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THE INVERTED CLASSROOM: NARRATIVES OF EXPERIENCES OF TEACHERS WHO WORK IN HIGHER EDUCATION

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ABSTRACT

I acted as Coordinator of the Courses of T.I. in a Private University that was implanting the Inverted Class model based on the AVA system - Virtual Learning Environment. As I was familiar with this new method, I was invited to give in-house training to teachers who were having difficulty in appropriating the principles and techniques of the model. Participating in this training gave me the opportunity to get to know my work colleagues better and to get closer to their professional experiences and reflect on their difficulties with the inverted classroom model. The present work arises in this context and aims to develop a b*log* that allows debates and reflections on the methodology of the inverted class based on the authors, Pierre Lévy, Bergmann and Sams. For the development of the *blog*, it was necessary to retake the discussion about the Inverted Class Model, to hold focal groups with teachers that use this model and to analyze the narratives produced, based on the authors, Furlanetto, Schutze and Morgan. The teachers' narratives point to some issues that merit deepening: the difficulties in using the AVA System, especially with regard to practical classes, not involving students who need to be trained in this new methodology, the lack of a work structure for teachers who do not have time to prepare their classes and the teacher's need to review their way of working, which demands study and research. The blog seeks, in addition to providing technical information, create space for these and other issues that may arise, are debated.

Keywords: Active Methodologies. Inverted Classroom. DIY (do it yourself). Learning in technology.

1 INTRODUCTION

At the beginning of my professional career, I had the opportunity to work in some banking institutions and remained in this segment for 19 years. In the search for professional growth, I went through some departments within these institutions and, consequently, performed several activities. In one of these activities, I came across the need to develop training for bank branch managers. To this end, he studied the bank's products, built an objective presentation and, according to the institution's purposes, performed the planned training. This experience brought me closer to the teaching exercise and prompted me to reflect and record my practice through the development of material to be used in the courses. These trainings aimed to train managers by presenting the products and clarifying the doubts that might arise. With each training completed, I felt fulfilled and with a feeling of being in the right place, which impelled me to improve my work. However, these trainings were not constant, which made me feel stimulated to migrate to the career of a teacher in search of new experiences as a teacher. Pierre Lévy (1999) stresses that more and more individuals are led to change professions because in the course of their professional trajectories they come into contact with varied competencies, which leads them to reorient their careers so that they can exercise and develop them. That's what happened to me: living with colleagues, discussing our work and how to exercise it opened up new professional horizons related to teaching.

At the time, I received an invitation to work at a college. As I did not have a specialization in education, at the same time that I started teaching, I started, in the same college, a postgraduate course in teaching for Higher Education. In this course, I came across the active methodologies, which sought to develop the individual autonomy of the student, his/her willingness to work in groups and his/her ability to reflect and make decisions. The encounter with this methodology led me to try new ways of organizing teaching and student work in the classroom, which caused me to move from the place of the teacher who transmits knowledge, to the one who, based on new teaching devices, seeks to transform the classroom into a learning laboratory.

At the end of this postgraduate course, in 2015, I decided to continue my studies and went to the Professional Master's degree in Education Management Training, from the University of the City of São Paulo. When Performing a final work of the discipline Narratives (auto)biographical: research and training, I was instigated to review my

training trajectory. For this, I supported myself in the communication technologies that were familiar to me to make up a *website:*"Drawing the futurethrough the past"[1], in which I posted a diary about the classes and a narrative about my academic life, as a result of a work to present this discipline.

During the Master's degree, I was invited to teach in IT courses at another Higher Education Institution (HEI). It should be noted that my interest in technology comes even before the possibility of me being able to buy a computer. Returning my trajectory, I recover memories of objects that I dismount because I wanted to understand how they worked. I disassembled everything from toys to cars, often provoking the wrath of my father, who blamed me for damaging the objects, but most of the time I could get them back. I wondered what i could improve on that object and then explain to others, how its possibilities of functioning, thus sharing my discoveries.

Anyway, my curiosity aroused every equipment acquired, regardless of the size or function of the object, and this occurs to the present day. I began to be called in the family of Bob Builder, character of a drawing that repaired everything that stopped working. Today I can say that it *was a bricoleur*, French word used to name "one does everything that makes use of the tools available to accomplish a task" (KINCHELOE; BERRY, 2007).

When I started my teaching activities in the new Institution of Higher Education (HEIs), I was surprised that the University was beginning to implement the inverted classroom model, using the AVA (Virtual Learning Environment) system, which I will comment later on, as a support for its implementation.

The inverted class model, "*Flipped Classroom*", systematized by Jon Bergmann and Aron Sam (2012), initially consists of making available on the Internet the *content* of the classes in advance so that students can prepare for the work that will be developed in the classroom. The pedagogical activities that would be carried out outside the classroom, begin to be carried out in person, with the mediation of the teacher. It should be noted that, over time, this model was perfected and modified by those who started to use it.

Therefore, again I came across an active methodology, but that now relied on new technologies. In this perspective, I once again felt mobilized to deepen my knowledge in this regard. For this, it allows me to assemble and reassemble this method in order to understand how it works and what possibilities it offered to improve my practice. I also

[1] Available at: https://memoria-e-identidade.webnode.com

realized that it makes it possible to use several technological tools that, when included, enhance pedagogical practice.

Again I experienced a diy process (KINCHELOE; BERRY, 2007). For the authors, *bricoleurs* propose to understand the complexity that involves objects, as well as processes. In this perspective, diy exists from the assumption by the complexity of the real world. He seeks to interact with the world in search of going beyond the representations consciously or unconsciously shaped by culture, which provide a picture that highlights or hides what can be observed. To weave this movement it is not enough to look at the world from a distance and repeat what is said about it, it is necessary to interact with it playing, dismantling and reassembling and, perhaps, in this way approaching what children do when they want to appropriate the reality in which they live.

We live in a society in which technological advances take place more and more rapidly, information technologies are part of different social spheres, impacting the daily lives of individuals and societies. Currently, it is no longer necessary to dispense with new technologies or give up its potential with regard to the production of knowledge and social intercommunication and with regard to their contributions to education, increasingly challenged to include them in pedagogical spaces.

The tendency is for face-to-face teaching to merge with distance learning. This can already be observed in several Higher Education Institutions (HEIs) that launch new options of online disciplines every semester. As Pierre Lévy points out:

> Experts in this field recognize that the distinction between "face-to-face" teaching and distance learning will be less and less pertinent, since the use of telecommunications networks and interactive multimedia media has been progressively integrated into the most classical forms of teaching (1999, p. 170).

From this perspective, it is important to be carried out studies that address how the implementation of methodologies that include new technologies in Education is taking place, because much needs to be reflected on the implementation of new teaching methods with technological support, be it this support by *internet*,media, multimedia, TV, distance learning. In addition, it is important to pay attention to the implementation process with teachers and students, considering that these will be the main responsible for the success or not of learning based on technological means. According to Pierre Lévy (1999, p. 169): "It will be necessary, therefore, to seek to find solutions that use

techniques capable of expanding the pedagogical effort of teachers and trainers." As advanced as a systemic educational project is, still without understanding its functioning on the part of teachers and students, it is unlikely to be the success of its purpose in teaching.

Despite the importance of including technologies in Education, I noticed that most of my colleagues did not seem as enthusiastic about the new proposal as I did, they saw it with suspicion, considering it not a challenge that could enhance their work, but an increase in tasks. This finding impacted me, because we all taught in an IT course, which made us familiar with information technologies and know their benefits, especially with regard to their potential to manage tasks.

As I was coordinator of THE COURSES and was using with some ease the new method, I was invited to give an internal training to teachers who were having difficulties in appropriating the principles and techniques of the inverted class model. The participation in this training opportunityed me to get to know my co-workers better and to approach their professional experiences and reflect on their difficulties in the inverted classroom model.

It should be noted that I learned to use the tools of the system alone, my curiosity and exploration were the means I used to understand and master the system. The Institution provides explanatory videos about the teaching method and how to use the tools, but these did not establish relationships with practice. This material helped me to explore and better understand the bases on which the inverted class model was supported, but did not support to solve many of the questions that teachers asked about the model, and that's when I began to understand where and how I could collaborate in the teaching process, understanding such difficulties.

With the dates and times of the training established and published, teachers of various courses and IT teachers were joined in the computer laboratory of the Institution. As some teachers had already attended in the teachers' room explaining about the functioning and use of the tools, it was already expected that the difficulties of teachers of Humanities courses could be greater, and that IT teachers.

As the training progressed, I began to make notes about the doubts and difficulties reported by the teachers, in order to organize them by category to facilitate their approach in the training spaces. Teachers' difficulties ranged from navigating the system, although it provides a lot of information on how to do it, to how to use it to work with the contents

of their subjects in the classroom. I observed that all teachers, even those of IT, showed difficulties to use and understand the system and the teaching method, this was the starting point to apply the training.

Based on this experience, some questions arose that, when Eliacting answers helped me in the design of the work:

- What factors contribute to teachers of IT courses resist the implementation of active methodologies that rely on IT in the classroom?
- What factors could contribute to the use of active methodologies that rely on IT by teachers?

In order to expand the knowledge about the subject I conducted a literature review in the Bank of Dissertations and Theses of Capes between March 2017 and October 2017, having base years 2014, 2015, 2016, 2017 and 2018, I used as keyword: inverted class. Based on this review, it was possible to verify the existence of 52 (fifty-two) master's dissertations and did not locate in doctorate

I observed that most studies discuss the use of active methodologies, inverted class and the insertion of new technologies in the school environment. Specifically, I located two (2) papers that investigate the perception of teachers and students about the work performed with the inverted class, which are: Milhorato (2016) with title: "Challenges and possibilities of implementing the inverted classroom methodology: case study in a private HEI, whose main objective was to identify the advantages and learning difficulties of the subjects involved in the inverted classroom process. Milhorato (2016) does the research with 305 (three hundred and five) undergraduate students participating in the new model, through 36 (thirty-six) questionnaires and uses the interviews with 8 (eight) undergraduate professors involved in the implementation process of the new model in the New Sales Unit of The Pitágoras College. The second study was borges (2017) entitled "Planning for competencies in higher education: an analysis of the perception of teachers", carried out at UNOPAR (Universidade Norte do Paraná), this was the one that most closely approached the theme of my dissertation. This research aimed to "analyze and reveal the perception of teachers in the Kls 2.0 model training forum, suggesting proposals with prevalence of active pedagogy" (Borges 2017). In this perspective, he discussed and analyzed the methodology of the inverted class and the new ways of

teaching and learning, considering the student in this scenario having to present a more active posture, in the context of the three teaching times(pre-class, class and after-class). The subjects of this research were the teachers of the *campus* in Paraná, and the data were collected in a discussion forum located in the AVA system, used to implement the inverted class, and the research had a sample of 1,000 (one thousand) participants.

Based on the literature review, I could see that the inverted class method is an object that deserves to be better investigated, considering that it is being adopted by several Higher Education Institutions (HEIs) and there is still a small number of studies on this subject.

From this perspective, the research assumes as its main objective:

- Develop a *blog* based on the narratives of teachers of higher education IT courses, which allows debates and reflections on the methodology of the inverted class.

As specific objectives propose:

- Discuss the methodology of the inverted class;
- Describe the research methodology, based on autobiographical research with narratives and on the data production procedure: focus group;
- Analyze the narratives of teachers in order to understand the challenges they face when implementing the inverted class model.

This dissertation has the Introduction, three chapters and the final considerations. In the first chapter (1), the principles that support the inverted class model are addressed and I expose the AVA System that supports its implementation. In the second chapter (2), the methodological tracings of the research are discussed. In the third chapter (3), data analysis is presented, and in the final considerations, I summarize the main results of the research.

2 FLIPPED CLASSROOM

This chapter aims to make a brief flyover on the principles that structure the inverted classroom method. *Flipped Classroom* (FC), and in the virtual learning environment - AVA.

2.1 The inverted lesson

The inverted classroom method is a model based on hybrid teaching. Hybrid teaching, known as *blended learning* or *b-learning*,had its proposal developed from *e-learning experiences.* Bergmann and Sams (2016) state that the approach combines project learning, by discovery, based on student interest. Students formulate a real-life problem and manage solutions that require research to be developed.

For Bergmann and Sams (2016), reversing the classroom basically means the following: what is traditionally done in the classroom is now performed at home and what is traditionally done as homework is now done in class. Suhr (2015, 2016), understands that the idea of the inverted classroom proposes a strong connection between face-to-face and other virtual moments, of self-study, mediated by technological means of communication, for example: the AVA system. This process allows the student to play the role of subject of his own learning and that the teacher, in turn, take the role of mediator so that the student can, starting from his previous knowledge, build scientific knowledge. In this sense, Freire signals that:

> As a gnosiological situation, in which the cognoscible object, instead of being the end of the cognoscent act of a subject, is the mediatizer of cognoscent subjects, educator, on the one hand, educando, on the other, problematizing education places, from the outset, the requirement of overcoming the educator-educating contradiction. Without this, it is not possible the dialogical relationship, indispensable to the cognoscibility of the cognoscent subjects, around the same cognoscible object (1970, p. 39).

Thus, the mediation of the class by the teacher through the inverted class becomes the focus of learning and problematization for the achievement of knowledge among students, overcoming the molds of a conservative education.

For Freire (1970), in this way, the educator is no longer what he only educates, but what, as an education, is educated, in dialogue with the student who, when educated, also educates.

In the 1990s, studies and the use of this class model were mainly concentrated in Higher Education. During 2004, an important contribution on inverted classroom begins with Salman Khan of Khan Academy,who developed distance learningstrategies, at first via telephone, for his cousin to give reinforcement classes to his students (KHAN, 2013). These strategies were intended to assist students, optimize time and minimize in some way the gaps left by regular education. Subsequently, Khan created a simple computer program, in order to generate mathematical problems for students to solve these exercises without limits of attempts, in order to appropriate the concepts related to the proposed contents.

In high school, Bergmann and Sams,in2007 and 2008, began work with their classes using the recordings of the classes posted in a virtual learning environment, to access, mainly, of student athletes who could not attend classes due to competitions, and to facilitate the resumption of content, allowing students to advance, retreat and stop the videos when they wished.

The FLN, *or Flip Learning Network,*[2]systematized in 2012 by a group of American teachers, including Jon Bergmann and Aaron Sams,which currentlyhas more than 25,000 educators, is one of the virtual spaces for educators interested in learning more about the inverted classroom. It's a non-profit online community where educators around the world can share and access resources, tips, tools, and more. These are initiatives such as these that are encouraging many schools and universities to work with the concept of inverted classroom, as they provide support in the field of learning and quality of teaching.

Many of the most prestigious universities in the world use the inverted classroom as a teaching method, including Harvard University, Massachutsetts Institute of Tecnology (MIT), Duke, Stanford. The inverted classroom is also present in countries such as Canada, The Netherlands, Finland, Portugal. At Harvard, for example, learning was 79% more efficient than those who attended traditional education. At the University of Michigan, a study revealed that students learned in less time(SPITZCOVSKY, 2015).

It is increasing the use of the inverted classroom in schools and universities around the world, implemented through public and private initiatives. Examples of these initiatives were the programs implemented in Portugal between 2007 and 2010, the

[2]Available in: <https://flippedlearning.org>. Accessed: March 2017.

Technological Plan[3]Program. In the United States, the inverted class is used very successfully:

> The success stories of the Inverted Classroom are a reality in Institutions of the United States. At the University of British Columbia, for example, physics professors, including Carl Wieman, a Nobel Prize in Physics in 2001, applied the methodology and achieved a 20% increase in attendance and 40% in participation. In addition, the grades of the participating students were twice as high as those of the classes that used the traditional methodology. At Harvard, mathematics professors conducted a 10-year study in their calculus and algebra classes, through which they found that students enrolled in inverted classes gained 49 to 74% more in learning than students enrolled in traditional classes(SPITZCOVSKY, 2015).

Figure 1 below makes a comparison between the traditional method and the inverted classroom in order to explain the differences between the methods.

Figure 1 - Inverted Classroom Model.

Source: Inverted Classroom. Available in: bibliotecadigital.fgv.br/ojs/index.php/ei/article/download/57632/56174. Accessed: 10 Feb. 2017

Figure 2 - Cognitive Skills in AVA Systems

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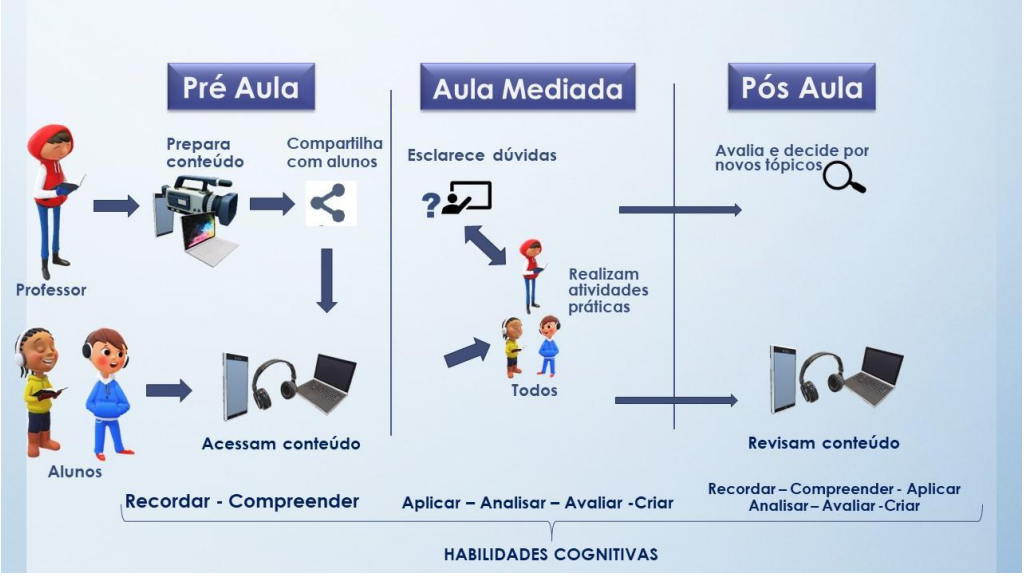
"The Technological Plan of Education (PTE) is the program of the Portuguese for the technological modernization of Portuguese schools. The EP promotes the integration and widespread use of ICT in teaching and learning processes and in school management and safety." In fashion http://www.pte.gov.pt/pte/PT/topo/faqs/. Accessed: March 2017.



Source: developed by the author.

Figure 2 presents the Inverted Class in its 3 personalized moments in the AVA system:Pre-Class, Mediated Class and After-Class, and shows how cognitive skills are worked in each of these moments. The inverted classroom provides for access to content before class by students and the use of the first minutes in the classroom to clarify doubts, in order to address misunderstandings before the concepts are applied in the most extensive practical activities in class time (BERGMANN; SAMS, 2012, 2016). In class, activities focus on the highest forms of cognitive work: applying, analyzing, evaluating, creating, with the support of their peers and teachers.

Transferring lectures (content exposure) or basic information outside the classroom enables the student to prepare for active learning activities during class, which helps students develop their communication and higher order thinking skills (LAGE; PLATT; TREGLIA, 2000).

The note is no longer what is at stake, the lack of a component of the group has a direct relationship with the rest of the colleagues and this acquires weight in the attitude of many of them. In situations where the engagement is lower by a student, the group itself tends to charge for engagement, because the group's performance depends on everyone. This allows the teacher to act as a mediator and create a closer relationship with students, less authoritarian and reliable (MORÁN, 2015). It depart from that image of a teacher who offers data and texts, certainly valuable, but that alienate the student by expecting from him a single answer and regulatory learning quotas.

3 THE VIRTUAL LEARNING ENVIRONMENT - AVA

In support of the inverted class method, the institution in which the research is being developed uses a platform called AVA. The Virtual Learning Environment is understood as "all multi-referential learning space where the possibilities of authorship and collaboration are enhanced", (BURHNAM *et al*, 2012, p. 147), that is, systematized places virtually for collective construction of contents where all are authors in this constructive process.

AVA adapts access to information in different forms; promotes mutual influence between subjects, in order to create dialogical environments that seek the development of mutual collaboration; allows a process of pedagogical mediation that requests the development of the subject's autonomy; it is an instigating environment in order to provide the user with relationships between acquired knowledge and recent information, elaborating their networks of meaning for the expansion of knowledge.

There are two models of classes for teachers to use as technological tools, which are:

- AMI Model - Institution Model Class;

- AMP Model - Teacher Model Class.

In the AMI model, the Institution makes available the contents of the disciplines, while in the AMP model, the teacher posts the contents of his discipline. In both the AMI and AMP models, the purpose is to make available the contents of the classes, which in turn are divided into three moments (addressed in Figure 2):

– Pre-class: content of the discipline available through texts, conceptual maps, videos and other materials and diagnostic evaluations is based on the subject, which aim to prepare the student for the mediated class;

– Mediated class: moment to stimulate the critical thinking of students, develop and explain the content posted in the pre-class, conducive to the elaboration of works in groups with situations of professional reality through problem situations, a forum of debates mediated by the teacher in person;

– After-school: the content is reviewed and deepened from the activities present in the virtual environment.

It is up to the Institution to provide an infrastructure in the AVA system, classrooms and laboratories with adequate equipment, to support the inverted classes, create conditions for teachers to appropriate theoretical and methodological principles to develop their classes, select content and prepare materials to use in classes. It is up to the teacher to manage the process according to a previous planning, use the material made available by the Institution, by colleagues, as well as prepare the material for their classes and motivate and mediate, in their face-to-face classes, the content previously posted to the students. Students are expected to prepare for their classroom classes, through the materials available in the Pre-class, participate in classroom activities and take responsibility for their learning.

It is believed that technology can collaborate with the inverted class model, because it allows students to have prior knowledge of the contents to be discussed by teachers in the classroom, extending the time to perform activities and projects in the academic environment. Sharing and discussion of content and mutual collaboration can trigger learning processes for both students and teachers in any area of knowledge.

4 SEARCH TRACING

As previously mentioned, the research assumed as main objective to develop a *blog* based on the narratives of teachers of higher education IT courses, enabling debates and reflections on the methodology of the inverted class.

To achieve the objective, it was necessary to structure the research in two phases: a) exploratory study, b) the construction of the *blog*,

The first one was based on the qualitative research approach, which seeks to uncover the meaning that the research subjects attribute to a given object, as an intention to perceive how they experience and how they interpret their experiences (BOGDAN; BIKLEN, 1994). Walking in this direction, we chose to structure the research based on the principles of narrative research that allow exploring the point of view of the collaborators. The analysis of the narratives of the research subjects provided important data that allowed the construction of the *blog.*

For the development of the *blog*,we opted for the use of the www.webnode.com *site*, which *is an online platform for building and* editing *websites* and *blogs* through pre-arranged templates on this *site.* To create the *blog*,the models of screens and images within the site itself were *chosen*,selected the provisions of the contents, images and texts, more appropriate for viewing the *blog.* The *webnode site* provides free and paid access accounts, with advanced tool options in the development of *websites* and *blogs*,and was for this research was adopted the basic and free template for editing and creation.

4.1 Research context

The first phase of the research was carried out in a private university, on *a campus* located in the metropolitan region of São Paulo, in the state of São Paulo. The University is managed by a business group and is present in almost all national territory, totaling around 490,000 (four hundred and ninety thousand) students. On *the campus* where the research was carried out, undergraduate courses are offered in the face-to-face and distance modality, recognized by the Ministry of Education (MEC), as well as *lato sensu (specialization)* and extension postgraduate courses. This campus *has* an infrastructure with library, amphitheater with capacity for 300 people, canteens, radio laboratories, TV and computer science. Currently there are around 11,000 (eleven thousand) students

enrolled *on this campus*,and work on site approximately 230 (two hundred and thirty) teachers.

4.2 Research collaborators

Four professors working in THE COURSES of IParticipated in this phase of the[4]research:

- Professor Alfredo holds a Master's degree in Management Systems and has been teaching for more than 11 years. He does not hold positions and does not pursue any other activity. Born in 1959, he is the oldest in the group, but not the most experienced as a teacher;
- Professor Gerson holds a Master's degree in Production Engineering and has been teaching for more than 5 years. He does not hold positions and does not pursue any other activity. He currently teaches for other private Higher Education Institutions (HEIs);
- Professor Laura holds a Master's degree in Production Engineering and has been teaching for more than 21 years. He does not hold positions and does not pursue any other activity. He currently teaches for other private Higher Education Institutions (HEIs). She is the most experienced as a teacher in the research group.
- Professor Antônio is an Expert in Computer Science and has been a teacher for more than 11 years. He teaches to other Higher Education Institutions (HEIs) and accumulates a position working as an IT consultant for a private company.

These teachers are over thirty-five years of age and have a higher education in IT courses.

The selected teachers participated in a training on the methodology of the inverted class within the institution's campus, and voluntarily accepted the invitation to participate in the focus group of this research. Teachers who participated in the research are hired by the CLT regime and work in the morning and/or evening hours.

4.3 Data collection procedure

[4] The names of the teachers are fictitious.

Data were collected through the application of a focus group. For Powell and Single (1996, p. 449), "a focus group is a group of people selected and assembled by researchers to discuss and comment on a topic, which is the object of research, based on their personal experience." The group will have a focus, which will guide the discussion held in the group. According to Morgan and Krueger (1993), the research with focus groups aims to capture, from the exchanges made in the group, concepts, feelings, attitudes, beliefs, experiences and reactions, in a way that would not be possible with other methods. Neverthemore, working with focus groups allows the understanding of processes of reality construction by certain social groups.

In order for the teachers to feel motivated and confident, when inviting them to the research, they were brought up to date with the objective of the study and, on the day of the meeting for the focus group, the relevance of this project was resumed. Before starting the recording of audio and video, I tried to leave all participants at ease, addressing informal conversations and testing the equipment for recording. Thus, everyone was already used to recording and did not have to worry about the speech and the volume in the tone of voice, since the equipment was working normally.

The meeting lasted an average of one hour and thirty minutes, took place in the library within the institution in which they work, which made it easier to reconcile the schedules.

I tried to follow a pre-established script in order to maintain focus and achieve the research objectives. The key issues in the focus group were:

- Have you come across a source of information and studies on the "invertedclassroom"?
- When you heard about the need to adapt to the new teaching methods, how did you react to this?
- Talk about your experiences with the inverted lesson.
- What has facilitated and made it difficult for you to use this methodology?
- Is there anything else you'd like to say?

During the course of the group, I tried to leave the participants at ease to narrate what they thought was important. The discussions that took place in the focus group were recorded in audio and video and, in turn, the material was transcribed faithfully in full.

4.4 Data analysis procedure

For the analysis of the data produced in the context of the research, I supported myself in some points of the proposal of Schütze (2011), composed of the following steps:

1 – Listen to the narratives;

2 – Transcribe verbal material in detail;

3 – Detect the topics/events addressed;

4 – Based on these themes, list axes of analysis.

It should be noted that to analyze the material of this research, I used microsoft's text editing tool, Word, in which I separated the document into three columns: in the center column, I inserted the transcription of the data; already in the left column, I highlighted the excerpts of the texts that supported the construction of the axes of analysis; and in the column on the right side, I sought to insert comments and associations with authors who could collaborate with the analysis of the data.

5 DATA ANALYSIS

The objective of this chapter is to present the analysis of the data produced in the first phase of the research, through the meeting of the focus group after a careful examination of the narratives of the research participants. The analysis of the data, as already pointed out, began with the reading of the transcriptions of the teachers' statements. This reading allowed us to raise some themes addressed by the professors who became axes of research analysis:

- AVA system;
- Working conditions of teachers;
- The involvement of students;
- The need for the teacher to research and study.

5.1 AVA system

As previously pointed out, the inverted class model at the University was introduced with the AVA System as its main platform. Faced with this system, the teachers positioned themselves:

> *There is a good side, a somewhat complicated side of the thing, what I see in ava, in the part so of a theoretical matter, it goes very well. I think what needs to improve is when you have a practical discipline. I think it needs to be further studied, or in the tool itself there are some parts, mainly of infrastructure, practice, within the AVA itself. This is a difficulty that I see in the practical part, in the theoretical it goes very well, at least in my opinion (ALFREDO).*

In this speech of Professor Alfredo, we can identify that the System being used does not give the necessary support for the work they are performing. According to him, it is possible to work with the theoretical contents, but the procedural contents considered by the teachers of practitioners are difficult to be approached. It should be noted that with the availability of the virtual AVA system, the teacher can develop and publish various types of materials for students, and it is possible to work with this same content pre-made before and during the moment of the class, using didactic procedures, such as work with projects, which makes it possible to resume and apply the contents previously seen by students.

As for the contents considered by them as practical, such as setting up a *web page, these*are difficult to be approached because there is no possibility to insert other programs, which in this case would make it possible to develop pages. Considering that AVA only allows you to post texts, files, videos and links, it does not lend itself to this type of content. All the teachers in the focus group highlighted a contradiction: the system available does not fit the work with Information Technologies, as complemented by the teachers:

> *I also feel that in the subjects, as Professor Alfredo said, matters related to networks, I feel one like this, I find it interesting from the theoretical part, I think we can get along (LAURA).*
>
> *The method, he's good, right? Mainly, as the fellow here commented, in the matter of theoretical matter, right? (ANTONY).*

The need for another environment to teach practical classes was a recurring theme. For teachers, the inverted class model provided by the AVA System does not fit the needs of teachers. As Professor Laura reinforces, laboratories would be needed for this type of work:

> *And another thing, I think, like, is a very big flaw when we talk: there is a class in the lab every 15 days. For the other classes, you only have room (LAURA).*

This teacher's statement explains that the needs of teachers were not considered by the institution when opting for the inverted class. The teachers point to needs that are not close to those of the Institution, which in this case does not provide enough computer laboratories for them to teach practical classes, important for the development of IT courses.

What can be insated from these statements is that a single system was made available for all courses of the University, without taking into account the specificities of each of the courses, being possible to observe that there is a distance between the specific pedagogical needs of IT teachers and the system available.

In his research, Almeida (2018, p. 77) points out that "according to the research conducted, *moodle as it* is does not meet the requirements raised by users for the application *of flipped classroom*, and it is necessary to organize and include to the system some functionalities". For the teachers surveyed by Almeida (2018, p. 105), "some details were observed by them and by the students. For example, implement the option to *create*

group-separated chats to discuss task resolution and add the option to change the dates of the general task steps after you sign in."

In this sense, educational planning requires a narrowing between teachers and the institution.

It should be noted that the AVA system is well accepted and easy to handle and understand, brought gains for teachers, but still lacks adaptations, considering the specificities of the courses, so that it can be used to the satisfaction. Also in this approach, teachers reinforce the longing to participate in the construction or reform of this implementation of the method:

> *I could call people from each area and give an opinion. Because it's not just to come in and bring the tool to the teacher. I think i should have a collegiate from each area and opine, collecting help from teachers and by area, and put the business to happen (ALFREDO).*
>
> *I have the impression that, who suggests these tools, do not know what is the day to day in the classroom (GERSON).*

5.2 Working conditions

Private universities are undergoing reformulations and changes that are affecting teachers' working conditions, many of which have entailed a reduction in teachers' workloads, such as the introduction of distance courses, distance subjects in face-to-face courses

The introduction of the inverted class model directly impacts the teachers' work, such as the inverted class. These changes, mainly based on new technologies, if, on the one hand, they can enhance the work developed in the classrooms, on the other hand – if the working conditions of teachers are not considered – end up overloading teachers, who include them in daily pedagogical need time for study and preparation of classes, which is usually not remunerated.

As in any other profession, some teachers do exactly and only what is provided for by the official rules of the school organization, while others engage in a work that takes considerable time, even invain their private life, nights, weekends, not to mention the activities of longer duration, such as training course, specific training, activities for schoolchildren or unions, professional associations, sports clubs for young people etc. (TARD; LESSARD, 2005, p. 113).

According to the teachers, the inverted class has caused an overload of work:

> *As in life everything has positive and negative, the negative I see that there is an overload of the teacher on this method of pre-class, class and after-school. Because you analyze pre-class, set up the class, and then you solve the questions of the after-class (ANTÔNIO).*

As Professor Antonio points out, the inverted class carries more work for the teacher. He requires a longer time that includes reading and preparing materials and probably closer follow-up of students. If in the traditional perspective the teacher was a content transmitter, in the inverted class model his role begins to be reviewed:

> *[...] you become the facilitator. Look, Professor, wow, look, I did it like this, it's not going to work... That's where you use your experience. Why is that? Because you've already done that, you've been through it [...] (GERSON).*
>
> *[...] when you see that the student is coming out of that goal, it's up to the teacher to do what? Get him on course (GERSON).*

The classroom teacher becomes a planner who prepares learning strategies and materials, a mediator who accompanies students in performing classroom activities and an evaluator not only of students, but also of the processes developed for the execution of the class as a whole and this requires a review of what it is to be a teacher by all , teachers and students who are not familiar with these new proposals.

5.3 Student involvement

As the implemented method requires acceptance and commitment by all involved, an issue that was widely discussed by teachers concerns the participation of students. The teachers say they feel unmotivated when preparing the classes, make the materials available and discover that the students have not consulted and, consequently, have not prepared for the activities that will be developed in the classroom.

> *Frustration is when you arrive and see a report that our campus 99% accesses, only that do not access willingly, forced access (ALFREDO).*
>
> *It causes frustration. You prepare a class that is to envy, you capricha (ANTÔNIO).*

In order to appropriate the new learning model, teachers have been closer to students, in an attempt to understand how they learn, which strategies are best suited for the preparation of classes:

> *Because I always ask the next student: what is the right methodology? I think, in my opinion, that I apply, I ask the student the following: how can you learn? like so? This? That? I work upon what he answer me. So the chance of me getting it right and getting the student to learn something is bigger. How do you want me to teach you? Is it with reading? Is it with research? Is it with a project? That's what happened to network personnel (GERSON).*

This seems to be a gain from the application of the inverted class model. Teachers and students do not know how this works and need to support themselves in seeking to chart a path that is profitable.

The proposal to elaborate a plan that is based on the inverted classroom proposal to make students seek the information enabling a certain freedom, guided by teachers, provides the autonomy of the students. In this respect, Berbel points out that:

> The student's engagement in relation to new learning, understanding, choice and interest, is an essential condition to expand their possibilities of exercising freedom and autonomy in decision-making at different moments of the process they experience, preparing for future professional practice (2011, p. 29).

However, this autonomy is not always observed by teachers. In his speech, Professor Antônio shows the lack of engagement of the students in the class model and shows that this process is temporal, so that it is incorporated by the students.

> *I took a statistic these days, only in a class of 109 students, only 19 accessed the system. I don't know if it's fear or if they're not used to method. Accustomed to the method are not, because it is the first semester. So then I think it's going to take a while to get into their vein this question of this method (ANTÔNIO).*

> *So I put the pre-class, I start charging the pre-class, I do a poll of those who attended, and rarely two or three raise their hands and say they watched (ANTÔNIO).*

> *I agree with Professor Antonio, who strives,* does this part of *pre-class and after-school, too, and in the end the students do not and do not take advantage. Let's say of a class of 60, almost 70 students, and these 70 students not even 19 did (LAURA).*

Teachers face the difficulty of student engagement, make attempts to bring students closer to the inverted class model supported by the traditional teaching logic, such as assigning awards not mentioned by the inverted class model that provides for the student's commitment to their learning process.

> *They only access if you give an award, propose a note or a point. Other than that, by their own free will, they do not access, one or the other only accessing (ALFREDO).*

However, it is worth noting that the students were not prepared to adapt to the inverted class model, and the teacher has an important role in this inclusion process, regardless of whether the institutional plan develops this concept of inclusion. Teachers perceive that there is a school culture incorporated by students that makes it difficult to adapt to the new method, as we can see in the following statement:

> *So it's no use you having the best tool in the world if the student culture doesn't change (GERSON).*
>
> *These methodologies where the student has to study at home, this ends up complicating, because it is not our student's culture, with the researcher profile and curiosity (GERSON).*

For Professor Laura, the student's culture is associated with basic education and highlights in her speech:

> *You're talking about culture. When I was a kid, I went to the Japanese school, I don't know if you know this Japanese school thing? There, since pre-primary, you are taught upon a 5S concept, which is quality. And there you had to follow. You knew you had to do your subjects, read the text, have organization. So you've already created this there, since the basics (LAURA).*

The teachers also attributed to the characteristics of the new generations the difficulty of adapting to the proposed method.

> *The methodology, as Professor Antonio spoke, I think good too, but I think these people, these students of this generation, they are accustomed to immediacy. They want to receive everything hand kissed [...] (LAURA).*

It is important to consider that the lack of involvement of students with the methodology can lead to an interruption of the natural cycle of the inverted class model for learning, discouraged teachers who have to work harder to develop the proposal, but do not identify improvements in the expected result.

> *Are you discouraged? In a way, yes. Because you have a job, with a methodology you are not seeing the result (GERSON).*

Still in his speech, Professor Gerson concludes:

> *So I think here analyze our student's profile first, before you put a methodology. Because if you don't run the risk of having a student profile that that methodology doesn't fit. That is the case, in my opinion (GERSON).*

Implementing a new system from the perspective of teachers implies, in addition to taking into account the characteristics and needs of teachers, taking into account those of students, because if this is not considered there are great possibilities of failure in the process.

5.4 The teacher's need to research and study

In this inverted class method, it allows the teacher to have more freedom to work on their practices, according to the students' needs, through processes that are allowed by the inverted class method itself, regardless of the standardization of the AVA system.

For Professor Gerson, the experiences and perceptions in his professional life make him improve the progress of the quality of his class with a focus on the student:

> *The time you see that the student is going the wrong way, it is up to the teacher today, since knowledge is not in the teacher, knowledge is on the internet, on the network, it is up to the teacher, by the experience he has of company, market, research, put him on course. You're leaving, put it on course with the experience you have. This changes the culture, but so, it will not be overnight (GERSON).*

We note that the experiences, in this case, mark the performance of the teacher. According to Furlanetto (2003), the teachers' pedagogical matrices "represent themselves as existential files that contain images, collective and personal contents that are accessed when the teacher exercises in pedagogical spaces" (FURNALETTO, 2003, p. 27)

The knowledge acquired by teachers in view of the inverted class model is highlighted as a learning process, in order to acquire more knowledge with the experiences experienced during the process of implementing the method. "This knowledge is a finite knowledge, linked to the maturation of a particular individual" (LARROSA, 2009, p. 14). In this aspect, Professor Antônio shows in his speech that the use of the tool as a teaching method brings professional benefits, aggregates and updates new values for his training as a teacher and allows him to have a particular experience.

> [...] *I mostly learn too, I update myself, so I see a gain there (ANTONIO).*

There is an ease on the part of IT teachers in understanding the functioning of the tools for the inverted classroom method, but for teachers from other areas there is a difficulty in handling the tool, making the impact before the method greater, increasing resistance by teachers from other areas, according to the report of Professor Alfredo :

> *I think the i.T. people, the difficulty is less. It puts in the humanities area, it is complicated for them, having a methodology, and suddenly changes, from one semester to another (ALFREDO).*

But how to obtain such training in the face of a moment of implementation and changes in the professional practices of these teachers? The moment seems to be of adaptation and innovation as a challenge for teachers, as Professor Alfredo reports:

> *The teacher has to be first for the students, he has to be dynamic, he has to excite the students (ALFREDO).*

Teachers seek to adapt to the model proposed by the Institution, but they feel difficulties and would have suggestions to make in order to propose reformulations, however there is no room for this, which makes teachers feel excluded from the process and consequently unmotivated. Instead of getting hold of the process and performing the dynamic and encouraging role of the method, they give up trying.

The training of teachers in view of the implementation of this class model, as in any situation of change, should be implemented with temporal planning, aiming at stages and processes of evolution with constant monitoring.

In his speech, Professor Gerson lets show the existence of a distance between the theoretical model of the inverted class and its execution, which hinders its implementation, which often compromises the teacher's performance:

> *I was misrated in the evaluation, why? Because last semester the charge was too strong for the staff to access. The only way they could access it was what Professor Alfredo said is with bargaining. I'm just giving an example of the tool here, because we're here, but i could give example of other tools. For example, it's no use you put the material there, you have to force the student to do that, and say, "personally the stuff is there, we'll discuss the material in the room". Then see who has doubts. And from this material here I will generate thirty, forty questions, and of those thirty, forty questions, ten will fall into the test. I was criticized for that.*

As Valente (1999, p. 40) points out: "[...] the teacher should serve as an apprentice model and have a deep knowledge of the theoretical assumptions that underpin the processes of knowledge construction and the technologies that can facilitate these processes." However, in the face of difficulties, the teacher, instead of developing the

role of mediator, often resumes coercive pedagogical practices so present in traditional education systems.

5.4.1 Evaluations and Flexibility in Reverse Class

There are facilities in the inverted class model that allow them to create evaluative models for the disciplines, as reported by the teachers:

> *[...] I can put together some theoretical questions[...] (ALFREDO)*
>
> *[...] matters related to networks, the theoretical part we can get along. (LAURA).*
>
> *About the methodology, I have no criticism. I believe, this new method is even good [...] (ANTONY).*
>
> *The methodology as Professor Antonio spoke, I think good also [...] (LAURA).*

According to Bergmann and Sams (2016), as there is no single model of inversion, in class the teacher can guide different practical activities or allow students to work in different tasks simultaneously; to work in groups or individually or even to be evaluated, when they feel prepared.

The inverted class method, as mentioned above, is a method whose implementation is growing in the educational scope and brings with it the flexibility of work for teachers, in the sense of practices and options to develop the methods of class and evaluations.

Moran (2014) considers the inverted classroom one of the most interesting models of today to merge technology with teaching methodology, because it focuses on the virtual what is basic information and, in the classroom, creative and supervised activities, a combination of learning by challenges, projects, real problems and games. In this concept, Professor Gerson adds:

> *The question is not people discuss the tool, the tool as its name says is tool, it will help you to do something you already know how to do, but it will help you to do faster, with fewer errors, will make that activity more efficient.*

6 FINAL CONSIDERATIONS

We had as objective of thepresent study: to involve a *blog based* on the narratives of teachers of higher education IT courses, which would enable debates and reflections on the methodology of the inverted class. For this: initially we cutthe methodology of theinverted class and, following through the focus group, we sought to create a space for teachers who were living the experience of working with the inverted class with the support of the AVA System, narrate their experiences and reflect on them.

The analysis of the narratives allowed to list four axes: AVA System; Working conditions of teachers; The involvement of students; The need for the teacher to research and study, which, in turn, allowed a deeper understanding of the experiences lived.

As for the AVA system, it is important to highlight that, according to the teachers, it lends itself to the work with the classes whose content is theoretical and does not fit the disciplines that develop procedural contents. A question arises that needs to be taken into account by those who are proposing the model, as well as by the teachers who are using it. How can teachers in IT courses create programming language content, for example, so that the student can read and study at home, and subjects require practical classes on computers? It was clear that these teachers were not consulted when implementing the new method or properly prepared for the use of this system, because there is the possibility of implementing a specific program within the AVA so that teachers can use these programs in their practical classes and they did not realize it.

It should be noted that the AVA system is pointed out as easy to handle and understand, despite the lack of adaptations signaled by teachers.

Regarding the teaching working conditions, it was detected that the inverted class brings an increase in workload, when it takes a longer time for the preparation of materials and for the individualized monitoring of the students. Therefore, it becomes important to review the role of teachers and their working conditions when proposing the inverted class model.

The teachers also indicated the lack of commitment on the part of the students, which causes demotivation on the part of teachers and dissatisfaction on the part of the institution that does not achieve the proposed objectives.

On the other hand, the teachers said that by trying to engage students with the new method they got closer to them in an attempt to find out how they were being faced with new experiences. The teachers pointed out that, in addition to them, students also need

to be prepared for the use of the new model. It was possible to notice that the inverted class proposes a paradigm shift with regard to teaching and learning, requiring a change of culture of those who work in school institutions. The conversations between the research participants produced the awareness that the model needs to be understood by all and that a punctual training does not support its implementation. It is therefore necessary that there is systematic monitoring of those involved during this process.

Regarding the axis related to the need for the teacher to research and study, it is important to highlight that, given the new challenge proposed by the institution, teachers felt destabilized, which caused them to seek to expand their repertoires to deal with the new issues that were now presented and, in this perspective, they felt the need to study, but this process was also painful because it was permeated by the lack of conditions to perform theoretical deepening. It is worth mentioning that the teachers lived moments of adhering, permeated by the pleasure of learning, but also of resistance, because they are feeling exploited by the institution that according to them overloads them with work.

The analysis of the teachers' narratives reaffirmed the objective proposed by the study to create a *blog.* Participants considered the opportunity to participate in the focus group as a formative space and would like to have more opportunity to discuss and listen to other colleagues about the issues that emerged in the context of the research. It was clear the importance and need of the group to exchange experiences about the inverted classroom model. Teachers, regardless of the course in which they work, need a space for collaborative communication.

Taking this into account we set *up the blog*, a virtual environment, in order to provide an open discussion forum for professors at Anhanguera University. The *blog* called: https://focom.webnode.com/, seeks to be a space in which teachers can exchange experiences andpost information, videos, links and other subjects that relate to the work done with the inverted class or the AVA environment. This idea arose, since holding face-to-face meetings with teachers becomes impossible, because not everyone is in the institution on the same days and times. In this perspective, the *creation of the blog*, a virtual environment that everyone can access in the times and spaces available, emerges as a possibility to effect the exchange of experiences and discuss the doubts that emerge during the work.

I presented the *blog project* for the Coordination of IT Courses of the University in which I work, and there was interest on the part of the institution by the project, It was

suggested that it be presented to the University Board The University Board received the proposal with interest and suggested to the Regional Superintendence to welcome this project, which supported the continuity and monitoring of the content of this *blog*.

Next, I present some of the blog *posts* under development:


Postagens
https://focom.webnode.com/blog/
FOCOM
Fórum de Colaboração Mútua
INÍCIO
COLABORAÇÃO MÚTUA DE CONTEÚDO
POSTAGENS
CONTATO
ÚLTIMAS POSTAGENS
SALA DE AULA INVERTIDA
Antes da aula
Durante a aula
Depois da aula
PREPARANDO A AULA INVERTIDA
28/06/2018
Deixe sua contribuição... Como você elabora suas Aulas? Como você motiva e Incentiva os Alunos?
MODADELIDADES DAS METODOLOGIAS ATIVAS
27/06/2018
Dentre suas especificidades, as metodologias ativas possuem modalidades que podem ser...


Colaboração Mútua de Conteúdo
https://focom.webnode.com/colaboracao-mutua-de-conteudo/
FOCOM
Fórum de Colaboração Mútua
INÍCIO
COLABORAÇÃO MÚTUA DE CONTEÚDO
POSTAGENS
CONTATO
Projeto pedagógico: como ter turmas mais engajadas?
Crie espaço para comunicação e interação
Possibilitar diálogos e discussões construtivas dentro da sala de aula é o primeiro passo para que o aluno se sinta ativo em seu processo de aprendizagem. Além de criar vínculo com os alunos, essa prática permite que o aluno desenvolva sua capacidade crítica e discursiva ao expor e defender sua opinião. Desafiar o aluno a explicar suas preconcepções é um ótimo exercício.
Mude os métodos de aprendizagem e de avaliação
Os alunos estão sempre tão preocupados com notas, que acabam se esquecendo de que elas são apenas uma ferramenta para avaliar a qualidade do aprendizado. Muitos decoram as matérias para a prova e, logo em seguida, se esquecem do que estudaram.


Início
https://focom.webnode.com
FOCOM
Fórum de Colaboração Mútua
INÍCIO
COLABORAÇÃO MÚTUA DE CONTEÚDO
POSTAGENS
CONTATO
ESTEJA POR DENTRO DAS METODOLOGIAS ATIVAS
Espaço dedicado exclusivamente para troca de ideias e experiências sobre as metodologias ativas - Projetos Educacionais, Ensino Híbrido e Sala de Aula Invertida.
Esta Interface foi desenvolvida por meio da análise da Pesquisa realizada no Programa de Mestrado Profissional - Formação de Gestores Educacionais da Universidade São Paulo - UNICID - 2018, por meio do trabalho: A SALA DE AULA INVERTIDA: NARRATIVAS DE EXPERIÊNCIAS DE PROFESSORES QUE ATUAM NO ENSINO SUPERIOR

The reception of the *blog* by teachers has occurred in a positive way and met some expectations, according to the results of research conducted by the institution. Post access and disclosure are open to teachers. To maintain the dissemination of *the blog* among teachers, a publication of the blog link is promoted in the *teachers'* room, thus keeping the channel of mutual collaboration active and updated by the teachers themselves.

We know *that the blog*alone cannot solve all the issues that are emerging in the context of working with the inverted class, because many relate to the need for a change of conception of what it is to teach and learn that breaks with representations long structured in ourculture, which does not translate into a simple task. However, it can be a space for one to talk about it and, in this perspective, an opportunity to produce awareness about what is being lived in the classroom by those who participate in it.

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