its socialization. In summary, we seek to answer the following questions: I. what is Itard looking for in Víctor: humanize it or socialize it? And, II. How can the changes that happen to Victor after his encounter with Itard be interpreted neurologically?

Keywords: socialization; humanization; neurology; paleocortex; cinema; neocortex; Truffaut; L'enfant Sauvage.

Una interpretación Informacional del Niño Salvaje de Aveyron: *L'Enfant sauvage* (1970)

Resumen

Sobre la base del film: L'enfant Sauvage (1970) de François Truffaut, se propone discutir los siguientes conceptos: humanización y socialización, desde la perspectiva de la Teoría Sociobiológica Informacional. Y luego, se elabora una interpretación de los cambios que ocurren en el sistema nervioso de un niño salvaje (feral) en el inicio (tardío) de su socialización. En síntesis, buscamos respondernos las siguientes preguntes: i. ¿Qué es lo que busca Itard en Víctor: humanizarlo o socializarlo?; y ii. ¿Cómo puede interpretarse neurológicamente los cambios que le ocurren a Víctor luego de su encuentro con Itard?

Palabras clave: socialización; humanización; neurología; paleocortex; cine; neocortex; Truffaut; L'enfant Sauvage.

The authors declare that the article is original and has not been published previously.

Technical Details

Title: El Pequeño Salvaje (Hispanoameric) / The

Wild Child.

Original tittle: L'enfant sauvage.

Country: France. Year: 1970.

Director: François Truffaut. **Music:** Antonio Vivaldi.

Photography: Néstor Almendros. **Film editor:** Agnes Guillemot.

Screenwriter: François Truffaut & Jean Gruault (Setting, adaptation and dialogue), Jean Itard.

Cast: Jean-Pierre Cargol (Victor, L'enfant sauvage), Francois Truffaut (Dr. Jean Itard), Françoise Seigner (Madame Guerin), Jean Dasté (Professor Philippe Pinel), Annie Miller (Baby Lemeri), Mathieu Schiffman (Mathieu), Jean Gruault (Visitor at Institute), Robert

Cambourakis (Countryman),...



American poster

Color: Black and White. **Rumtime:** 83 minutes.

Genre: Drama.

Productions companies: Les Artistes Associés, Les Films du Carrosse, Les Productions Artistes

Associés.

Synopsis: "Film based in real events that happened at the end of the XVIII century. Narrates the process of the education of a child (Jean-Pierre Cargol), who grow up in an isolated forest without any contact with men or civilization, that with the supervision of the Dr. Jean Itard (François Truffaut) will discover how it is to live with narrow margins which is offer by the Parisian civilization, leaving him away from the freedom life offered by the nature, have been like a portal between the closed-interior and the exterior world, the window of his new home. Despite that, Victor (the wild child) manages to develop to the teachings imparted by his tutor (Jean Itard), who does not reach its aim to the one hundred percent, watching the evolution of his transformation. One of the most celebrated films of Truffaut" (FilmAffinity).

Awards: 1970: Seminci: Golden Lábaro: Best movie. Circle of New York Critics: Nominated for best script.

Links:

https://www.imdb.com/title/tt0064285/?ref =nv sr 1. https://m.filmaffinity.com/es/movie.php?id=634722

Trailer

Cinema in medical learning

The technology is endowing us tools, prostheses, extensions, additives, useful and dangerous, already daily for humanity, which are present in several communities in a massive way, being irreversible determinants that can change the millenarian heritages, cultural habits, and the understanding of reality. This technoprothetic (technoprothétique) nature, that is characteristic of our species, emphasizes the artificiality of the human being¹.

The development of the technology has led us to an irreversible era that presents benefits and risks for humanity. This technology can be reflected in every contemporary human aspect, but it is in the education, both of immigrants and technological natives, where it can generate divergent changes never seen before².

The influence of these mass media has allowed and allows great advances in education, mainly in high-income

countries³, being one of that beneficiaries, the Medicine. This health discipline has used many resources like series, televisions programs and even films to explain the phenomena that occur in this area related to human health in order to prevent, protect, diagnose and treat it. In this sense, studies related to clinical medicine^{4,5},basic sciences^{6,7}, medical professionalism⁸⁻¹¹, neurology^{12,13}, epidemiology^{14,15}, dermatology¹⁶, infectology¹⁷, geriatrics¹⁸, among others, have been referred, where the art of cinema and television has been used to critically explain through theoretical and practical models, the benefits of medicine in the context of the disease¹⁹. Thus, this proposal is an original and acute way to develop and strengthen the concepts offered by medicine, and not only in it but transcending other fields that can oscillate from initial school education to higher human education.

Therefore, we recognize the beneficial contribution that it possesses, and through its benefits, we present an analysis of the film *L'enfant Sauvage* directed by François Truffaut, which has the purpose of exhibiting in the form of questions two propositions about the development of Victor (the wild child) from a neurological argument. Therefore, in this intention we explain each point associated to the topic, and then scrutinize our responses from the approach informational interpretation.

Wild human vs Social human

It is necessary to define "wild human" as that individual subject, Homo sapiens or human being" (succinctly) which grows outside of the society. For this, society is considered that material structure significantly historical (at least 30 thousand years) that exists and involves people. In this way, each human being and grow in society, incorporate from this the social information on which they will develop their personal activities. In contrast, a "wild human" will be a human being who has not come to develop his "conscience", because during a period of his life he was outside of society. A wild human could be considered as a natural living being, who has not been artificialized (if society is the historical construction of the human being, society is an artificial entity)2,20. In others words, the presence of society makes transcend the natural condition, so the socialized human being is none other than Homo sapiens who enjoys the existence of the artificial and its bosom establishes his own degrees of freedom.

Every time that a human being is born, he is not born in the air, he is born in the bosom of a family (this family, and its functional or dysfunctional organization, is considered his society), then it passes through institutionalized social systems like kindergarten, elementary school, high school, college, the world of work, among others. This series of steps is nothing more than "socialization", that is how society gives form to human being.

For this reason, a wild human, who does not precise of this information (since in the absence of society, or more precisely, by growing outside of society), does not achieve to establish the characteristic modeling of every person: The artificial nature of our "mind". Hence, the mind of a wild will characterizes unconscious individuals (mammals in general) while the "mind" of a socialized human characterizes conscious individuals (people in society). Wild human presents biological needs that he seeks to satisfy in his immediate environment (in its natural milieu), whilst people present social needs that they seek to satisfy not only in their immediate environment but also in the entire structure of the society (being this "environment" not natural but artificial) that can be accessed.

Wild childrens

The evidence has described several cases of "wild humans", also known as "wild children", "feral children". For example, we have the case of Marina Chapman (born in Colombia, 1940) who was kidnapped at the age of 5 years and abandoned in the jungle, where she joined with Capuchin monkeys who replaced the family role and she learned from the animals, all types of behavior such as climbing, eating, making noise, etc. On the other hand, we have the case of Oxana Malaya (born in Ukraine, 1983). Who in her childhood, around 3 yearsold, began to live with tramp dogs due to the abandonment of their progenitors, and also found the same pattern of behavior in an environment absent from artificialization, where she was found barking, moving in four extremities, eating raw meat, and with a particular aggressiveness towards people. Finally, we have the case of the so-called "Savage of Aveyron", later called "Victor", which talks about of a wild child found in France around the year 1784 with the appearance of an eleven-year-old child. In this case, the misfortune of the assassination attempt was evidenced through a cut in the neck, which could not carry out his death, and abandonment in the forest for about 7 years. Therefore, the conditions that do not have a social environment that provides the artificialization entail not being determined as a social human; because of it when it was found, it was a feral that only lived according to the instinct of survival, he did not know how to talk, write ant did not have the enough "reasoning" to be able to conducted activities such being social.

We will specify in this work, the case of Victor, in the film L'enfant sauvage by François Truffaut (1970). In this film, the main character of the film is Víctor, a "wild human being" (Photo 1), who has grown up in a completely natural environment and when he was found in the surroundings of a village (forest), moves to live in an artificial context abruptly (completely new to him). There was a mediator, Dr. Jean Itard (1774-1838), whose ideology was that the human is the result of a constructive program. That is how Itard decided to give him the necessary tools and instruments in his artificializated progress during his continuous supervision in his own home. Through his writtings, Itard let us know the secuencial progress of Victor is having through the day, since the wild behavior to achievement of basic learning (changing clothes, use the cutlery, identify objects, express feelings, etc.) through the imitation.



Photo 1. Victor before his meeting with Itard. His condition of "wild child" represents the life of a *Homo Sapiens* condemned to not enjoy the freedom of living in society (creating (an outside) and recreating (inside him) social information).

Question 1: what does Itard seek in Victor: humanize it or socialize it?

We will not go very far if we assume the concepts of "humanization" and "socialization" only as verbs that mean, the first: "action and effect of humanizing or humanizing", and the second: "action and effect of socializing", as suggested by the Dictionary of the Royal Academy of the Language. From this simplistic position, it could be said that Víctor begins to socialize and therefore his humanity is born. However, if we assume more rigorous definitions for these concepts (humanization and socialization), we can go further when preparing our response. Then we will interpret what is seen in the film

from an informational theoretical position, or what is the same: from the Sociobiological Information Theory (SIT)²¹.

The development of the human being up to his current moment (the modern "man") has followed several stages that must not be overlooked. In a synthetic way, we will say that we have arrived, modern human beings, to where we are currently based on having traveled: a) first by hominization, process that we could conclude with the establishment of Homo sapiens (which began several million years ago and that concludes approximately 200 thousand years before our era). b) Then, by humanization, (the establishment of Homo sapiens led to the birth of humanity), and c) finally by socialization (which implies the birth of society: humanity founds society). To explain ourselves better, we are going to discard the traditional definition according to which the human being is social because he is sociable (because he lives in groups, because he is collective, because he exists for or next to another or others, etc.).

Under this definition is often said that the human being is social because he lives in groups, because he enjoys "sociality" (worth the neologism). Thus, the social is an adjective, and therefore can be extended to ants, bees, and many mammals (which are defined, in short, as social animals). It is more, from this way of seeing things: socialization as a typical feature of the human being is what founds its humanization (hence, humanization and socialization sometimes do not see their differences clearly differentiated).

From our informational interpretation, humanization and socialization are two progressive moments in the history of the development of the human being in the course of the last 200 thousand years. The difference between the two is very crucial. The humanization product is human beings: and their deep capacity (rooted, obviously, in their nervous system in general and in their brain in particular) for human life (here you can list all the phenomenal and organ-structural differential features that differentiate Homo sapiens from the rest of hominids that existed on earth in some space of time). The historical product of socialization is no longer human beings (humanization was ultimately a complexity that occurred inside the head) but society (something that, clearly defined, is outside the head of human beings).

From the informational perspective, society is a significant material structure that is outside of human beings, historically accumulated and contextually situated in such a way that it shelters every human being that is

born. It is precisely the process of socialization that determines the birth of society and at the same time something much more transcendent: the ontological obligation of every human being born in society to incorporate it into his head, thus establishing his complete condition as a modern human being. From the SIT, we will say that social information is the basis of the structure of society and is at the same time the basis of the higher psychic processes that are the foundations of the very nature of the current human being. We are born social not because we are human, but because having transcended this humanity we present an unspeakable vocation towards the incorporation of the social information with which we find ourselves after (even before) our birth.

There is the concept of *Homo sapiens*, to designate the modern human being, which from our own point of view then we will place as the founder no longer of humanization (for 200 thousand years) but of socialization (for at least 30 thousand years). Therefore, every modern human being who is born today (or a little more than two centuries ago, as in the case of Victor) is a *Homo sapiens* because he was born in the historical moment in which society exists. This Homo sapiens possesses sufficient capacities to socialize, that is, to create a society and to incorporate the preexisting society into its neural networks of maximum complexity.

Therefore, these would be the essential features of the modern human condition: creation and incorporation of society. Seen like this, let us answer our question. Victor is a *Homo sapiens*; thus, it is not possible to humanize him. His human condition is not in question: he was born in the eighteenth century and not 100 thousand years ago. Therefore, whatever happens to him, it cannot be called humanization simply because it belongs to a historical lineage that has been humanized for many thousands of years.

While Homo sapiens, Victor, are born in society, however, soon he is exiled from it. Its isolation condemns it to a human incompleteness: Victor does not enjoy the capacity of its condition, not create social information nor incorporate existing social information. Thus, what Itard is doing is to socialize Victor, and we say socializing in the sense of making him born in society: of granting him the social freedom to create society and to incorporate it. In this sense, and contrary to what one might commonly suppose, it seems more correct to say that Itard was not seeking to humanize Victor, but sought to socialize it. Moreover, we repeat, it seeks to

socialize it as it deploys a series of strategies so that Víctor can incorporate the social information that was lost during the first and only decade of his life. For greater precision on the differences between humanization (and hominization) and socialization, a synthesis of the informational explanation of these processes is shown in Table 1, 2 and 3.

Question 2: how can the changes that happen to Victor be neurologically interpreted after its encounter with Itard?

According to the classical model of the human nervous system, the brain is the structural top of the encephalon and spinal cord (which are the constituent parts of the so-called central nervous system). This central nervous system organically surrounds the so-called peripheral nervous system (which is the one that ultimately determines all the organs of the human body). This classic model is inspired by the anatomical knowledge of the corpse that nourished neurology in its beginning. Certainly, at present, much that is known about the nervous system is strongly rooted in the anatomical vision of the corpse. For example, the notion of gray matter/white matters, the notion of the cerebral lobes. More specifically: in the early twentieth century it was proposed that there was such a highspecific cytoarchitecture in the brain that it was feasible to differentiate around 50 areas in each hemisphere (this conclusion was reached after studying microscopically several brains of human and animal corpses).

This was the proposal of pathologist neurologist Emile Broadmann, who 100 years later (as if to corroborate our statement: "much of what is known about the nervous system is strongly rooted in the anatomical vision of the corpse"), in Nature (2016) it was stated that each hemisphere has 180 differentiated functional areas²⁵. The difference between this knowledge a distant century, is that for the twentieth century only "classical" techniques were available to study the corpses whilst currently already available enough technology to explain the nervous system of the living human being.

This has led today to the classic model to understand the human nervous system to be renewed, strongly, in the course of the last half century. There is no doubt that the neurosciences have played a key role in this development. It is precisely in this context of search and development of an explanatory model of the human nervous system of a person (forgive the redundancy)

Table 1. Informational synthesis of hominization, humanization, and socialization²¹⁻²⁵.

Desarrollo evolutivo	Description	Since	Until	Individuals	Brain structure
Hominization	Establishment of the Hominidae family. Bodily changes: standing, organic reorganization (manuality, pelvis shortening, phonation). Production of utensils (2, 5 'years ago). 600 cc: encephalon.	7 million years ago.	700 thousand years ago.	Orrorín tugenensis Australopithecus anamensis (4,2' years ago). Ardipitecus ramidus (4,4' years ago). Australopithecus afarensis (3,6'-3,2' years ago). Kenyanthropus platyops (3,4'-3,2' years ago). Australopithecus garthi (2,5' years ago). Australopithecus bonsei (2,3'-1,4' years ago). Australopithecus robustus (1,9'-1,5' years ago). Homo rudolfensis (2,4'-1,8' years ago). Homo habilis (1,9-1,6' years ago). Homo ergaster (1,7'-1,5' years ago).	The epigenetic determination leads to the structuring of the paleocortex. The individual and his sensations (visceral and somatic). There is no neocortex. The paleocortex (P1 and P2) is integrated executive and anticipatory. The communication is entirely by signals. There is only unconscious psychic information: sensations.

P1: parahippocampal and cingular cortex. P2: heterotypic cortex (sensitive, tactile, auditory, gustatory and primary motor).

N1: Orbitofrontal and anterior temporal association cortex. N2: cortex of temporoparietooccipital association. N3: dorsolateral and medial prefrontal association cortex.

alive, is that at the end of the twentieth century the informational explanation of the human nervous system was proposed. This explanation is part of the Sociobiological Informational Theory (SIT), developed by Pedro Ortiz Cabanillas, and that based on proposing a different definition of "information" elaborates an explanation of the relationship between the universe, society and the human brain²¹. Namely of the authors, this is the first model of the nervous system that manages to solve the mind-brain problem. It is precisely from SIT position that we will explain Victor's neurology, in response to our second question.

As we said for the first question: socialization is the process by which the modern human being invents social information and, with the same, society. From this perspective, society is not the set of people but an enveloping material structure, created by the modern human being in the course of the last, at least, 30 thousand years. We

could apply here without problems the term: "artificiality" (worth the neologism) to describe the essence of social information and society.

In addition, each human being that is born must incorporate in his brain said social information (at least the part to which contextually it has access). To achieve this socialization, at the time of birth, the human being has a series of neural structures that reflect psychic realities. Informationally (we specify that the definitions we are going to make should not be assumed from another theoretical position (i.e. psychoanalysis), but entirely and solely from an informational stance) we refer that the human brain is structured at two levels, the level unconscious (paleocortical) and the conscious level (neocortical). Social information will specifically have its seat at the conscious (neocortical) level. That is to say, social information, everything a person incorporates throughout their life, shapes the neocortex (the cerebral cortex

Table 2. Informational synthesis of hominization, humanization, and socialization²¹⁻²⁵.

Desarrollo evolutivo	Description	Since	Until	Individuals	Brain structure
Humanization	Establishment of the genus Homo. Groups of members develop human collectives. There are many forms of humanity. "Humanization processes occurred in several Homo species". It is entirely collective. Use of fire. Use and production of utensils. Use of clothing. They collect food. Nomads. Animal's hunters. Live in caves. Bury their dead. Cook your food. They communicates by signals, they complicates oral communication but without articulating words.	700 thous and years ago.	70 thousand years ago.	Homo erectus (1,7'- 250 thousand years ago). Homo antecesor (800 thousand years ago). Homo neanderthalensis (200 - 30 thousand years ago). Homo denisova and Homo soloensis (up to 50 thousand years ago). Homo floresiensis (up to 12 thousand years ago).	The epigenetic determination leads to the structuring of the transition neocortex. The individual integrates his sensations into symbolisms. It is not only anticipated and executed, it is even organized into groups, probably no larger than 150 people. He communicates without words, using gestures and orality. There is no social information. There is only preconsciously complexed unconscious psychic information, but social information is not yet invented (which will allow transcending the unconscious level).

of transition and association in both hemispheres). Additionally, for the neocortex to take shape in the light of social information there is an interface in the brain called pre-consciousness.

The pre-consciousness includes all the areas for the language in the left hemisphere (commonly called areas of Broca, Wernicke, Luria, Exner, and Dehaene) and also of the right hemisphere (which are neither studied nor recognized by those who follow the model classic of the nervous system according to which "language" is an attribute of the left hemisphere). The preconsciousness is a psychic structure whose significance will be to allow the passage of unconscious psychic information (of environmental nature - natural) into conscious psychic information (of a social nature: artificial). The pre-consciousness allows certain sensations (tactile, auditory, visual) to become complex in the form of symbols, of signs (thus leaving sensory reality and allowing the establishment of significant, social, conscious reality). Based on the pre-conscious activity the neocortex takes shape, as a seat of consciousness, thus allowing the existence of social information (either

inside the head, under the form of conscious activity, either outside the head, under the form of society). Following this informational explanation, we can affirm that Víctor, in the socialization process that Itard prints, will see his entire nervous system reorganized, particularly his brain (Photo 2). We can imagine that the primary sensory areas (paleocortex) begin to reorganize in the light of the discovery of social information (that is why before it does not recognize the sound of a door but that of a food falling to the floor).

It is likely that at these levels of sensoriality and primary motor skills we could also locate that Victor learns to recognize the symbols (hammer, key, scissors), and signs (the letters, tools that, on the other hand, do not make us forget the presence of María Montessori , who read Itard deeply and on which he devised the fundamental pillars of his "Method." Unfortunately, as long as Maria Montesori did not get to see the Truffaut film, Montesori died long before the cinema existed as a hegemonic experience, but we firmly believe that having seen the film, she would be happy to see that Truffaut most likely imagined Itard's instruments based on what

 $\textbf{Table 3.} \ \ \textbf{Informational synthesis of hominization, humanization, and socialization} \\ 2^{1-25}.$

Desarrollo evolutivo	Description	Since	Until	Individuals	Brain structure
Socialization	Establishment of the species Homo sapiens. More specifically in the course of 30 thousand years, social information was created. History is born. Speech (words) develops. The communication is by signals (oral), and then it is by symbols (paintings, drawings, sculptures), and then by signs (when writing is developed). The members of the species Homo sapiens "had the ability to reflect the subjective images, product of their collective unconscious activity, in graphic images that exist physically in a rock or another life material". Myths are found before the existence of writing. Myths are held in religious practices. Religious practices are developed up to 12 thousand years. Until then, without religion, there are spiritual practices: shamanistic, collective, prereligious mythological (which may have led to members of the species Homo sapiens for example have performed rituals). Ceramic figurines of a human figure with a lion's head can be found 32 thousand years B.C. Christ. The development of religion promoted the establishment of the first settlements. This was the basis for the development of agriculture, and domestication (which would later give way to livestock).	70 thousand years ago. More essentially 30 thousand years ago. Between 70 and 30 thousand years ago, the "cognitive revolution" took place: appear for the first time: legends, myths, gods, and religions.	At present Informational hypothesis: existence of society at least in the last 30 thousand years.	Rock art: 40 thousand years ago. Religious centers: 12 thousand years ago. First establishments: 10 thousand years ago. Agrarian revolution: 7-9 thousand years ago. First settlements (private property): 7-9 thousand years ago. Scripture: 3 thousand years before Christ. Philosophy: A thousand years before Christ. Scientific revolution: 500 years ago.	The epigenetic determination leads to the structuring of the association neocortex: N1, N2 and N3. There is social information and there is conscious psychic information. Informational hypothesis: N1: since 30 thousand years. N2: since 5 thousand years. N3: since 500 years. The neocortex can incorporate social information. This information must socialize.

P1: parahippocampal and cingular cortex. P2: heterotypic cortex (sensitive, tactile, auditory, gustatory and primary motor).

N1: Orbitofrontal and anterior temporal association cortex. N2: cortex of temporoparietooccipital association. N3: dorsolateral and medial prefrontal association cortex.

she herself was commissioned to socialize (in the sense of creating social information) in the world).

The ability to understand spoken language, rather than the content: the form of spoken language is reconfiguring the right areas of the preconscious. At the same time, the search for the understanding of orders (which passes by decoding the words of speech) goes through a reconfiguration of the left areas of pre-consciousness. The learning of the norms of coexistence, of the processes of logical reasoning, of concepts, would imply a reorganization that we would place in the neocortex, in both cerebral hemispheres. In this sense, Victor's socialization would be reflected as changes throughout his brain, at the paleocortical level (in his primary sensory and motor areas), at the preconscious level (in his right and left transitional cortical areas), and at the neocortical level (in their association cortical areas). These changes will epigenetically determine the possibility of creating conscious psychic information (representing the world of one's own and the surrounding world) and socio-kinetically the possibility of creating social information (such as speech, drawing, writing, or significant social acts).



Photo 2. Itard leads Victor, during his socialization, to his meet with the social information: rules, signs, symbols, sounds. Itard is building the mind of Victor, as long we define by the mind to all the social experience that a person accumulates throughout his social life.

Conclusions

The cinema represents a powerful pedagogical tool that can be used as a vehicle to teach several aspects of the medicine to the students in training. Here, we have demonstrated the use of a film to teach the concepts about medic anthropology and Neurology.

Actually, exist, at least, two ways to understand the human nervous system, the classic model (inspirited

in the study of corpses) and the informational model (based in the SIT). We highlight that the TSI does not represent the unique effort to make the Neurology explains not only the corpse even the human alive. However, the SIT represents the first effort to go beyond the explanation of the brain only, searching to integrate into a single explicative framework: the universe, society and the human brain.

The neurological changes that Victor lives can be tracked along his cerebral cortex, in both hemispheres, following a sequential process in constructive terms, from the paleocortical to the neocortical, passing throught the interface of the pre-consciousness. Is probably that giving the conditions of neuroplasticity, the efforts of Itard cannot be showed (like happen in real life) fully achieved.

In this sense, the incomplete socialization that Victor achieved could be due to the late of his beginning or in some epigenetic determination present at the moment of his birth (the fact of presenting some neurological condition like autism, for example, that has been proposed as an explanatory hypothesis of the reason of his abandonment).

Informationally, the epigenetic determination is represented by the organizational capacity of the nervous system from cellular to the neocortical. Is not, like in the modern classic approach, one modification of the proteins histone. To this "epigenetic determination", of the modern classic approach, from an informational perspective will consider as one of the last manifestations of the kinetic determination. The kinetic determination follows the reverse route of the epigenetic determination (goes from the neocortical to the cellular). Therefore, informationally, the nervous system is integrated epigenetic and kinetically, if one person exist a problem in the organization of the cell (for example a fail in the genetic or "epigenetic" (in the histone protein level)), this will configure affection in the epigenetic determination in the nervous system, with a consequent disturbance in the kinetic determination. In absence of one problem of this type, the fact that cannot achieve a complete socialization would imply that in the top of this dialectic epigenetic-kinetic are not achieved at all potential levels of freedom. Therefore, we must remember, that the development of the nervous system continues in a universal progress of structuring before the birth, (by the deprivation of the socialization, for example), can be affected, in definitive way, by the formation of preconscious or neocortical structures.

References

- 1. Denegri MA. Somos protéticos. El comercio [Internet]. 21 de abril de 2014.
- 2. Palfrey J, & Gasser U. Born Digital: Understanding the First Generation of Digital Natives. New York: Basic Books; 2010.
- 3. Moya-Salazar J, Rojas-Zumaran V. Tendencias en la investigación del Virus de Papiloma Humano en Latinoamérica y en los en los países de altos ingresos. Rev Col Obst Gin. 2017; 68(3):128-34.
- 4.García JE, García E, García-Merino E. Tuberculosis y cine. Una aproximación a través de la fantasía de más de 400 películas. Rev Med Cine 2010; 6(3): 91-346.
- 5. Wagner R, Holliday A. Kaposi's Sarcoma in Film. J Med Mov. 2013; 9(3): 107-13.
- 6. Baños JE, Aramburu JF, Sentí M. Biocinema: la experiencia de emplear películas comerciales con estudiantes de Biología. Rev Med Cine 2005; 1(2): 42-6.
- 7. Gonzáles P. Cine y profesionalismo médico: una reflexión ilustrada con cuatro películas de Steven Spielberg. Rev Med Cine 2019; 15(1): 25-31.
- 8. Astudillo W, Mendinueta C. El cine en la docencia de la medicina: cuidados paliativos y bioética. Rev Med Cine 2007; 3(1): 32-41.
- 9. Peña Iñaki. Cuidados paliativos y Cine: una actualización comentada de la producción relacionada desde mediados del siglo pasado hasta la última década del actual. Rev Med Cine 2018; 14(4): 259-65.
- 10. Valero M, Pérez J. Cine y práctica reflexiva. Una experiencia en los estudios de Medicina del Campus del Mar de Barcelona. Rev Med Cine 2018: 14(4): 253-8.
- 11. García-Sánchez JE, García-Sánchez E, García-Moro M. «La teoría del todo». Neurología: Esclerosis lateral amiotrófica. Rev Med Cine 2015; 11(2): 109-16.
- 12. García-Sánchez JE, García-Sánchez E. Enseñanza y cine: La neurología en Hollywood durante 2014. Rev Med Cine 2015; 11(1): 1-2.
- 13. Méndez-Domínguez N, Rodríguez-Castellanos A. Pertinencia del análisis de la película *Contagio* (2011) en el aprendizaje de la metodología clínica y epidemiológica en medicina. Rev Med Cine 2016; 12(3): 147-55.
- 14. Camacho JF. *Epidemia*: Un repaso a la fiebre hemorrágica por Ébola. Rev Med Cine 2013; 9(2): 70-81.
- 15. Wagner R. Teaching Skin Diseases to Medical Students through Film. J Med Mov 2012; 8(1): 30-4.
- 16. Fresnadillo MJ, Amado C, García-Sánchez E, García-Sánchez JE. Metodología docente para la utilización del cine en la enseñanza de la microbiología médica y las enfermedades infecciosas. Rev Med Cine 2005; 1(1): 17-23.
- 17. Ogando-Díaz B. Geriatría y cine: una mirada desde la salud. Rev Med Cine 2016; 12(4): 196-204.
- 18. Hidalgo A. Algunas características generales de los textos literarios realacionados con la enfermedad. Rev Med Cine 2016 ; 12 (2): 78-81.
- 19. Denegrí MA. Polimatía. Lima: Universidad Inca Garcilaso de la Vega; 2014.
- 20. Contreras-Pulache H, Espinoza-Lecca E, Sevillano-Jimenez. Apuntes sobre la evaluación de la obra de Pedro Ortiz Cabanillas y su Teoría Sociobiológica Informacional. Rev Per Med Exp Salud Publica. 2018; 35(4):699-706.
- 21. Ortiz P. Psicobiología Social (tomo 1). 1ed. Lima: Fondo Editorial de la Universidad de Ciencias y Humanidades; 2017.
- 22. Ortiz P. Psicobiología Social (tomo 2). 1ed. Lima: Fondo Editorial de la Universidad de Ciencias y Humanidades; 2017.
- 23. Ortiz P. Psicobiología Social (tomo 3). Lima: Fondo Editorial de la Universidad de Ciencias y Humanidades; 2017.
- 24. Ortiz P. El Sistema de la Personalidad. 2ed. Lima: Fondo Editorial de la Universidad de Ciencias y Humanidades; 2016
- 25. Glasser M, Coalson T, Robinson E, Hacker C, Harwell J, Yacoub E, et al. A multi-modal parcellation of human cerebral cortex. Nature 2016; 536(7615): 171-78.



Hans Contreras-Pulache. Es Médico Cirujano por la Universidad Nacional Mayor de San Marcos. Se ha especializado en epidemiología, salud pública, gerencia social y gestión pública. Se ha hecho responsable, desde el 2011, de toda la obra académica de Pedro Ortiz Cabanillas. Como parte de este trabajo editorial ha publicado: La explicación científica del hombre (2013), El sistema de la personalidad (2016), Psicobiología social (2017) y "La explicación informacional" (2019). Su obra personal ha principiado con Neurología Filmica (2016).



Alexa Ivonne Joya Quispe. Estudiante peruana de medicina de 3er año de la Universidad Privada Norbert Wiener. Apasionada por la cardiología y la investigación científica. Actualmente, es ejecutiva de Publicidad de Imoerio Peru Bussiness.



Dafne Solange Moya-Maldonado. Estudiante de Medicina de la Universidad Privada Norbert Wiener, Perú. Miembro del grupo de investigación GRINA-Wiener. Fascinada por la investigación.



Angello Jesús Oscanoa Chávez. Estudiante de Medicina Humana en la Universidad Privada Norbert Wiener Realiza trabajos como es filantrópico, ailurafilico y es seguidor del piano clásico.



Yumi Shannon Pérez Ly. Estudiante de Medicina Humana en la Universidad Norbert Wiener. Es amante de los libros y fanática de las películas y series de drama; además, posee dominio de los idiomas inglés y francés, y castellano como lengua nativa.



Jeel Moya-Salazar. Tecnólogo Médico en la especialidad de Laboratorio Clínico y Anatomía Patológica, y es egresado de la Maestría en Ciencias (Universidad Peruana Cayetano Heredia). Lima, Perú. Ha colaborado en proyectos de investigación en la Samara University (Rusia), Stanford University (US), y Universidad de Buenos Aires (Argentina). Es profesor de la Facultad de Medicina y Ciencias de la Salud de la Universidad Privada San Juan Bautista (Perú), e integrante de The African Society for Laboratory Medicine.