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THE DEVELOPMENT OF THE SENSES AND DIGITAL TECHNOLOGY:A REFLECTION BASED ON THE STEINERIAN VISION AND NEUROSCIENCE

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ABSTRACT

The objective of this article is to share the notion about the development of the senses and their role in the cognition of the human being according to the Steinerian phenomenological view and the contribution of neuroscience to its understanding. The methodology used is bibliographic, and part of the theoretical framework was the one researched in the master's dissertation whose excerpt constitutes the article, plus some authors with whom a new dialogue was established in the expansion and continuation of the study. The result that emerges is a reflection on the effects found by neuroscience in this development by the intense use of digital technologies with children and young people both in teaching and leisure. The conclusion is that some effects can be harmful and it is necessary to rethink a return to face-to-face teaching and leisure with nature and social contact between people, as well as the use of drawing, artistic procedures and playfulness in education.

Keywords: Cognitive Development, Senses, Digital Technology.

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INTRODUCTION

The brain remains a mystery even though research is always evolving. Its function is to control and command all voluntary and involuntary functions of the human body, including emotional ones. This article brings an excerpt from the master's research carried out with adolescents from elementary school, in which we will address how the development of the senses is important for a healthy life in physical, emotional and cognitive terms.

From the description of how the development of the senses happens according to the vision of Rudolf Steiner, philosopher elaborator of anthroposophy and creator of Waldorf Pedagogy. According to his worldview, the human body houses all the feelings and perceptions of the outside world, giving physical sustainability to soul life, relating to the three forces of the human soul: thinking, feeling and willing. This relationship occurs through the use of the senses, which, in the Steinerian conception, are 12 and are related to this trimembration of the functions of the human entity (Steiner, 2012). These functions are capable of perceiving the surrounding world through experiences that will be lived throughout existence.

The structuring of the sensory organism considered by Steiner appears divided into three groups: the first is related to the metabolic-motor of man linked to the will, "the lower or volitional senses"; the second is related to the expression of the central rhythmic region of man, offering an organic basis for emotional energy, "average or emotional senses"; and the third group is linked to the neurosensory man, to representativeness, the "higher or cognitive senses". In this way, the activities that move the body release the hormones endorphin and serotonin, responsible for the feeling of well-being.

In turn, the practice of art releases the hormone of happiness, dopamine, giving a feeling of pleasure, collaborating for a full and healthy development. One of the biggest crises of the twenty-first century is the existential one, the fact that it does not make sense to be inserted in a society affects the psychological aspect, generating crises of anxiety and depression in adolescence. It is pondered here how these senses are affected by current technology. Children and young people are increasingly using digital technologies for recreational use and also in schooling. And, on the other hand, how motor, playful and artistic activities can contribute to avoid or minimize the effects that seem to be very harmful caused by technology.

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As already mentioned above, this research presents part of a dissertation presented in the Graduate Program of a university located in the interior of the state of Mato Grosso. In this article, we bring a part of the bibliographic research that supported the theme, which has already been updated, since the researchers' concerns continue at the same growing pace in which digital technology invades schools and the leisure time of children and young people.

Many researches, both in the health and educational areas, report that the brain needs to be exercised for neurons to maintain good functioning, but nowadays, with so much information at the same time, the brain can enter the process of exhaustion, reducing the ability to concentrate. Glöckler (2020) reports on the stress due to multitasking generated in the use of digital technology, which manifests itself through restlessness, nervousness, irritability, and headaches,

As a theoretical contribution, Romanelli (2018) who portrays feelings and expressions, existing in men and animals; as well as Steiner who tells us that the human being has 12 feeling and not only 5. For a better understanding of Steiner's theory, Aeppli (1998) will discuss Steiner's statements. And Baldissin (2014) appears contextualizing the importance of the correct development of these meanings. Garvey (2015) is used to contextualize the importance of play in development; Buddemeier (2010-2007) who explains how screens can interfere in the development of vision and motor and imaginative functions of the human being in formation; Glockler (2015) and Desmurget (2021), who report on the dangers of media for the development of children and young people in various physical, emotional, and cognitive aspects.

The purpose of this article is to bring relevant information about research on the interference of digital media in the cognitive development of children and young people, since they are increasingly present in homes and schools as pedagogical support and as entertainment.

METHODOLOGY

This research presents part of a dissertation presented in the Graduate Program of a university located in the interior of the state of Mato Grosso. In this article, we bring a part of the bibliographic research that supported the theme, which has already been updated, since the researchers' concerns continue at the same growing pace in which digital technology invades schools and the leisure time of children and young people. This paper

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describes the theoretical framework used to develop a research that had the understanding of its data collected in the field made with a phenomenological approach based on Bicudo (2011). Since these data will not be presented in this excerpt, part of this reference will be maintained, plus new readings that aim to share the notion about the development of the senses and their role in the cognition of the human being according to the Steinerian phenomenological view and the contribution of neuroscience to its understanding. In addition, to present new references that dialogue with the concern presented by authors who work with the anthroposophical theory on the human senses and their healthy development and the discoveries of neuroscience on the effects of the use of digital technologies for teaching and leisure.

RESULTS - FORMATION OF THE SENSES - THEORETICAL NOTES

> "You will understand the enormous
> importance for the education of man,
> May all the senses be
> cultivated in a balanced way."
> (Rudolf Steiner)

In this epigraph, Steiner refers to the theory of the sensory man, being the sensory part responsible for the development of the human being, starting at birth, passing through childhood, adolescence and materializing in adult life. Romanelli (2018) reports that this being is not only earthly, it is composed of a physical body existing in the mineral world, governed by physical laws; it is composed of an etheric or vital body, which is the energy that acts on living beings as the bearer of ethical and moral principles; of an astral body or of sensations, which acts on the feelings and expressions existing in men and animals; and the Self, an entity that possesses the individuality of human consciousness.

The human body, using these three forces of the human soul: thinking, feeling and willing, weaves this relationship through the use of the senses, which, in the Steinerian conception *(passim),* are 12 and are related to this trimembration of the human entity into body, soul and spirit, as Aeppli explains below:

> [...] Each of these three systems forms the physical basis and the precondition for our development of one of these soul-energies. It seems evident that our thinking, our intellectual activity, has something to do with our sensorineural system, the organic basis for the activity of representing. Feeling, on the other hand, is not based on the sensorineural system, but on the rhythmic one. We will have to relate all the blood circulation to the feeling all the respiratory activity and vice versa [...]

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> everything that is related to the will is in very close relation with the metabolic-motor man. All volitional activity is linked to metabolic processes. (AEPPLI, 1998, p.6).

Rudolf Steiner states that the 12 senses (Steiner, 2012) are capable of perceiving the surrounding world through experiences that will be lived throughout existence. According to Aeppli (1988), "Our surrounding world is divided into three domains of experiences: our own corporeality; external nature; our neighbor." (Aeppli, 1998, p. 11).

Thus, Aeppli (1998) brings the structuring of the sensory organism elaborated by Steiner, which appears divided into three groups: one group is related to the metabolic-motor of the human being linked to the will: "the lower or volitional senses"; the other is related to the expression of the rhythmic central region of this human being, offering an organic basis for emotional energy: "the middle or emotional senses"; and the third group is linked to the sensorial aspect of human life, to representativeness: "the higher or cognitive senses".

The division into three groups, with four senses each, corresponds to the total of the 12 senses that accompany human development throughout life. The four lower senses are: tactile sense; sense of balance; kinesthetic sense (of self-movement); vital organic sense. Thus, through the

> [...] organic vital sense [...] we perceive the states of our own organism and it warns us about any abnormality that may occur in our body. We are aware of its activity when we drink and eat excessively, sleep poorly, etc. Sense of balance: This sense allows us to record whether we are in balance or not. He shows us how we should seek our relationship to the right and to the left, above and below, to the front and behind, lest we fall. Tactile sense [...] when we grope an object, we perceive, in reality, only ourselves, that is, our own corporeality. The only thing we perceive is the transformation that, due to this object, takes place in us [...], in tactile activity processes take place that do not take place outside us, but under our epidermis, and for this reason alone are perceptible by our tactile sense. In reality, tactile experience is nothing other than the reaction of our own interior to an external process. Coenesthetic or self-motion sense: this sense tells us whether we are at rest or in motion, whether our arm is bent or extended. It perceives all the movements that go on in our body. (Aeppli, 1998, p. 13)[3]element.

The lower senses correspond to the perception of existence, being used at all times. Often they only realize their lack or when they have some discomfort, because they are senses that the body itself develops, to keep the individual active, daily.

The middle senses, on the other hand, are related to the perception of the outside, with the earth, because through the visual, olfactory, gustatory and thermal senses one

[3] Emphasis added

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perceives surrounding situations, with smells, flavors, colors and heat, which are interconnected to others.

We can only smell that which is in a gaseous state because, between smell and the aerial element, there is an intimate relationship; we can only taste or savor that which has been transformed into a liquid element. This means that everything we want to taste must first be dissolved by saliva – if it is not already in that state. It is precisely the watery man within us who tastes, with the help of the known taste organs. In the same way, it is the aerial man who smells, and can smell only what is correlated to him, that is, what has an aerial consistency, although this activity is carried out by means of the well-known external olfactory organ. And where is the organ that perceives heat located? in the thermal man within us. The thermal man is also the sensory organ that perceives external heat. Finally, the eye is correlated with light. He can perceive the light, the gradations of shadows, and the colors. (Aeppli, 1998, p. 17)

When we refer to these four senses, three of them are known and worked on in schools, as they have an organ responsible for their use that is easy to identify. Regarding the thermal sense, Aeppli (1998) reports that it is inside the human being, orienting him to his own corporeality, and having affinity with the volitional senses, reacting to stimuli when placed in extreme temperatures.

Moving on to the higher senses, which are divided into: auditory sense (of sound); verbal meaning (of the phoneme, the word or the language); intellectual sense (of thought, of concept); and sense of the Other's Self, these are all interconnected, making a correlation between them, because,

> [...] they bring us messages from the higher nature of man, since language and thoughts are manifestations of the human entity endowed with the Self. All of them have the character of cognitive senses, in perception vibrates, at the same time, cognitive activity. To function properly, it is assumed that a person knows how to handle language; that he develops his own thoughts; that has its own speech driver; his own conceptual organism and also his own experience of the Self. (Aeppli, 1998, p. 18).

These four senses are of paramount importance, as they present skills necessary to know and make new discoveries, interpersonal relationships are possible through these senses. Even though they are interconnected, "in the child, this separation between perception and thought is still not clear, because he does not yet feel separated from the world. This happens because the child's individuality is not sufficiently developed for him to be aware of his self, which only happens gradually. (Romanelli, 2018, p.98).

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The formation of the Self is interconnected to the senses, as the human being feels all external emotions, internalizing them, leading to connect with himself and with the other, since "it allows the individual to perceive the self of the other human being. It is not a matter of seeing its corporeal substratum, but rather of capturing its spiritual essence. The true self of the other is difficult to grasp. (Romanelli, 2018, p.98).

Steiner (2012) leads us to reflect on the sensations and perceptions currently experienced, because on certain occasions it is difficult to become aware of some senses and perceptions, since these skills are failing to be developed in children and young people, due to social isolation and excessive contact with digital technologies.

DISCUSSION: CONSIDERATIONS ON PHYSICAL, EMOTIONAL AND COGNITIVE DEVELOPMENT

The child develops gradually, and there is a whole process and a rhythm of its own. This also happens with young people in puberty, who have a unique uniqueness, as there are several ways to express themselves, communicate and have fun. Some prefer sports, *online games*, reading, fashion, etc. This way they create their own identity, with a lot of intensity. At this stage, emotions speak louder, the young person tries to be sure of himself. Baldissin (2014) says that it is through touch that the feeling of security and confidence is acquired:

> The sense of touch provides something totally physical, which is tactile perception. Through it, the human being is confronted with the most material aspect of the external world. [...] when we say that something is hard, rough or pointed, it is not about perceptual contents, but about judgments resulting from a sum of sensory impressions and sensations already linked to thinking (BALDISSIN, 2014, p. 25).

Touch stimulates thought, because when touching a surface, the body sends information to the brain, which automatically generates an image or a sensation, causing thinking, perception of the object and the impression of satisfaction or dissatisfaction, disgust or pleasure in touching it. Baldissin states that:

> Modern physiology, as well as psychology, prefers to speak in the cutaneous sense (which encompasses the senses of touch, temperature, pain, pressure), also considered a sense of deep sensitivity or muscular sense (proprioception). Pressure is the continuous touch; pain is exaggerated pressure; too much cold or heat can cause pain (BALDISSIN, 2014, p. 26).

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In this way, touch generates the perception of belonging to the lived space, all sensations that generate anguish and pain are linked to tactile sensation. Even in the dark, the body reacts to these sensations. People with visual impairments discover the world through touch; Even recognizing sounds, it is through touch that there is the identification of objects, places, and also how one learns to read and write.

The sense of touch provides self-perception at the bodily boundary through touch; something that could be defined as emotional security or existential trust through contact. On this front, an indication of good routine procedures would be the alternation of periods of solitude and protection, affectionate body contact and quiet surrender to oneself; Knowing how to let go seems as important as carrying it on your lap. (Baldissin, 2014, p.28).

It can be said that babies start their knowledge through touch. Romanelli (2018) says that "the child develops touch in the mother's womb, feeling the walls of the womb, soon after in the mother's arms, and continues to feel the objects and toys" (2018, p. 61), understanding what is around him. Playing with his own hands, he discovers every part of his body, noticing the differences, and so it happens throughout his development. "Tactile perception helps in the child's incarnation process. For this, it needs both physical and soul limits. Masturbation itself is not yet related to sexuality: it is an exploration of bodily limits." (Baldissin, 2014. p. 26).

The human body is perfect, the commands of each limb are linked to the brain, which is the most important organ of the central nervous system. It is through it that one learns and understands about everything that exists around him. "Feeling objects of different materials allows him to grasp the various qualities and tactile sensations provided by the varieties. If these sensations are pleasant, the young child will believe that the world is good. (Romanelli, 2018, p. 99).

This happens when you take an object in your hands to feel it, the brain recognizes its shape, being recorded in a specific field. Thus, by closing the eyes, it is possible to recognize the object again, just by touching it, awakening countless sensations of pleasure or displeasure.

> The meshes of the touch net are very elastic; in fact, they are already part of our supersensible organization (etheric body plus soul of sensations). The less dense part of the etheric body, which unites with the soul of sensation, is, on its surface, that tactile network. Everything that surrounds us is part of us, our home, a chair, clothes..., because our soul body also permeates them. (Baldissin, 2014. p.27).

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In this way, touch brings the perception of the existence of a world hitherto unknown, through playing, handicrafts and other activities, which will enhance and materialize development, both physical and emotional, making it clear that the child belongs to this physical space.

Creativity is not exclusive to the artistic process, but is present in all human activity, which gives shape to materiality. Human making and creating are symbolic actions in which forms communicate when they are realized in expressive aspects of the person's inner development, reflecting processes of growth and creative potentialities (Romanelli, 2018, p.61).

Thus, being in the social environment, playing and building their games enhances their child growth, bringing the development of the vital feeling to their hearts. Baldissin (2014) reports that this sense has to do with how the person is feeling at a given moment.

> The vital sense is something that man does not realize when everything is in order, but thus realizes that something in himself is not right. Through this sense, the person becomes aware of his corporeality as a whole. Something that fills his interior, the space delimited by the sense of touch, the skin, a corporeal being that occupies the space. (BALDISSIN, 2014, p. 31).

To strengthen the vital sense is to strengthen the physical body, and through the etheric body the energies are invigorated and passed on to the physical body. As a result, the willingness for new activities is greater. In this way, "the vital processes are located at the level of the etheric body; sensory perceptions, at the level of the physical body; the sensations of both are experienced by the soul, in a more or less dull way, with little consciousness." (Baldissin, 2014, p. 34).

One is not aware of this sense, but it is responsible for good and bad sensations, which are often attributed to the tiredness of everyday life, by not putting into practice the experiences lived, which would bring small pleasures.

> Without the existence of the vital sense, we would not feel pain, which is precisely a disturbance of this sense. Paradoxically, our culture pursues countless ways to eliminate this discomfort. Children are prevented from feeling physical fatigue by moving more and more in cars and also by being condemned to television and the computer. But there is no worse form of fatigue than boredom motivated by the excess of sensory impressions, to which we are increasingly subject today. (Baldissin, 2014, p. 32).

Therefore, being static in front of a television set, or even a computer, cell phone, among others, allows young people to get bored, preventing the strengthening and

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acquisition of vital meaning. One of the biggest problems is the lack of empathy that is being seen in recent times, as there are not many experiences of living with real people, in real situations.

There is an abundance of interactions with the screen, in which the viewer assimilates scenes that bring fatigue, tiredness, fear or shame, and that turn him into an apathetic being in some situations. "Enduring the "normal" pains of existence is one of the best means to face the great pains that fate can reserve, strengthening the spirit without having to seek the many artificial possibilities of analgesia that contemporaneity has" (Baldissin, 2014, p. 32).

Strengthening the vital sense is to prepare young people for various situations that they will face in the course of their development and also in life. This is linked to the autonomic nervous system, which, as the name implies, has the autonomy to control conflicting situations. This system is subdivided into sympathetic and parasympathetic. Baldissin says that the "sympathetic [corresponds to] (fight-and-flight attitudes, linked to more awake consciousness, attention) and the parasympathetic [to] (relaxation, peace, in a more unconscious attitude)" (2014, p. 34); The first is related to fear and the second to shame.

Peer experiences are of paramount importance for any age. Human beings need to live with each other, to acquire experiences and, more than that, to strengthen the soul. And this movement strengthens the body and mind, leaving them capable of facing new challenges. "The sense of movement transmits to us experiences of corporeal existence. [...] it increases our sensory range, providing the perception of the position in space and of the various parts of our body among themselves". (Baldissin, 2014, p.39). Moving is linked to belonging, to being part of a context, whether it is visiting a friend, getting to know incredible places or simply playing.

> The sense of movement allows us the sensation (in the soul) of freedom. We feel great joy, freedom from limitations. In joy one realizes being and not having. By playing an instrument, we practice a passage that is difficult to execute: as long as it is not perfect, we are not free, as if we were imprisoned there. (Baldissin, 2014, p. 40).

Immersed in a kind of mental prison, which happens in all areas, which if not cautious can turn into an addiction, seeking pleasure and perfection. This happens a lot in video games; The search to pass the level or to surpass the colleague leads to several hours in front of the screens, and the only movements are of the hands and eyes.

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> Through vision, we do not see light, but its interaction with darkness, which manifests itself as color, according to Goethe's Color Theory. If we fix our gaze on pure light, sunlight, it destroys the eye, and it can even cause blindness. This shows us that the eye was not made to perceive pure light, when it is very intense. Vision is the most conscious sense, so nature has given conditions to separate itself from the world, through the eyelids. No other sense can thus close itself to sensory impressions. (Baldissin, 2014, p.70).

When there is excessive exposure to devices such as *tablets* and cell phones, the pupil tends to shrink and the eyelids tend to stay open longer, impairing sleep, while causing a feeling of tiredness and exhaustion. The penetration of virtual space, in recent decades, has increasingly affected vision, raising the level of mental fatigue, as the mind travels to many places at the same time, without even leaving home, but the body remains static.

> As a result of this greater interiorization and isolation from the world, we also acquire a greater objectification of the external world, achieved mainly by the sense of sight. Through it, we capture all the illuminated surfaces of the objects, but we know nothing of their interior. Therefore, it induces us to a certain superficiality. (Baldissin, 2014, p.72).

The superficial makes it difficult to internalize the object. As seen earlier, touch provides this knowledge, and sight, while making a certain object known, can also confuse. Baldissin (2014) reports that vision leads to an illusory field and, as a result, feelings are deeply affected, as this leads to tension in the way of thinking, leading to distorted perceptions or perceptions that are not part of that reality. However, it is the sense to which greater credibility is given, because at the exact moment in which one sees, one also thinks and acts.

> In recent decades, more and more children have appeared with difficulties in learning to read and write, a condition known as dyslexia. Observing carefully, we can notice that, in general, children have been less and less able to exercise their motor skills. Our civilization tends to restrict movement; Instead of walking, children are always taken by car and, with a simple push of a button, the most diverse devices perform tasks that were previously performed by human movements. To make matters worse, the television and computers so loved by children also condemn them to immobility. (Baldissin, 2014, p.99).

Next, the neuroscience reference is taken on the effects of technology on the development of children and young people.

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DIGITAL TECHNOLOGY AND ITS EFFECTS: ANTHROPOSOPHY AND NEUROSCIENCE MEET

It is worrying that young people are exposed to screens for several hours, affecting their development and their perceptions of the world. They stop living with other people to be observers of life, with the false theory that they are learning on a large scale. The lack of interaction and experiences among peers leave young people and children emotionally vulnerable, especially young people who already have internal conflicts, with the arrival of puberty.

> The scientific literature clearly and convergently demonstrates that the time spent in front of home screens negatively affects good school performance. Regardless of gender, age, class of origin and/or analysis protocols, the duration of consumption is unfavorably associated with student performance. In other words, the more time children, adolescents and students spend with their digital toys, the more their grades plummet. (DESMURGET, 2021, p.62).

In a way, including screens for school chores would lead to more exposure time, because what could help in the rapid development by having a facilitator in the form of a file and quick searches, would cause small distractions until the search is made, due to the temptations of the noise of notifications.

Who among us adults has never caught himself opening an email on his cell phone and when he realized he was looking at other pages? Our brain tends to save energy, we involuntarily accept a command from the subconscious to go to rest, leading us to known and already resolved situations.

The negative effects of screen exposure have no distinction of age or gender, anyone can be tempted to stay connected for hours, watching some fun videos without even realizing that the hours are passing, everyone has the predisposition to develop some syndrome, but the effect that worries the most is those who are in the process of development.

According to Buddemeier (2007, p. 21), "phenomenological observation reveals the disappearance of three-dimensional space as a striking characteristic of the means of visual communication". Canvases offer only the two-dimensionality obtained by the use of the laws of perspective, causing the illusion of distance or proximity of objects shown on a surface. According to this idea, the author states that exposure for several hours a day can cause an accommodation of the muscles and optic nerves leading to a loss of visual focus capacity. Over time, this accommodation will cause several visual problems.

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Even at a young age, children are entering this enchanted world of computers, *tablets* and cell phones, and with admiring looks from parents, because children have an ability to handle these equipment, which enchant adults. Buddemeier says that,

> [...] Requiring an extremely early competence in computer science has to do with a conflict conditioned by the psychoevolutionary aspect, since the introduction to the computer, as well as its use, can lead to the obstruction of linguistic skills. What is lost in childhood, in this field, cannot be recovered later (Buddemeier, 2010, p. 23).

In this way, in addition to the child losing interaction with his peers, the games do not require movement and remain static for many activities, not even noticing what he is eating. Thus, their psychomotor development as well as their body development is compromised, leading to childhood obesity, leaving children and young people less and less proactive.

Play has the ability to integrate fun and learning, one of the most complex ways that children have to communicate with themselves and the world, that is, development happens through reciprocal exchanges that are established throughout their life, in addition to developing important skills such as attention, memory, imitation, imagination, also providing the child with the development of personality areas such as affectivity, motor skills, intelligence, sociability and creativity.

> Play is more frequent in a period of dramatic expansion of self-knowledge, knowledge of the physical and social world, and communication systems: so we can expect that play is completely related to these areas of development. (Garvey, 2015, p.17).

Play is part of the lives of children and young people, and can happen in groups, as well as alone, often representing scenes from their daily lives, being carried out spontaneously without any judgment, causing a sense of well-being, euphoria. What we see in this new format of digital play is that euphoria is more present than well-being and interpersonal interaction, as it happens through a screen, thus lacking the carnal presence of the other. Desmurget (2021) understands that, in order to

> For relational magic to take place, one element is fundamental: it is necessary that "the other" be physically present. To our brains, a "real" human is by no means the same thing as a "video" human. [...] The human brain turns out, regardless of age, to be much less sensitive to a video representation than to an actual human presence. It is for this reason, especially, that the pedagogical power of a flesh-and-blood being so irrevocably surpasses that of the machine. (DESMURGET, 2021, p.109).

In the virtual game we do not smell, taste, heat, there is no physical contact and prohibitions, everything is seen and heard, with scenes with varying degrees of impact.

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Some have a very high degree of dangerousness, which, if broadcast on television, would be appropriate for retaliation by the courts. Buddemeier (2007) reflects on the scenes that the media routinely transmits, with violence in various forms, which ends up being trivialized in the eyes of the spectator. According to Glocker,

> [...] Media with screens play a nefarious role, because the more frequently they are used, the greater their development-inhibiting effect. Already young children quickly show the first signs of almost vicious behavior in these cases. In addition, disturbances in brain development can easily occur, with fatal consequences. (Glockler et al, 2020, p. 11).

Therefore, this new technology, when used excessively, causes some pathologies that were present when the human being reached old age, but are now presenting themselves in children and young people such as: vision problems and also psychological problems, causing anxiety crises, depression and severe headaches. Screen addiction has become a concern for the Mystery of Health, and it characterized it as a public health problem, receiving an ICD[4] for treatments. All these disorders lead to the healthy development of children and young people. Desmurget cites the following example about

> An English survey focused on certificates of completion of basic education. The exam is done at the age of 16, and success is measured in eight categories, ranging from excellence (A) to insufficiency (G). The results showed that digital consumption recorded 18 months before the exam very seriously affected the final success. Thus, for each hour of screen time consumed at 14.5 years old, the score obtained dropped by nine points. (Desmurget 2021, p.63).

Thus, the results point to a low school performance, delaying development and leaving these children and young people without the ability to solve their problems, because logical reasoning tends to slow down.

What in a way seems to be a time of rest for most families after an exhausting day of work and study, is leading everyone to exhaustion without even realizing it. The fact that they are sitting or lying down gives the false impression of rest, leading to excuses of physical fatigue for the busy day, but in reality there is an overload of information to the brain, often without any meaning, leading families to isolation, reducing interpersonal exchanges and interactions. Desmurget (2021), says that

> Interpersonal exchanges and playful explorations focused on the real are the first victims of early digital uses (especially televisuals). From then on, in children subjected to these uses, some logical-mathematical prerequisites are forged

[4] Internet/Digital Addiction or Gaming disorder ICD 11 6C51

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> imperfectly; And without these foundations, it becomes difficult to build something solid afterwards. (Desmurget, 2021, p.66).

For a healthy development, concrete is the most assertive option, because this way there is recognition of reality. Being in movement, picking up and feeling are transformed into new knowledge, and being static in front of the screens does not allow for feelings of belonging to the space it occupies.

> When a small child assembles his cubes according to color, selects his Legos according to shape, orders his dolls from smallest to largest, deforms, reforms, fractions and reconstitutes his modeling clay, etc., he develops essential mathematical concepts (identity, conservation, etc.) and skills (serialization, grouping, etc.). It develops them even better if an adult is present to guide their referral. (Desmurget, 2021, p.66)

Emotions are not separated from the body, they are connected to other psychological processes and the development of consciousness. Buddemeier (2007) portrays them in two theories: the theory of social-cognitive learning, which states that "learning occurs through imitation" (p. 18), and the theory of emotional habit, which states that "most people quickly get used to the sight of scenes of violence" (p. 19), causing a feeling of normality when faced with scenes of real violence.

In this way, the theories lead us to reflect on screen time and its contents, which use emotions to hold the audience's attention, conveying a sense of power and belonging, giving belonging to young people, who, in some way, do not feel accepted by any group, coming to use digital media as a form of social interaction.

Smartphones have become an object of desire for adults and children, as it makes access faster and easier to contact people, whether they are real or characters in a narrative. Technology, then,

> allows you to access all types of audiovisual content, play video games, surf the Internet, exchange photos, images and messages, connect to social networks, etc.; and allows all this without the slightest restriction of time or place. The smartphone follows us all the time, without weakening or giving us respite. He is the grail of brainsuckers. The ultimate Trojan horse of our cerebral brutalization. (Desmurget, 2021, p.68).

This permission makes children, young people and many adults miss details of a painting on the front wall, the architecture of a building, the wind blowing a tree, contemplating the sunset on a canvas for posting. If that were not enough, we are losing

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one of the most important details for human development, gestures, looks, and hugs, leaving us cold, without the warmth of human warmth.

Technology has brought the ease of being in places that would have been impossible to be before, just a click and we get to know countries, beaches, far from our reality, without even leaving the place. With the evolution of smartphones, it is possible to manipulate photos, change landscapes and even include yourself in someone else's photo using all this to post and gain likes. Every day they launch a new smartphone, each time more powerful with greater storage capacity, with applications to control finances, weight, travel, maps, etc., as a way of thinking for us.

> The more apps become "smart," the more they replace our reflection and the more they help us become idiots. They already choose our restaurants, select the information that is accessible to us, separate the advertisements that are sent to us, determine the routes that we should follow, propose automatic responses to some of our verbal questions to the messages that are sent to us, domesticate our eyes from kindergarten, etc. With a little more commitment, they will end up thinking about our place. (Desmurget, 2021, p.68).

In this way, our brain slows down, enters a comfort zone, as it does not need to spend energy to solve a problem, just click on the smartphone, with this click it will solve and plan practically all your tasks of the day. And what time will we exercise this brain? How will children and young people learn to solve their problems? Studies reveal that the longer children and young people are connected, the lower their school performance.

> A recent study, from this point of view, is interesting. The experimental protocol was not content with investigating the participants (in this case, business students) about their grades and their use of their phones. [...] It also involved an objective measure of data. [...] For a period limited to two weeks, the installation of "spy" software on their smartphones, allowing them to objectively record, without interference, the actual times of use. According to the study's conclusions, "the magnitude of the effect found is alarming." For starters, it was confirmed that participants spent much more time manipulating their smartphones (3h50 per day, on average) than they thought (2h55 per day, on average). Then, it was revealed that the longer the time of use, the worse the academic results. (Desmurget, 2021, p. 69).

Therefore, what you think you have control over your connected time, in this research turns out to be a false impression, because when you are connected the effect of short 3-minute videos is cumulative, when you realize it has already passed 3 hours, even more so when the subject is of interest to us, and most of the time it is, because Artificial Intelligence knows our tastes.

In this way, children and young people without adult supervision can stay connected for more than 4 hours, an irreparable loss of time and development. For Desmurget (2021,

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p.104), "the more students watch television, play video games, use their smartphones, the more they are active on social networks and the more their grades plummet". In a way, when children and adolescents are introduced to computers, their playful training is compromised.

According to this author (Desmurget, 2021, p.108) "the prodigy of development thus initiated has its cost. It depends on the surrounding environment largely for its brain structure." Human formation depends on the interactions of one with another. Children and adolescents need to have contact with people of the same age and spaces in nature, places different from their homes, because it is through the physical environment that their intellectual formation develops.

> The interactions promoted (or obstructed) will then decisively shape the whole of development, from the cognitive to the emotional, including the social. [...] intra-family relationships do not restrict their importance only to the infantile state; They continue to play a relevant role throughout adolescence, in particular for school performance, emotional stability and the prevention of risky behaviors. (Desmurget, 2021, p.108).

The videos make them apathetic, when they see scenes over and over again, the angle of the footage, the distance, they keep human beings away from certain emotions, and when these videos are seen frequently, the brain processes them as something not real, normal, already known, so they do not impact emotions. For Desmurget (2021, p.109) "it is necessary that "the other" is physically present. To our brains, a "real" human is by no means the same thing as a "video" human.

Even if there is crying when watching scenes of tragedies, or even an emotional movie, the brain processes it as something not real, because they are distant, closed on a screen, not having the concrete presence of the other. Desmurget (2021), says that the human brain is less sensitive to a video presentation than to the actual human presence. The "mirror neurons that, during the face-to-face test, showed good responses to a manual gesture made by the researcher, showed a weak or no response when the same action, previously recorded, was presented on a screen", according to Desmurget, who cites the experiment of Ferrari (2003) carried out with monkeys.

Digital activities have a strong influence on family daily life, whether to look for a recipe, set up a closet, do makeup, everything you need to learn is found on the networks, an hour without internet causes blindness and distress. Therefore,

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> Digital activities occupy an increasingly important part of our days; And as the days cannot be lengthened, this time offered to the digital party must be extracted "from somewhere". Among the main contributory sources are homework. [...] sleep, creative play, reading [...] and, of course, intra-family interactions. [...] The more children and parents remain in front of screens, the more the dimension and richness of their reciprocal relationships are reduced. (Desmurget, 2021, p.111-112).

More screen time, fewer family interactions, with the arrival of television this interaction decreased, but families gathered in the living room to watch the programs and between one break and another there was interaction, even if the subject was the television program. With the arrival of smartphones, each one goes to their room and connects to their digital world, drastically reducing the intra-family relationship, the day-to-day experiences from father to child are reduced, while access to networks increases.

> An oft-cited study [...]deals with television[...]It involves children from 0 to 12 years old and considers weekly and weekend consumptions separately. The results show that the time dedicated to television unanimously reduces the duration of parent-child interactions. For example, for every hour spent in front of the small screen during the week, a 4-year-old child misses 45 minutes of conversation with his parents; An 18-month-old baby, on the other hand, leaves aside 52 minutes, and a 10-year-old pre-adolescent, 23 minutes. (Desmurget, 2021, p.112)

In this way, development is compromised, as the child learns by imitating the environment in which he is inserted, thus being able to take time to speak, walk and especially develop his emotions. Children throw tantrums to get their parents' smartphones, "the device doesn't even need to be used to be disturbing. Their mere presence sufficiently monopolizes attention (more frequently, independent of us) to alter the quality of the interaction" (Desmurget, 2021, p.114).

Being connected is a blessing as well as a curse, being able to see and talk in real time with people who are far away is wonderful, but when used too much for no purpose, it leads to several problems, without taking into account the evil for the individual himself, generating existential crises, when looking at the glamorous life of the other on the networks. These behaviors favor dissatisfaction with one's own life, and can generate behavioral disorders, such as aggressiveness, depression, or a certain existential malaise.

CONCLUSION – FINAL CONSIDERATIONS

This study points out how the senses are developed, and the importance of each one for the formation of children and young people. In a way, digital media, which bring thousands of people together, is moving us away from our own "I".

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The exchange of manual games for digital ones, and interpersonal relationships with people of the same age and/or different ages, are leading children and young people to develop on their own, with the false feeling that they are surrounded by people, but in reality, these people are closed in one of them.

In this way, relationships are increasingly superficial and disposable, lacking empathy with each other and compromising the development of mental faculties. The brain cannot discern the real from the fictitious, if it has not obtained a real, concrete experience through the median senses if it is not related to the perceptions of the environment, with tactile, olfactory, visual, thermal and gustatory experiences; the higher senses related to the auditory, verbal, intellectual and other self senses. All are interconnected, bringing messages from nature, so that human beings can express themselves and develop their own thinking.

Schools continue to work under the pressure of society, which wants an all-technological school for its children. But would it be healthy to leave children and young people more time exposed to screens? Referring to the theories presented so far, it can be said that it is not. Both anthroposophy with its method based on the phenomenology of Goethe and Steiner exposed by Aeppli (1998), as well as the most recent research in this field of knowledge mixed with the ideas presented by Baldissin (2014) who is an anthroposophical doctor and neuroscientist, or by Desmurget (2021), a French neuroscientist cited here, suggest that this technological excess experienced by humanity today is healthy.

The favorite subjects in schools continue to be physical education and art. The field research that was not presented here found that students like games and the playfulness provided in these disciplines in general, so devalued compared to others. Physical education develops skills in coordination and body posture, enabling better health. Art values creative potential, developing imagination and sensitivity, having a new creative experience.

Activities that move the body release the hormones endorphin and serotonin, responsible for the feeling of well-being. And art releases the happiness hormone dopamine, giving a feeling of pleasure, the same that the young person has when he manages to pass the levels in an electronic game. The difference is that in the electronic game the young person will repeat the same activity several times, causing an addiction, while art will work in different ways and with different materials, providing self-knowledge.

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One of the biggest crises of the twenty-first century is the existential one, the fact that it does not make sense to be inserted in a society affects the psychological, generating crises of anxiety and depression in adolescence. The lack of play and movement in childhood can lead to poor psychomotor development, affecting the Intelligence Quotient, making it more difficult to stop to concentrate and solve problem situations, leaving it at the mercy of digital resolution. In the case of emotions that require more time and control, it appears to be out of balance and turns into a traumatized adult.

Numerous other studies could be cited based on the cognitive development described by psychologists such as Piaget (2011) and Vygostsky (2019) and their followers demonstrating that the work of fine motor skills improved by the child in their drawings, from the doodle to the hypothesis of the first letters and words researched by Emília Ferreiro and Ana Teberoski (1999). Also the literacy method of Waldorf schools that starts from the drawing made on the blackboard by the teacher, which brings a letter inserted in image A linked to a fairy tale chosen for this illustration. There is so much evidence that these movements are necessary for writing and reading to be assimilated at the appropriate age and in the best possible way.

It is not possible to mention here in this space the path already consolidated in the history of human knowledge of writing and reading. Could it be possible without this path that digital technology can be an interesting exercise in reflection? The answer can be found in other readings of other research. Here we consider the development of human senses capable of improving knowledge as initially presented by Appli (1998), that is: of the surrounding world divided into three domains of experiences: of corporeality itself; of external nature; of the human being who is close to him. And concerns are raised about how this can be incorporated, or not, into the daily experiences of each one. The conclusion is that some effects of technology can be harmful and it is necessary to rethink a return to face-to-face teaching and leisure with nature and social contact between people, as well as the use of drawing, artistic procedures and playfulness in education.

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