

The relationship between concentration and learning: the use of TIDC for learning to learn

Recebimento dos originais: 17/06/2018

Aceitação para publicação: 30/06/2018

Claudia Lucia de Lima

Graduated in Nursing and Midwifery. Specialist in Collective Health. Specialist in Labor Nursing. Specialist in Special Program of Pedagogical Training. Specialist in Teaching and Research for Teaching in the Health Area. Master in Environmental Sciences. Teacher of FUNEC. She is Regional Project Coordinator at the Paula Souza State Technology Education Center.

E-mail: claudia.lima@cps.sp.gov.br

Erika Cristina Silva Batista Queiroz

Graduated in Letters (Portuguese and English) and Pedagogy. Specialist in Media in Education. She is Regional Project Coordinator at the Paula Souza State Technology Education Center.

E-mail: erika.queiroz@cps.sp.gov.br

Geraldo José Sant'Anna

Graduated in Mathematics and Pedagogy. Specialist in School Supervision. Specialist in Multifocal Psychology. Specialist in Education, Diversity and Social Inclusion. Master's Degree in Multifocal Psychology from Florida Christian University. She is Regional Pedagogical Supervisor at the Paula Souza State Technology Education Center.

E-mail: santana.gerald@gmail.com

ABSTRACT

The present work portrays a research on learning styles, with emphasis on what is in fact "concentrating" and "paying attention." The objective is to show that clear, contextualized and diversified classes, based on the use of TIDCs (Digital Information and Communication Technologies) attract attention and addresses the five most important secrets for students to learn, considering the break with various educational paradigms and mobilization of more interactive methodologies. The study seeks to encourage the use of technologies based on four foundations: awakening curiosity, learning styles, study techniques and the use of TIDCs in the classroom. The discussion and results are based on Law 9394/96 that instructs the teacher to ensure student learning by creating a student / teacher relationship, capable of making the teacher take care of the student in its fullness and equity. The teacher should accept the student as he is, however, develop his / her abilities, be it kinesthetic, auditory or visual. Being the determinant role of the teacher under the students' learning, this one has the task of identifying how each student learns, valuing the identity of each individual as to their way of seeing the world. Only in this way, curiosity will arouse students' interest and learning. When doing a diagnostic evaluation, this result is an indicator, which demonstrates the need to diversify the way of teaching to reach in the student audience: attention and concentration.

Keywords: Learning; student; teacher; concentration.

1 INTRODUCTION

Learning presents many variables that integrate styles of learning, maturity, interest, types of intelligence, previous references that favor the association of ideas, among others, so that each of these aspects can trigger a myriad of analyzes, in which one intertwines the other producing the complexity of the human being, without referring to social, economic, emotional, psychological and empathic issues. One aspect that regularly interferes with learning relates to distraction, inattention, and concentration.

Although the concepts are similar there is a distinction between them and would allow us to penetrate the field of studies related to the attention deficit disorder. A person may be inattentive when he distracts easily from the object of his attention. Often this behavior is interpreted as slovenliness, lack of concern, disinterest, disregard, taking the student to continuous collections, complaints to parents or guardians, depreciating the student and his productions, and often condemning him to retention / disapproval, or even even to school dropout.

Our purpose in this paper is not to discuss the problem of concentration and its relationship to Attention Deficit Hyperactivity Disorder (ADHD) and other clinical conditions, but to focus on the fact that "paying attention", "if" in the activities, are tasks that require self-learning, as well as being oriented to do research, produce a report or develop a group work. From this perspective, Digital Information and Communication Technologies (TDICs) enhance the teaching and learning process, combining strategies and essential resources for the students' good performance.

Consider Skinner's approach to this subject:

The attention that is captured by attractive stimuli must be distinguished from the attention that is "borrowed". Only the last needs to be learned. Looking and listening are forms of behavior, and they are strengthened by reinforcement. A pigeon can learn to compare colors, for example, only if he "pay attention to them". The experimenter ensures that he does so by not drawing his attention, but by reinforcing it by looking

In this way, our attention can be captured by something that engenders interest whether because of a physical stimulus such as a firework, a car horn, the petal colors of a flower, etc. and still digress for memories triggered by a perfume, a song, a phrase or déjà vu. It is understood that the perception will be directed to where the attention was called. Faced with this, it is possible to "look and not see," for the mere glance may not guarantee to pay attention to something.

Therefore, the pedagogical challenge that is modeled here is on exercising the brain to keep our attention totally focused on the current moment, so that the student stays focused on his studies. It is important to emphasize that concentration is a fundamental prerequisite for the memorization process.

In this perspective, the TDICs propose the construction of meanings, adapting to the individual characteristics of learning and impelling the appropriation of the autonomy and the construction of the own knowledge by the students. That is, the relationship between students and TDICs transfigures learning environments, re-dimensioning them and embracing a set of relevant methodologies by broadening ways of teaching and learning.

In one of his quotations, Aristotle (1973) thus makes explicit "we are what we repeatedly do. Excellence, therefore, is not a feat but a habit. " Considering this concept, we can produce the habit of paying attention, of concentrating and interacting with a certain object in order to build our knowledge and mobilize it. This implies that we define appropriate methods, techniques, strategies and didactic resources so that students take ownership of the information conveyed in the classroom and can model them to consolidate their learning.

Of course, the first change teachers are called upon to do is to abandon the old concept of "teaching", as a synonym for teaching, and to adopt a mediating, facilitative and guiding stance, impelling students to a permanent cycle of learning to learn, in particular through research.

The great themes of the subject are coordinated by the teacher, initiated by the teacher, motivated by the teacher, but researched by the students, sometimes all simultaneously. (MORAN, 2000, p.47)

In 2006, Punya Mishra and Matthew Koehler presented a theoretical model called Technological Pedagogical Content Knowledge, or simply, TPACK (Mishra & Koehler, 2006). The master line that generates the concept of TPACK is based on the attitude of a teacher to the technologies and establishes a combination that integrates the TIDCs into the curriculum resulting in a balanced mixture between the scientific knowledge or the contents to be taught in the classroom, the pedagogical level and also at the technological level (Koehler & Mishra 2008).

Undoubtedly, TIDCs will cover individual differences, respecting them and valuing them in relation to personal competences or intelligences, learning styles or generational diversity.

2 METHODS

In a classroom it is not uncommon to hear the teacher's clamor requiring students' attention. The act of paying attention is found not to submit to threats - explicit or veiled, overtones that overlap with others, emotional blackmail of "I will leave classes in this class," or other similar actions. Paying attention depends on the teacher's own attention on his students and on the ability to master alternatives that allow him to regain interest, participation and curiosity for the subject addressed.

It is important to emphasize that any technique can not supplant mnemonic resources, of course, that perform rescues in the basement of memory for certain environmental stimuli, the so-called down time, that is, attention turned inward, disconnection of the external situation and, produces erroneous interpretations as to the meaning of this student's behavior. The idea is then to produce up time, where we can generate concentration for problem solving and keep the focus of attention to what we are called.

"Studies conducted by Trinity College have shown that, in rats, the potentiation caused by the novelty can last up to half an hour (30 minutes) after the first neural stimulation generated by the novelty." This information reminds us of the care taken in the preparation of the lesson and the choice of methods, strategies and resources that are best suited to the development of the knowledge and skills related to the topic to be addressed.

We are based on four foundations:

1. the awakening of curiosity
2. care for learning styles
3. study techniques
4. the use of TIDCs in the classroom

Using Masetto (2000, p. 152), we can define the resources supported in TIDCs:

By new technologies in education, we understand the use of computer science, computer, internet, CD-ROM, hypermedia, multimedia, tools for distance education - such as chats, groups or mailing lists, e-mail, etc. - and other digital language resources that we currently have and that can significantly collaborate to make the education process more efficient and more effective.

Important processes can be orchestrated in the classroom, including important tools such as social networks, Google Classroom, Google Docs, among other instruments that tend to vitalize learning.

Martin-Barbero (2009) explains the new dimension conquered by the communication processes, leading not only to know, but above all to recognize the other and existing mediations to establish this interrelationship.

A recognition that was, at first, an operation of methodological displacement to review the whole process of communication from the other side, that of reception, that of the resistances that have their place there, that of appropriation from their uses (MARTÍN-BARBERO , 2009, 28).

This issue impacts, of course, on techniques, strategies and resources adopted, everyday in the classroom. Paula (1998, p.140) elucidated classroom work, that in the traditional school model, teachers "tended to perceive the audience as something homogeneous, treating their members as passive recipients, rather than active participants in the process". That is, learning becomes a goal to create and sustain new learning cultures in classrooms, or beyond, valuing individual and group learning. Listening more often to students assures the teacher of more nimble feedback so that he can associate other methods that lead the learner to appropriate those knowledge effectively. Feedback to students should be provided on a regular, periodic and systematic basis, taking up already treated subjects, reviewing concepts, reinforcing what is still fragile.

One way to help accelerate relationships and exchange experiences in the classroom is the early study of what will be treated in class. Students, guided by the teacher, receive texts, links and other precise information of what they should research, meet and seek for that class. In this aspect, the use of closed groups in Social Networks tends to contribute intensely to this interaction, not only for the studies of the students as for the intercommunication between them and between them and the teachers. This exercise is also important because it gradually teaches the student to research, interpret texts and evaluate their relevance.

The learning promotion and monitoring instruments used by the teacher should bring relevant information about the process and allow joint interventions that direct or redirect to the appropriation of concepts, experiences and reflection on the moment the student is in and how to transform that information, mobilizing them to solve certain problems shaped for the purpose of learning.

The ad hoc system adopting interactive teaching strategies includes, in particular, student groups where people of different ages meet, varying levels of learning and where the learning rhythms are diverse.

Just to situate the reader who does not know the concept, ad hoc networks are networks that do not have a special node or terminal (access point). Ad hoc is a Latin term meaning "for this

purpose" or "for this purpose". In general, it is a solution designed to meet a specific need or solve an immediate problem. Some define it as a "peer-to-peer network." In ad hoc networks, devices can communicate directly with each other, allowing greater flexibility in the network.

And what can this relate to a classroom? First of all the connectivity. Everyone should interact. The experiences, knowledge and information must circulate, gain new references, go through different points of view and wander through multiple glances. The first effect of the ad hoc network in the classroom is the provision of students' portfolios. They should not remain queued. They should foster interrelation among all. All are important and integral to the learning process. There is neither first nor last. There is no front or bottom. The network connects in all directions, in an articulate yet comprehensive way.

In order to foster interactivity between students and the connection with learning, teachers should seek to organize their classes by adopting integrative methodologies and TIDCs, which allow the student to ask, argue, exchange (socialization), communication in their different nuances, developing a sense of team, exploring their creative capacities, among others. The lecture itself must be planned by inserting moments to become dialogues, so that the student expresses himself and maintains the ad hoc contact with his classmates, both in person and virtually.

There are many challenges. We are in the eye of an educational hurricane. The profile of our students is changing, the society presents diverse technological advances, the labor market makes demands on the professionals of the future, new generations come up with very own characteristics. It is urgent to rethink teacher training and proposals for the contemporary school, and in this regard, TIDCs can not be excluded from the Political Project of the School Unit.

Curiosity in the classroom: the enjoyment of learning by learning what you like

Already recorded Eça de Queiroz "curiosity: instinct that leads some to look through the keyhole, and others to discover America." Obviously, it is not enough to be curious, we have here a curiosity that was planned, built and modeled.

"Researchers at the University of California, USA, conducted a series of experiments to find out what exactly happens in the brain when our curiosity is aroused. The researchers found that once curiosity was aroused by some question, individuals were more easily able to learn and remember completely independent information. One of the co-authors of the study, Dr. Matthias Gruber (2014) explains that this is because curiosity puts the brain in a state that allows it to learn and retain any kind of information that motivates learning. "

The first step in this way is to instigate the question. Turning to Voltaire, a French philosopher, "one more person is known by his questions than by his answers." Through the questions asked by the student it is possible to diagnose at which stage of the process of knowledge construction the student is found and to relate the pedagogical interventions necessary for the effectiveness of his / her learning. This is not a chance job and solves with the usual question: "Do you understand?", Or "any doubt?", "Any question?". The lesson should be designed from the following principles:

- the **art of dialogue** - the didactic procedures selected by the teacher should favor the constant production of dialogue. Group techniques such as Phillips 66, brainstorming, brainwriting, PNI - Positive, Negative, Interesting, Six Hats, Method 635, among others.
- The **art of doubt** - it is important to deconstruct the idea that the teacher "transmits knowledge" and the student "absorbs knowledge", generating a relationship of passivity, submission and disinterest. It is worth mentioning Lauro de Oliveira Lima:

"Let us not recriminate the youth for not wanting to listen to speeches, if we ourselves do not tolerate them." Let us be authentic, realistic and loyal to the youth leaders. " (LIMA, 1979, 301 p.)

It is doubt that may be questioning. Is that author's vision unique? Or can we produce ample debate from other glances and understandings on that subject?

The exercise of presenting different points of view will lead all the students to take part in the subject, to deepen in their arguments.

It should be emphasized that themes should be well selected for their contextualisation and timeliness. A discursed theme without clear objectives will not generate any attention.

- The movement of assertive questions - the questioning of the teacher should produce an increase of interest, "peppering" the unleashed conversations. In order for the student to ask he needs to learn to ask, develop the ability to know what to ask. The "no question" or the silence, invariably generated by asking the class, can be based only on the fact that the students were not taught to have an active and collaborative participation.

A dynamic class that engenders curiosity in the student should be attentive to five aspects: to lead the student to ask, to search (to search), to interpret, to write and to socialize. The chart below demonstrates the circuit of possibilities, always managed by the art of asking. (Figure 1).

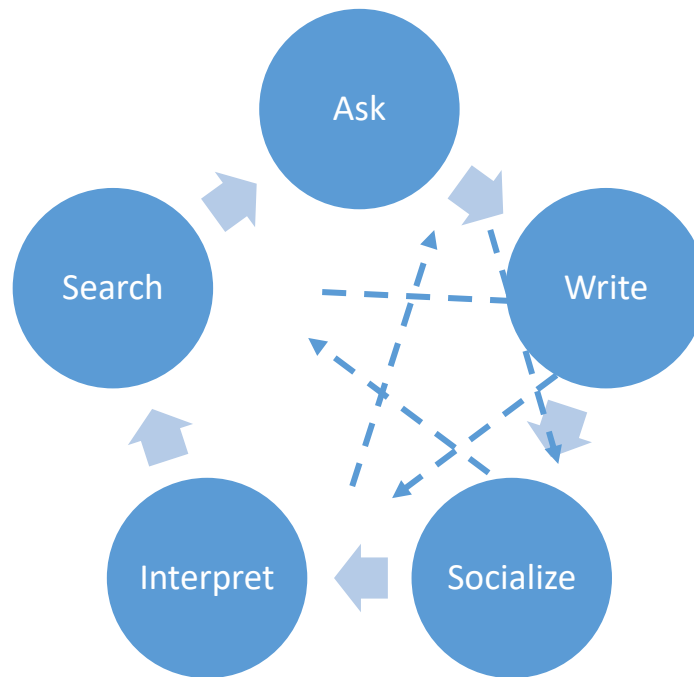


Figure 1 - Five elements that make up learning

The search (search) is established from well formulated questions that foment the search (books, magazines, newspapers, sites, interviews, etc). It is an important step for learning to learn, for the development of autonomy, for the formation of one's own opinion. Already to interpret it is linked to establish relations and analogies, to develop mental maps, to comment on what he / she has read, to analyze texts having as reference the time in which it was written, etc.

Writing occurs through the production of texts, the ability to write reports, refer authors, substantiate their opinions, record what they think and believe, and so on. And socialization makes it possible to exchange experiences, work on their relational / social skills: dealing with complexity / ambiguity, personal differences, relationship building, team sense, oral and written communication, etc.

It is worth once more to resort to Lauro de Oliveira Lima:

"Why a young man who feels in the flesh all the excitement of the atomic era, the telegraph, the electronics, the rockets to the moon, a world of wonders, spectacular cinemas, speed, endless asphalt lanes, he would be content to spend hours sitting on a terribly uncomfortable bank, listening to indigestible speeches about the Medes and Persians, about Newton's binomial that he does not know what it is for, about the indirect order in Latin construction, about the author of the National Anthem? Is it not intelligent who escapes this living circle?" (LIMA, 1980, 119 pp.)

"In short, the curiosity conducive to" healthier attitudes "(HASSMANN, 2004, p.18). Curiosity must be instigated, as expressed by Freire:

"The exercise of curiosity summons the imagination to the intuition, the emotions, the ability to conjecture, to compare, in the search for the profile of the object or the object or finding of its reason for being. A noise, for example, may arouse my curiosity. I look at the space where it looks like it's checking. I sharpen my ear. I try to compare with another noise whose rationale I already know. I investigate space. I admit several hypotheses about the possible origin of noise. I eliminate some until I get to your explanation. " (Freire, 2006, p.88).

The teacher circulates among the students encouraging the contact and generating the atmosphere necessary for the good development of interpersonal relations and the construction of knowledge. The TIDCs allow the teacher to perform this interaction in person and online, so as to articulate the relationship between the student and his / her learning.

Another ad hoc effect will be the discipline of this learning. The student should feel responsible for learning and for this to be known. What is your particular way of learning? What knowledge do you already have and what are your difficulties? How do you manage your studies after school? Learning involves dedication, commitment, effort and enthusiasm. In light of this, it is worth reflecting on the beliefs and values regarding the school and its future goals as someone who builds himself, his goals and dreams. The self-knowledge exercised by the student and favored through the monitoring of learning becomes an important indicator in pointing out the paths to be covered.

Learning Styles: respecting the way of each

Disserting individual differences would require a multitude of pages, considering the wide variety of ways we interpret the world, act and react, set preferences for color, perfume, flavors, music, and so on in a myriad of possibilities. These differences also occur in the way we appropriate information and practice it in the formation of knowledge, and how we give mobility to that knowledge in our daily lives. Some things generate interest and some we ignore. Identifying what made us pay attention to something is important so that we can find appropriate strategies for learning. Defining learning styles is thus essential for the definition of effective pedagogical work.

"In the face of observable events, from which it is possible to perform different interpretations, each individual selects and organizes a series of data, from which he constructs what we call the organizing model. The differences that present the interpretations that several individuals give to the same

phenomenon will inform us about the differential characteristics of their respective models. " (Moreno, Sastre, Bovet and Leal, 2000, page 78)

It is not uncommon to identify dissatisfaction among students about the quality of classes, the methods used - in general, expository classes - not contemplating individual differences. Now it is natural to be scattered when something does not attract us, it does not motivate us, it does not arouse curiosity to know, to remain focused on something that does not identify meaning is quite challenging.

Commonly the classes are organized to focus on the teacher - he talks, explains, reads power point slides, etc. - not allowing the active participation of the student, their interaction, the valuation of their reports and inferences. The uniformity of the classes and the organization of the portfolio in a row are an explicit invitation to listen and silence, reproducing in the proof what was said by the teacher and endorsed by the authors cited. The student does not exist in itself, it is a blank sheet of paper to be filled, a receptacle, a sponge that absorbs knowledge, someone without history, without personal, social or emotional life.

In this respect, it is relevant to highlight that the transposition of technologies into the classroom is not only due to the resource, but the methodological construction that is established from the proposal of the use of multimedia projector, power point, prezi and others.

Promoting the proper use of TIDCs and evaluating different learning styles will allow the identification of more appropriate didactic procedures for the class, the choice of assessment tools and recovery procedures that are in tune with these styles.

Let's focus here on three more prevalent styles:

- **Visual:** makes use of vision as a means to obtain and retain information, learns by making an image of the information that is receiving, depends on external stimuli to understand the subject.
- **Auditory:** uses hearing to absorb information, is able to build a story with the information it receives, needs to listen, debate and discuss in order to better understand the subject.
- **Kinesthetic:** it takes advantage of the senses related to the movement to store information, it is the type "hand in the mass", that has to do - physically speaking.

An expository class, for example, may serve the audience portion of the students, but will not allow the understanding of the content and its assimilation by the other two styles.

This analysis also allows identifying possible channels of distraction of these students focusing on the quality of the concentration. Let's see:

1. **Auditory students** tend to disperse or have difficulty concentrating when background noise or quick information occurs. His thoughts move at a moderate speed, so this time must be respected. In general, they depend on detailed explanations that indicate step by step the activity. The clarity of procedures and objectives is essential.

2. **Visual students** have difficulty concentrating when there are conflicting or excessive visual stimuli. He thinks faster, but often wanders as he reflects on learning. The environment is important. The visual student tends to analyze what is around them. It is important that the teacher is attentive to his posture, behavior and resourcefulness: the body speaks and the visual interprets.

3. **Kinesthetic students** learn by doing, performing, putting into practice the studied. In this way, auditory and visual conflicts tend to bother him. Failure to move around or do something that you think is important will distract you. Your thoughts occur at a slower pace than others, so learning speed must be observed. They tend to have perceptions and conclusions that set them apart from most. Care must be taken not to inhibit them.

Study techniques: bridging curiosity, TIDCs and learning styles

We observe that the awakening of curiosity and attention are related, among other aspects, to the learning styles of the students.

Visual students learn more easily when they see written words, so it is important to develop in them the habit of writing (not typing), making notes of teacher's words, references, summaries, tables, diagrams, drawings, flowcharts, graphs, maps support sheets, reviews, brochures, portfolios, use of videos or audiovisual presentations. They have more difficulty organizing themselves. Sometimes they will seem oblivious to class.

The hearing students are very organized and methodical. They enjoy oral presentations and learn more focused on listening. In this way, their interaction with the class is slower because they must process the information and will have difficulties contributing simultaneously. They like to explain the topics studied to their colleagues. They need silence while they study. An alternative is to record the lessons.

Kinesthetic students, however, are self-centered, always tinkering with something at hand. They will try to interact forever. They are practical and need to be involved in experiencing situations. They need to manipulate materials, at the same time that the visualization and auditory stimuli must be synchronized. They will tend to disperse if they do not feel involved in the matter. Some possible actions are the use of models, panels, tables, interviews, music, etc. They can study by listening to music, for example. He likes teachers who teach their classes dynamically, with alternations of voice, who make movements with their arms, walk to and fro, write on the board, finally, everything that has a relation with movement. For this reason, the dramatizations, simulations and practical activities will catch your attention.

Students should be guided to some tasks that tend to enhance their studies and contribute to their learning. We can mention, for example, highlighting / highlighting texts, making annotations alongside, creating the habit of re-reading what was studied in the day, studying through mental maps, doing abstracts, interpreting texts, using FlashCards, among others. It is worth noting that student monitoring, when one student can teach the other is important practice.

Some effective, if well-targeted, learning strategies are storytelling, brainstorming, verbalization and observation group (GV / GO), method 635, rolestorming, Greetings Cards, starbusting, and others that provide the student with the planned possibility of interacting with and explore their potential. These and other techniques can be intensified if associated with TIDCs, expanding their field of exploration and encompassing different ways of seeing the world and learning.

Faced with this, the teacher should be continually challenged to review mechanisms to break with consecrated practices and reconfigure their insertion of digital technologies into the classroom.

Some guidelines may be relevant:

- choose topics that develop interest in the students and allow them to easily connect to other subjects / curricular components;
- set clear and coherent objectives for each class;
- create / propose activities that develop understanding and that can be demonstrated by students;
- Develop interdisciplinary assessments using resources such as Google Docs, Survey Monkey, and other online assessment tools.

- leverage the processes of learning recovery and reorientation through Google Classroom, Edmodo, Social Networks and other available resources.
- aim to improve student performance by providing continuous feedback, well-crafted assessments, and effective and efficient recovery procedures that meet the class profile and learning style characteristics.

The use of TIDCs in the classroom: new ways of learning

We find that the use of Digital Information and Communication Technologies (ICTs) come to meet the new ways of learning, since they enjoy the actions themselves, which permeate the daily life of the 21st century public.

It is transforming the way we live, work and enjoy ourselves, as we wake up in the morning, make purchases, invest money, choose our entertainment, create art, take care of health, raise children, work and participate or relationships with institutions that employ, sell, provide services to the community. (Dertouzos 1997: 153)

With the support of Technology there is an immeasurable array of resources appropriate to each goal set in the classroom. In this way, let's look at GAFE (Google Apps for Education), a free technology resource with several tools for classroom use such as Google Classroom or Google Classroom.

Through this resource is proposed collaboration and cooperation in learning, which means putting the "hand in the mass", get into action and definitely interact online. There are different ways of interaction such as: discussions with insertion of images, hyperlinks, videos, thus describing hybrid learning.

Blended Learning proposes:

- Increased student engagement in learning
- Better use of teacher time
- Expansion of the potential of educational action for effective interventions
- Personalized planning and monitoring of each student

- Offering learning experiences that are linked to the different ways students learn
- Approach of school reality with the daily life of the student. (The Lemann Foundation, 2012)

In this way, it is necessary to continue to develop its own applications, generating discussions, cooperation and collaboration to expand a theme and / or disseminate it, and will be expanded through curiosity and search for answers. Answers these, that may be possible solutions or object of study immersion.

Considering the difficulty that the teacher has in relation to the continuation, as well as evaluating by competence, this resource allows an additional step to the program of evaluation of the resources for such, as well as the development of competences. Thus, a technology is used to support the evaluation:

Evaluation, in the context of active learning, is an ongoing, flexible process that takes place in the following forms: diagnostic, formative, mediating evaluation; production evaluation (of the course - digital portfolios, narratives, reports, observation); evaluation by rubrics - personal, cognitive, relational, productive skills; dialogic evaluation; peer evaluation; self-evaluation; online assessment; integrative evaluation; among others. The social show classes are educational practices, creative, socially relevant, and explicitly evolved. It is important to evaluate and give frequent feedback to students, tracking all their progress, both individual and collective. (Moran, José Manuel, *The education he wanted: new challenges and how to get there*).

With the autonomy and production of students, the teacher will also have an easy interpretation of results, which will be indispensable in their practice, justifying the reorientation of learning, that is, the student with any of the learning styles emanated in this article: auditory, visual or kinesthetic, has diversified instruments to focus on the format that best characterizes him and that really prioritize his way of learning, developing it even more, delving deeper into the topics and subjects detailed by the teacher.

Thus, with all the resources coming from the GAFE it is possible to have greater control, registration and follow-up in the development of the process of active learning.

3 RESULTS AND DISCUSSION

Often the layout of the classroom with its portfolios lined up, the standardization of what is correct to teach, the understanding of the uniformity of learning, the crystallization of concepts about how the sequence in the process of knowledge construction should lead us to adopt procedures that diverge from the understanding that we have our own characteristics.

Certainly the disposition of the portfolios, one behind the other, guarantees greater disciplinary control, however it can generate the belief that there is a certain homogeneity of the class. One of the effects of this is the old concept that "I taught, they did not learn." We have entered an important scenario crystallized for decades and that has dissociated teaching from learning, generating the concept that the "teacher teaches" and the "learner learns" differently. So much so that we often find resistance, even in the exercise of records about the school performance of students under the claim that "my job is to teach" or the exclusive adoption of discursive classes as didactic procedure.

Article 13, item III, of the LDBE - Law No. 9,394 of December 20, 1996, instructs that it is the duty of the teacher "to ensure student learning". Now, "care for learning" goes beyond "teaching". What does it mean to care? In the dictionary Aurélio this verb originates in the Latin "zelare", and means: to have zeal by; being jealous or jealous of; treat with zeal; administer diligently; take care of (someone) with the greatest care and interest; treat with sleeplessness; to watch Further clarification is not needed to make the teacher realize how great his or her responsibility is in this task. And not just that. There is a deconstruction of concepts. The relationship woven in the classroom between teacher and students is also altered, an interactive relationship is created and a closer look of the teacher is developed to the student's knowledge development, there is an exercise of repairing, caring, providing conditions more efficient and effective for the student to appropriate the knowledge linked to the course.

Learning becomes a goal to create and sustain new learning cultures in classrooms by valuing individual and group learning.

However, this goal can only be achieved by uncovering the secrets for maintaining the concentration of students in their studies. An important point, previously discussed, is the identification of the students' learning styles, the contextualization of the class and the creation of meaning for the subjects studied.

It is pointed out that the teacher is the main factor extrinsic to the student that determines his learning and his school success (Hattie, 2003). It is he who organizes and directs a pedagogical

investigation that guarantees the collection of adequate didactic procedures for the construction and mobilization of knowledge by the students, it is he who polices the learning and redirects it according to what he evaluates using diverse instruments.

From this perspective, we understand that student concentration and attention to the classroom and to their studies have a strong connection to the way in which subjects are selected, presented and worked in the classroom, treating them with a look that implies a certain homogeneity from the team. Rarely, when planning your lesson, the teacher is aware of the fact that he will be teaching to think biopsychosocial beings with different learning styles and predisposed to learn something interesting. Gobbi (2002) points out that successful students are those who have learned to learn and the teaching performance in the construction of these steps is decisive:

"If teachers accept students as they are, allow them to express their feelings and attitudes freely without condemnation or judgment, they plan learning activities with them and not for them, they create a classroom atmosphere relatively free of tensions and emotional pressures, the consequences that follow are different from those observed in situations where these conditions do not exist. " (GOBBI, 2002, p.29)

As we approach, auditory, visual and kinesthetic students have different behaviors in front of the reception, processing, interpretation and assimilation of a studied subject. They also differ in times of learning. Therefore, the change in the provision of the portfolios allowing greater interaction and the choice of more pertinent teaching strategies constitute the bridge to access the different students, making the class attractive and pleasurable. This knowledge to enlighten the unsuspecting teacher who laments in the teachers' room "no matter how much we do, students are disinterested, scattered and disorganized." In some ways, students are expected to remain seated, quiet, attentive and submissive for hours on end, with teachers who generally adopt the same techniques for learning to take place.

It is necessary to evaluate if the lack of concentration and interest does not come from an accumulation of information that has no connection with matters of interest, conveyed by resources and methods that do not contribute to its development. Nurturing students' learning is to develop the ability and sensitivity to perceive these often mute signs that are not always read and understood.

Returning to the importance of concentration in learning, first of all, it is worth emphasizing that we can do only one thing at a time, and when we are doing an activity we must have our full attention focused only on it. Then you need to devote the time you need to complete a certain activity

you are doing, and only after completing it, move on to a next activity, and so on until the end of your day. (OSORIO, 2014)

Students should be encouraged to get to know each other, to explore their potential, to believe in themselves, to develop self-esteem and autonomy. We are the fruit of a generation that has been modeled on school benches through concepts of subservience and we find it difficult to transmute ideas rooted and fed by conservative concepts, determining that a lesson has to be in a certain way, that learning happens according to certain unalterable standards, that we can teach a class and be understood, equally, by all the students, to apply the same test, to propose a unique form of recovery of the learning.

With this focus the TDICs tend to contribute to the valorization and development of learning with greater self-confidence and autonomy, in a process of ongoing formation, building the continuous process of learning to learn, backed by research (the search), the art of dialogue, the debate, the discussions, the socialization of information, the development of social skills, and, of course, the construction of knowledge.

To arouse curiosity in learning is fascinating and transforming both the teacher and the student. In the approach of Glaci Zancan:

"The teacher, at any level of education, must be a classroom researcher, noting the advances and problems faced by his students. And it must instigate them, so that they too are researchers, discovering the scientific fact through experimentation and relating it to everyday life. " (ZANCAN, 2001)

We reiterate the initial considerations about the importance of getting the student to ask, search / interpret, write and socialize. The class takes on a new dimension that encompasses all students, where their opinions and experiences are important, their way of seeing the world is valuable and unusual, the themes become richer and more vivid, learning takes space with lightness and acceptance.

Júlio Furtado, published in the Portuguese Language Magazine, issue April / 2014, reports:

"Facilitating learning is an attitude that depends on understanding how the other works, how it perceives, elaborates and represents the world. It is necessary that we, teachers, make an essential "journey" to the world of our students so that we can feel it, perceive it and finally understand it. This understanding is fundamental so that we can perform the didactic mediation that consists in the task of "translating" the content so that the student can learn it ".

If we do not know our student, learning will not happen. If we do not know and engage TIDCs in the classroom, many skills, abilities and intelligences will no longer be explored.

It is worth noting that

[...] people who are competent in information are those who have learned to learn. They know how to learn because they know how knowledge is organized, how to find information and how to use it so that other people learn from it. (DUDZIAK, 2003, p.26).

Referring to Moran (2007, p.2), this paper discusses that TIDCs "[are] bridges that open the classroom to the world ...". As we discuss in this text, it is they that can establish important relationships between curiosity, concentration, learning styles and the various contexts of information in the individual and collective building of knowledge.

Marinho (1998, p. 11) reinforces and reiterates the pedagogical turmoil we are experiencing, alerting us to the need for another look at learning:

[...] one must be aware of the fact that a teacher's need to break with the past, abandoning entrenched practices, should in no way mean closing his eyes and ignoring his previous experiences. These experiences will be important elements in the construction of a new pedagogical practice. (MARINHO, 1998, p.11)

Obviously, the proposal is not limited to the mere adoption of TIDCs in the classroom, but, above all, its due interconnected application to the profile of students and their learning needs.

4 CONCLUSION

Albert Einstein once wrote that "curiosity is more important than knowledge." While we can interpret his placement in many ways, it is important to note that he has given us the key to an intricate pedagogical problem: the question of concentration in studies. Curiosity is the driving force in building knowledge, not only the conveyance of information and the memorization of concepts that are vehemently reproduced.

In this work we seek to delineate the importance of understanding the students' learning styles so that the teacher can plan their work and prepare their classes based on the profile of that class and the value of each student's identity as to their way of seeing and interpreting the world. This teaching planning for the organization of their classes includes the use of TIDCs that are associated with the development of the students' competences, intelligences and abilities, predisposing them to learning based on curiosity, concentration and motivation.

It is through the use of the aforementioned Google Classroom, in which the teacher has an apparatus of strategies and resources for the development of skills and competences, often not known in the students, as well as by the creation of blogs, the use of Networks Social, online evaluations and the enhancement of recovery procedures via technological resources. The teacher finds a new set of didactic tools and recreates learning environments.

Thus the proposal is not only based on the idea of innovation with concentration, but is based on the real learning needs considering the extension of the teacher's knowledge about neuroscience, memory functioning, thought formation and learning styles.

Of course, this implies an important paradigm shift supported by a secular construction and deeply rooted in schools, making them often highly conservative.

"The weight of the teacher's tradition as a transmitter of knowledge still lingers in the consciousness of many teachers and prevents them from repaginating their plans and airing their understanding of knowledge. We have long ceased to be keepers and the only reference with regard to knowledge. The sources on which students can quench their thirst for knowledge are available at just one enter. We work very deeply in concepts of certainty and with static perspectives, when the dynamics of the world is different "(NOGARO, CERUTTI, 2016, p.35).

The use of technologies alone does not guarantee the consolidation of a new educational process. It is essential that there is a deep relationship of concentration and meaning in learning, within an understanding of how learning is established, as well as the detection of an entire personal and scholastic history of students, their acquired knowledge, as well as their difficulties and learning gaps. In this process, the student can feel part of the important learning process and not only a repository, he will feel welcomed, integrated, participant with space to interact, create and produce new knowledge.

In short, the process of teaching and learning through TIDCs reinforces the re-signification of methodologies for a new alignment between concentration and learning in the sphere of learning.

REFERENCES

ALVAREZ, Maria, Ana. **Processamento Auditivo: Fundamentos e Terapias**. Editora Lovise, 2001.

ANTUNES, Celso. **O lado direito do cérebro e sua exploração em aula**. Petrópolis, RJ: Vozes, 2001.

ARMSTRONG, Thomas. **Inteligências múltiplas na sala de aula**. 2.ed. Porto Alegre: Artmed, 2001, 192 p.

ANDRADE, F.H.S. (org.) **Neuropsicologia hoje**. São Paulo: Artes Médicas, 2004.

ARISTÓTELES. Ética a Nicômaco. In: — **Os pensadores**. 1ª edição. Tradução de Leonel Vallandro e Gerd Bornheim da versão inglesa de W. D. Rosá. Porto Alegre: Editora Globo, 1973, pp.249-436.

BRASIL. Lei de Diretrizes e Bases da Educação Nacional n.º 9.394, de 20 de dezembro de 1996

CURY, Augusto Jorge. **Inteligência Multifocal: análise da construção dos pensamentos e da formação de pensadores**. 8 ed. rev. São Paulo: Cultrix, 2006.

DERTOUZOS, M. L. **O que será: como o novo mundo da informação transformará nossas vidas**. São Paulo: Companhia das Letras, 1997.

DUDZIAK, Elisabeth Adriana. Information literacy: princípios, filosofia e prática. **Ciência da Informação**, Brasília, v. 32, n. 1, p. 23-35, /abr, 2003.

FREIRE, Paulo. **Pedagogia do oprimido**, 17ª ed., Rio de Janeiro: Paz e Terra, 1987.

FURTADO, Julio. **A empatia como constructo essencial para a facilitação da aprendizagem**. Abril 2014. Disponível em: <http://juliofurtado.com.br/a-empatia-como-constructo-essencial-para-a-facilitacao-da-aprendizagem/> Acesso em 13 jul. 2017.

GARDNER, Howard. **Estruturas da mente: A teoria das inteligências múltiplas**. Porto Alegre: Artmed, 1994.

GOBBI, Sérgio Leonardo. et al. **Vocabulário e noções básicas da abordagem centrada na pessoa.** São Paulo: VETOR, 2002

GRUBER, Mathias. **Why Curiosity Enhances Learning.** Dez. 2014. Disponível em:
<https://www.edutopia.org/blog/why-curiosity-enhances-learning-marianne-stenger>

HASSMANN, Hugo. **Curiosidade e Prazer de Aprender – O papel da curiosidade na aprendizagem criativa.** – Petrópolis, RJ: Editora Vozes, 2004.

HATTIE, J. (2003). **Teachers Make a Difference: What is the Research Evidence?** 2003. Recuperado de: <http://www.leadspace.govt.nz/leadership/articles/teachers-make-a-difference.php>.

ILLICH, IVAN. **Sociedade sem Escolas,** 1ª edição. São Paulo: Vozes, 1973.

KRESS, R. **Memória e Cognição: atenção, novidade e prazer.** Dez. 2010. Disponível em:
<http://menteememoria.blogspot.com.br/2010/10/memoria-e-cognicao-atencao-novidade-e.html>

LIMA, L. O. **Escola no futuro: orientação para os professores.** Petrópolis: Vozes, 1979.

LIMA, L. O. **Educar para a comunidade.** Petrópolis: Vozes, 1969.

LIMA, L. O. **Pedagogia: reprodução ou transformação.** São Paulo: Brasiliense, 1984.

LIMA, L. O.; LIMA, Ana Elisabeth Santos de Oliveira. **A juventude como motor da história: abertura para todos os possíveis.** Rio de Janeiro: Paidéia, 1980.

MARINHO, S. P. P. Educação na Era da Informação: os desafios na incorporação do computador à escola. **Tese (Doutorado em Educação).** Pontifícia Universidade Católica de São Paulo, São Paulo, 1998. 361 p.

MARTÍN-BARBERO, Jesús. **Dos meios às mediações: comunicação, cultura e hegemonia.** 4ª Ed. Rio de Janeiro: Editora UFRJ, 2009.

MASETTO, Marcos T. **Mediação pedagógica e o uso da tecnologia**. In: Moran, José Manuel (org.). Novas tecnologias e mediação pedagógica. Campinas, SP: Papirus, 2000.

MELLO, C.B. (org.) **Neuropsicologia do desenvolvimento**. São Paulo: Memnon, 2005.

MISHRA, P.; KOEHLER, M.(2006). **Technological pedagogical content knowledge: A new framework for teacher knowledge**. Teachers College Record, 108 (6), pp. 1017-1054.

MORAN, José Manuel. **A educação que desejamos: novos desafios e como chegar lá**. 2. ed. Campinas, SP: Papirus, 2007. 174p.

MYERS, I. B. & Briggs, K. C. (1995). **Introdução à Teoria dos Tipos Psicológicos: Um guia para entender os resultados do MBTI**. Consulting Psychologists Press, Inc. Palo Alto, Califórnia.

MORENO, M.; Sastre, G.; Bovet, M. e Leal, A. (2000) **Conhecimento e Mudança – Os modelos organizadores na construção do conhecimento**. Editora Moderna e Editora da Unicamp, São Paulo.

OSÓRIO, Lisandra. **Concentração**. 2014. Disponível em:

<http://wp.ufpel.edu.br/encontroservidores/files/2014/12/Concentra%C3%A7%C3%A3o-e-Mem%C3%B3ria.pdf>

PAULA, Silas de. **Estudos culturais e receptor ativo**. In: SOUSA, Mauro Wilton de. (Org.). Sujeito, o lado oculto do receptor. São Paulo: Brasiliense, 2002.

QUEIROZ, Eça. Eça de Queirós: **Curiosidade: instinto que leva alguns a...** Disponível em: <https://www.pensador.com/frase/NzMyNzIw/> Acesso em 15 ago. 2017.

SKINNER, B. F. (1999d). **Teaching science in high school – What is wrong**. Em B. F. Skinner. Cumulative record (pp. 254-270).

SKINNER. **Cumulative record** (pp. 217-239). Acton, MA: Copley Publishing Group. (Trabalho original publicado em 1961).

STERNBERG, R. J. **Psicologia cognitiva**. Porto Alegre: Artes Médicas Sul, 2000

TPACK development. **Proceedings of the 20th International Conference of the Society for Information Technology and Teacher Education**, SITE 2009, pp. 4087-4094.

<https://psicologado.com/atuacao/psicologia-escolar/a-compreensao-empatica-como-agente-facilitador-no-processo-de-aprendizagem> © Psicologado.com- Acesso em 18 jul. 2017.

ZANCAN, G. L. **O segredo é provocar os alunos**. Março 2001. Disponível em: <https://novaescola.org.br/conteudo/862/o-segredo-e-provocar-os-alunos> Acesso em 15 jul. 2017.