Experiences Report

The Training and Pedagogical Practices of the Teachers who Work in the Technical Courses in the EAD Mode in the e-Tec Brazil Network of CEFET-MG

La Formación y las Prácticas Pedagógicas de los Profesores que Actúan en los Cursos Técnicos en la Modalidad EaD en la Red e-Tec Brasil del CEFET-MG

A Formação e as Práticas Pedagógicas dos Professores que Atuam nos Cursos Técnicos na Modalidade EaD na Rede e-Tec Brasil do CEFET-MG

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Abstract

The objective of this research was to analyze the training of teachers who work in the three technical courses offered in the distance modality of CEFET-MG e-Tec Brazil Network and how this training interferes with their pedagogical practices. To achieve this goal, a research methodology with a qualitative approach was adopted, through a bibliographic research and case study. As data collection instruments, online observations were made in the virtual learning environment (AVA Moodle), which houses the three distance learning courses of CEFET-MG and, the application of questionnaires to the teachers of these courses. The results found allow us to conclude that most teachers do not have a Bachelor's degree or specific training to teach in the distance learning, especially for using the resources and activities of AVA Moodle. As a

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consequence, teachers have difficulties in establishing their pedagogical practices and specific strategies for distance education, making the teaching work in the distance modality presents only a few differences in relation to the classroom modality

Keywords: Distance education. E-Tec Brazil network CEFET-MG. Teacher training. Pedagogical practices.

Resumen

El objetivo de esta investigación fue analizar la formación de los profesores que actúan en los tres cursos técnicos de nivel medio ofrecidos en la modalidad a distancia de la Red e-Tec Brasil del CEFET-MG y cómo esa formación interfiere en sus prácticas pedagógicas. Luego, se utilizó una metodología de investigación con abordaje cualitativo, por medio de levantamiento bibliográfico y estudio de caso. Como instrumentos de recolección de datos, se realizaron observación conectado en el Ambiente Virtual de Aprendizaje (AVA Moodle) que aloja los tres cursos a distancia del CEFET-MG y la aplicación de cuestionarios a los profesores de estos cursos. Los resultados encontrados permiten concluir que la mayoría de los profesores no tienen habilitación en Licenciatura ni formación específica para enseñar en la EaD, sobre todo para la utilización de los recursos y actividades de AVA Moodle. Como consecuencia, los profesores tienen dificultades para estabelecer en sus prácticas pedagógicas estrategias específicas para la EaD, haciendo que el trabajo docente en la modalidad a distancia presente poco diferencial en lo que se refiere a la modalidad presencial.

Palabras clave: Educación a distancia. Red e-Tec Brasil CEFET-MG. Formación de profesores. Prácticas pedagógicas.

Resumo

O objetivo dessa pesquisa foi analisar a formação dos professores que atuam nos três cursos técnicos de nível médio oferecidos na modalidade a distância da Rede e-Tec Brasil do CEFET-MG e como essa formação interfere em suas práticas pedagógicas. Para tal, utilizou-se

uma metodologia de pesquisa com abordagem qualitativa, por meio de levantamento bibliográfico e estudo de caso. Como instrumentos de coleta de dados, foram realizadas observações *online* no Ambiente Virtual de Aprendizagem (AVA Moodle) que abriga os três cursos a distância do CEFET-MG e aplicação de questionários aos professores desses cursos. Os resultados encontrados permitem concluir que a maioria dos professores não possui habilitação em Licenciatura e nem formação específica para lecionarem na EaD, sobretudo para a utilização dos recursos e atividades do AVA Moodle. Como consequência, os professores têm dificuldades em estabelecer suas práticas pedagógicas e estratégias específicas para a EaD, fazendo com que o trabalho docente na modalidade a distância apresente pouco diferencial no que diz respeito à modalidade presencial.

Palavras-chave: Educação a distância. Rede e-Tec Brasil CEFET-MG. Formação de professores. Práticas pedagógicas.

1. Introduction

With the regulation of Distance Education modality in Brazil, as of the approval of the Law on Guidelines and Bases of National Education (LDBEN) no. 9.394, dated December 20, 1996, the modality has leveraged prominence in research. Among the five generations of this modality, presented by Moore and Kearsley (2007), the fifth occurs through the Internet and Digital Information and Communication Technologies (DICT), using Virtual Learning Environments (AVA), this generation being the focus this research.

Thus, using TDICs in Distance Education can be seen as a possibility to promote access to education to people who, whether by territorial distance or social issues, cannot enjoy access to face-to-face teaching at various levels, also including Professional and Technological Education (EPT), defined by Ciavatta (2014, p. 190) as omnilateral education or training in all aspects of human life – physical, intellectual, aesthetic, moral and for work, integrating the formation education and vocational education.

In Brazil, the federal government's concern with Technical and Professional Education (ETP) is perceived when it sought to offer EPT to a larger number of students in 2007, creating the Open Technical School System of Brazil (e-Tec Brasil), through Decree No. 6.301, of December 12, 2007. In 2011, the Decree No. 7.589, dated October 26, established the e-Tec Brasil Network, revoking Decree No. 6.301, and this Network is one of the actions that integrate the National Program of Access to Technical Education and Employment (PRONATEC).

The Federal Center of Technological Education of Minas Gerais (CEFET-MG) was one of the institutions that joined the e-Tec Brasil Network in 2008, being authorized to offer three distance technical courses: Planning and Management in Information Technology (PGTI); Environment; Electronics. Currently, the PGTI course has been replaced by *Informática para Internet* (Informatics for Internet), and the rest still remain. Cities with centers to support face-to-face activities are the following: Timóteo, Campo Belo, Curvelo, and Nepomuceno, located in Minas Gerais.

For developing the courses, the *Modular Object Oriented Distance Learning* (Moodle) platform is used, which was customized to meet the methodological specificities of the CEFET-MG technical courses.

The team responsible for the general functioning of the courses is located in the Center for Distance Education (NEaD), located at CEFET-MG, and is composed of the following professionals: general, assistant, and course coordinators; pedagogues; tutors at a distance; technicians in technology; and the teachers of the courses, who are the protagonists of the modality, and must act in accordance with the EPT in the modality Distance Education.

However, faced with this reality, a question arises: how to articulate the training to deliver content and didactic-pedagogical training to act in the professional and technological education for students of Distance Education mode? Thus, the objective of this research was to analyze the training of teachers who work in the three technical courses offered in the distance modality of CEFET-MG e-Tec Brasil Network and how this training interferes with their pedagogical practices.

From the point of view of academic relevance, this research is justified due to the lack of production regarding the approach of subjects that have, as object of study, technical courses at the secondary level in Distance Education mode and, specifically, when it comes to training of teachers to work in e-Tec Brasil Network, since no study based on this perspective was found. Based on the data available in the Brazilian Digital Library of Theses and Dissertations (BDTD), a query from 2009 to 2014 was performed. There were 17 researches, two theses and 15 dissertations.

In addition, a search in the dissertation bank of the Master's Course of Technological Education of CEFET-MG was made, covering the same period (2009 to 2014). It was verified that none of the studies performed an analysis from the point of view of the training of teachers who work in this institution, specifically, in e-Tec Brasil Network courses. For this reason, it is believed that this study may broaden references on the didactic-pedagogical practices used in the technical courses at the middle level in Distance Education modality.

2. Theoretical foundation

2.1. Theoretical assumptions of Distance Education

Moore (1993) developed the concept of Distance Education that is related to the Transactional Distance Theory. As for Moore and Kearsley (2007), Distance Education has five generations, in which the fifth is classified as Distance Education online. The first theory takes into account that the modality presents a distance that is neither physical nor temporal, but pedagogical, which requires pedagogical practices that make it possible to overcome this distance. In the second theory mentioned here, it is reinforced the use of communication platforms through the Internet in AVA, use made possible by the growth of DICT, being possible the convergence of audios, videos, and texts in these virtual environments. However, only the technologies will not ensure a quality Distance Education. It is necessary a multidisciplinary team that can explore the variety of digital technologies, as well as the different forms of interaction between the

actors involved in this modality of education (GROSSI, COSTA, and MOREIRA, 2013).

Among the team of professionals involved in Distance Education, we can highlight trainer, content-making, researcher; face-to-face and distance tutors; general, course and center coordinators; pedagogues and *instructional designer.* Each one of these professionals has their specific roles and responsibilities. In this study, the focus is on teachers.

2.2. Teachers training to work at EPT in the Distance Education modality

With the expansion of EPT's offer and, specifically, in the distance modality, a new demand for teacher training emerges that goes beyond the specifics of the training to act in the technical courses. Libâneo (2015) advocates a training of teachers that considers not only the learning of contents, but a training that covers the pedagogical part. Belloni (1999) classifies the teacher as *a collective teacher*, and its many roles defined by the author in Distance Education (EaD) are summarized as shown in Table 1:

Table 1: Teacher's roles in Distance Education

Teacher's functions in Distance Education	Characteristic
A training teacher	Advisor of the teaching and learning process, similar to the role of the classroom teacher.
A conceptor teacher and director of courses and materials	Responsible for preparing course plans and selecting content.
Researching teacher	Updates knowledge and methodologies and pedagogical practices.
A tutor teacher	Adviser of doubts related to the subject for which he/she is responsible.

Educational technologist (designer or pedagogue)	Responsible for the organization of contents in a didactic way and through communication by the team.
A "Resource" teacher	Assure clarification of doubts to students regarding specific questions not related to the content of the course.
Monitor	Coordinating study groups for material exploration in the moments of face-to-face activities.

Source: Own elaboration from Belloni ideas (1999, p.83-84)

In face of so many functions, Belloni (1999) states that there is a fragmentation of the teaching process, in which there is no integration between the various functions of the teacher in the modality, which causes problems, such as the lack of academic quality and, consequently, failures of processes and methodologies. This fact leads the author to question and suggest a pedagogical training that prepares these professionals to act in these various functions, in order to understand the specificities of the teaching process.

In the e-Tec Brasil Network, the nomenclature used to define teaching functions is contained in Resolution CD/FNDE no. 18, dated June 16, 2010, and classifies scholarship teachers designated or indicated by the institutions linked to e-Tec Brasil, such as: Researcher-teacher, who will act in the typical activities of teaching, project development, and research; teacher-content researcher, who will act in the activities of elaboration of course material, of development of projects and of research; guardian, for the exercise of typical tutoring activities. (BRASIL, 2010, *online*).

3. Methodology

This is a qualitative, exploratory and, descriptive research, through a case study at CEFET-MG, held in the second half of 2016. The *locus* chosen for developing the research was its center for distance education (NEaD), located in the city of Belo Horizonte. The choice of this

institution was due to the fact that it was a centennial Federal Center of Technological Education in the EPT offer and that it adhered to the technical courses in the E-mode of the e-Tec Brasil Network. The research universe consisted of the three distance technical courses of CEFET-MG: Electronics, Computer science for the Internet, Environment. The subjects were the 11 teachers who were teaching in the three courses at the time of the research.

As data collection instruments, *online* observations were made in the AVA Moodle that houses the three distance courses of CEFET-MG and the application of questionnaires to the teachers of these courses, using the *Google Docs* form tool. A total of 92 questions were defined, of which 57 were closed and 35 were open. An invitation *email* was sent with a questionnaire access *link* to the teachers and 100% return of questionnaires answered. A free and informed consent form was also sent to the participants of the research, which was signed affirmatively by all.

Four categories of analysis used in the questionnaire were elaborated to better understand the answers obtained. For this, four codes were generated: I - Teacher training; II - Performance in the technical courses in the Distance Education modality; III - Use by teachers of the activities and resources of AVA Moodle in their classes; IV - Teaching strategies used by teachers in AVA Moodle.

4. Presentation and analysis of results

The following items are previously defined results in the preparation of the questionnaire by analysis category:

Category I - *Teacher training*

It was verified that 37% of the respondents had a degree in Exact and Earth Sciences, and the same number was verified in Engineering (37%), 17% in Biological Sciences and 9% in Agrarian Sciences. There is a strong technological character in the training of teachers, in keeping with the three technical courses in which they work. Thus, with regard to the specific contents of the technological area, it is inferred

that these professionals have theoretical knowledge anchored in a curriculum compatible with the requirements of EPT.

With regard to the qualification of teachers, the data obtained reveal that 73% of the respondents have Bachelor's degrees; 18%, Bachelor's degree, and only 9% have both qualifications. It can be seen that most of the respondents did not undergo didactic training, considered by Libâneo (2015) as fundamental in the teaching and learning processes, and this gap can compromise students' learning.

When asked about specialization courses, two respondents (18%) stated that they did not attend any specialization, and the others (82%) attended one or more specialization courses. Most of the professors chose specialization courses in the same areas of their undergraduate education: Thirty-four (34%) in Computer Science, 22% in Engineering, 11% in Environment, 11% in Tourism and Leisure, which totals 78%, and 22% attended the specialization in the area of Teacher Training. This fact can be attributed to the priority of the technical area teacher: to be updated in technical contents that he/she teaches.

As for the areas of masters and doctoral training: two professors are doctors, one is studying doctorate, seven are masters, and one is studying the master's degree. All have taken these courses, or are performing, in the same specific areas of their graduations. Thus, once again, the concern with pedagogical training is not perceived, which contradicts the idea of Libâneo (2015), when he states that teacher training needs to cover the pedagogical part of teaching.

It is noteworthy that among the 11 teachers, 73% affirm that they are employees of the CEFET-MG Institution. However, CEFET-MG offers the Special Teacher Training Program since 1999. It is therefore considered that the non-adherence of teachers to this type of training is not justified by non-offer, but perhaps by lack of interest, even if they have stated that they recognize its importance.

Regarding the qualification or specialization to act as a teacher in Distance Education, 45% stated that they had participated in some training in this sense. And more than half (55%) of the respondents

never participated in any specific course to act in Distance Education, which represents a significant number.

It was also questioned whether the teacher considers his/her training as adequate for Distance Education. Only four teachers said yes, with the following justifications: "*Yes, I have been working with these subjects in technical education for 10 years*". *(P.1) 2. "Yes, due to training, courses, specialization, master's degree with studies in the field and constant updating. I believe my training is appropriate". (P.2). "Yes, I have both face-to-face and distance education knowledge to teach". (P.3). "Yes, I always do technical and didactic updates". (P.4).*

Another seven teachers answered that the training is, in part, adequate, justifying the following: "*In part, I would like to complement my pedagogical training". (P.5). "In part, considering the content form, except college, masters, and technical training with practical professional experience supports formal graduation training". (P.6). "In part, I feel a gap in the knowledge of all available resources and how to apply them in my subjects. I am struggling in doing more practical classes". (P.7). "In part, I believe only one course is necessary to know how to use the Moodle tools". (P.8). "In part, it is always important to continue studying". (P.9). "In part, there are missing courses on Distance Education". (P.10). "In part, I need to complement my training". (P.11).*

It is noticed, then, that most teachers agree that they need to complement their training. They are supported by Belloni (1999), who understands that the teacher of Distance Education has new and multiple functions and, among these, there are some in which this professional was not prepared.

Category II – *Performance in technical courses in Distance Education modality*

As for teaching time, it was found that 74% of teachers have more than five years of teaching time, of which half have more than 10 years, and yet 64% of respondents are teachers of face-to-face courses of CEFET-MG.

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[2] Acronym used to identify respondent teachers

Regarding the time of performance in Distance Education mode, 82% of teachers work in Distance Education between one and five years. When asked about the time they have of acting in the NEAD of Distance Education in CEFET-MG, the answers coincide, with the institution being the first teaching experience of the majority. And the motivation behind these activities was the search for new opportunities (32%), interest in Distance Education (28%), interest in using technology in education (21%), personal achievement (12%). and financial reasons (7%).

Another aspect investigated was on how to become a teacher in NEaD technical courses. The majority (91%) stated that they entered through a selection process, and one respondent entered through an indication made by the general coordinator of NEaD. These two forms of income are provided for in article 7 - section VI of Resolution CD/FNDE No. 18, dated June 16, 2010. With regard to the position occupied by the respondents in NEaD, 37% said to be content-making-teachers; 27%, researching-teachers; 18%, training-teachers; 9% defined themselves as tutor-teachers and 9% did not specify their role.

Concerning the hours worked in NEaD, 46% of teachers stated that no fixed workload was required, 27% stated that they work from 6 to 10 hours a week, 8% stated that they meet between 11 and 20 hours, and one of them works more than 20 hours a week. According to the same teachers, this difference is due to the fact that each course has its demands and specificities, and are managed by the course coordination, and workloads are complemented in the other face-to-face courses of CEFET-MG.

In order to finish the analysis of category II, we verified the knowledge of teachers about resources and activities present in AVA Moodle (Table 1).

Table 1: Knowledge and mastery of resources and activities in AVA Moodle

Activities	Knows	%	Masters	%
1. Forum	11	100	11	100
2. *Chat*	10	91	9	73
3. Hot Potatoes Activity	3	27	1	9
4. Database	6	55	3	27

5. Choice	7	64	7	64
6. Glossary	6	55	4	36
7. Lesson	8	73	6	55
8. Quiz	11	100	11	100
9. SCORM/AICC	0	0	0	0
10. Task	10	91	9	82
11. *Wiki*	6	55	4	36
Resources	**Knows**	**%**	**Masters**	**%**
1. File	11	100	10	91
2. Package contents/IMS	2	18	2	18
3. Book	5	46	4	36
4. Page	10	91	10	91
5. Folder	10	91	5	46
6. Label	9	82	9	82
7. URL	11	100	11	100

Source: Research data.

The data presented in Table 1 show that the majority (91%) of the activities are known to teachers, emphasizing activities of the forum and questionnaire (100%), followed by 91%, who stated that they knew the *chat* and task activities. The *SCORM/AICC* activity is unknown to all teachers, and the *Hot Potatoes* activity is unknown to 73%. As to the mastery of activities, 100% stated that they master the forum and questionnaire activities, which corroborates with the stated knowledge about these activities. And 82% of teachers stated that they master the task activity and 73% said they master the chat activity. Note that none of the teachers has stated that he/she masters the *SCORM/AICC* activity, which confers on the non-knowledge of it, affirmed by them. The same happens with the *Hot Potatoes* activity, *that is*, 91% stated that they do not dominate this activity. It is evident, therefore, that the activities that

the teachers mater are not the ones that promote interaction the most. Of the four activities that teachers master most, only the forum and the chat enable dialogue among the participants.

As far as available resources are concerned, all teachers stated that they know the file and *URL* resources; 91% know the resources page and folder and 82% know the resource label. And 82% do not know the IMS package content resource and 55% do not know the book resource. On the mastery of these features, 100% said they mastered the *URL* feature and 91% said they master the file and page features. On the other hand, 82% do not master the IMS package feature and 64%, the book resource. It should be noted that the page resource is one of the most well-known resources (91%). However, when asked about their mastery, only 55% say they masters this feature.

Finally, it is concluded that knowledge and mastery of AVA Moodle resources are greater than knowledge and mastery of activities. However, resources are not promoters of interaction and dialogue, but rather activities. Thus, the lack of mastery of the activities makes it impossible for the teacher to use the variety of tools that exist in Moodle, which may impair his didactic work.

Category III – *Use, by teachers, of AVA Moodle activities and resources in their classes*

Table 2: presents the activities available in AVA Moodle and how it has been used by teachers of the distance technical courses of CEFET-MG.

Table 2: Pedagogical practice of teachers in AVA Moodle and use of activities

Activities	Always	Sometimes	A little	Never
1. Forum	5	4	2	0
2. *Chat*	2	5	4	0
3. Hot Potatoes Activity	0	0	4	7
4. Database	1	2	6	2
5. Choice	3	1	6	1

6. Glossary	0	2	4	5
7. Lesson	2	4	3	2
8. Quiz	10	0	I	0
9. SCORM/AICC	0	0	3	8
10. Task	6	2	I	0
11. Wiki	I	2	5	3

Source: Research data

According to the data in Table 2, the activities professed by teachers to use in developing their subjects are: questionnaire (73%), task (45%) and forum (36%). Teachers also stated that the activity they never used was the glossary (46%), although they have previously claimed that they dominate this activity. Two other activities were mentioned as underutilized: *SCORM/AICC* (73%) and *Hot Potatoes* (64%), which was expected, since these were the main activities declared by the teachers as little known and also those that do not master.

When comparing the data in Tables 1 and 2, there is a mismatch, since teachers state that they master activities such as chat, choice, lesson, and forum, but when asked about using these activities, one can see that not all have used them in their classes. In addition, the two most used resources, questionnaire and the task, are considered as evaluation activities, not interaction activities. It is inferred, therefore, that teachers have little use of the activities that help in promoting the interaction between them and their students.

Regarding the use of resources available in AVA Moodle, Table 3 shows the results of how it has been used by teachers.

Table 3: Pedagogical Practice of teachers in AVA Moodle and the use of resources

Resources	Always	Sometimes	A little	Never
1. File	7	4	0	0
2. Package contents/IMS	0	2	4	5

3. Book	I	2	I	7
4. Page	7	4	0	0
5. Folder	4	2	4	I
6. Label	8	I	0	2
7. *URL*	I0	I	-	0

Source: Research data

According to the data obtained in Table 3, the most used resources were: URL by 10 teachers, label by 8 teachers, and file and page by 7 teachers. And package contents/*IMS* and book resources were the least used. In this case, it is noted that the use is consistent with the data obtained in Table 1, about the resources that teachers less dominate to use.

Category IV - *Teaching strategies used by teachers in AVA Moodle*

When inquired about adopting specific pedagogical strategies for Distance Education, 91% of teachers answered yes, i.e., that in distance technical courses they adopt strategies different from those used in classes in face-to-face courses, and mentioned the following strategies used in its classes in AVA Moodle: using videos with live lessons with practical demonstrations; viewing by images and videos for easy understanding; indication of videos and books on the subject; detailing the handout by embedding videos to support teaching; explanatory texts and directed study. Of these, 91%, or 10 teachers, only one mentioned that, in addition to these strategies, also use the forum with their students, which is an activity that enables interaction among participants in the teaching and learning process.

Completing the data, 9% of teachers stated that they never adopt specific strategies for Distance Education, which is a worrying fact and shows that the teacher is not prepared to act in this mode of teaching. Added to this concern is the fact that pedagogical mentioned by 10 teachers are not focused on student/teacher interaction, but only on content.

In this same sense, another result that shows that teachers are not using the digital tools present in AVA Moodle, that promote dialogue between them and their students, is the fact that, when they are questioned about providing feedback to students during classes, 91% of teachers considered it to be very important, but only 46% said they always provide feedback to their students - which indicates a lack of interaction when using of activities.

As for the preparation of course material for the classes, 74% of the teachers declared that they create their own material. It is interesting to remember that, when questioned about the role/position they play in NEaD, only 37% defined as content-making teachers, a result presented in Category II of this study.

Given the specificity of EPT in articulating or relating theory and practice in the teaching process (GRINSPUN, 1999), teachers were asked if they could establish this relationship in their Distance Education class in AVA Moodle. It was found that 82% stated that they do and 18% they do sometimes. Teachers also mentioned pedagogical strategies they use to carry out the articulation between theory and practice in technical courses in Distance Education. Here are the answers:

- Through activities and practical projects, theoretical reporting to explain the project; holding debates through videos to show practical situations; from industry videos, and asking students to look at their homes for examples of what is being taught; videos of practical classes or experiments with an incentive of execution and discussion in the forum, created by the students of a certain subject to be investigated (answers quoted by 55% of the teachers);

- Case studies related to the situations of each municipality where the centers are located (answer cited by 27% of teachers);

- The practice is greatly impaired. But, in the face-to-face moments, when they exist, they are developed (answer mentioned by 9% of teachers).

- In addition, what was characterized, for them, a good peda-gogical practice in Distance Education modality was asked. The answers were:

- Flexible hours; audio-visual resources that can be revised as often as necessary; quicker clarification of doubts with the tutor and/or teacher; interactivity between teacher and student and between students; using forums and interaction (responses quoted by 28% of teachers);

- Good contents, that make sense by the student's experience; that allows developing the student's intellectual, reflection, creative, critical and productive behavior capabilities (responses quoted by 18% of teachers);

- Having a good working team; access to good tools; subject (responses cited by 9% of teachers).

It should be noted that the good pedagogical practices in Distance Education mode, cited by the teachers, depend on the digital tools present in the AVA Moodle that enable interaction; in this study, it has been proven that these have not been used by teachers in their pedagogical strategies.

Another point verified was about the safety that teachers have to teach classes in Distance Education. According to the data obtained in the questionnaire, 100% stated that they feel safe. They were also asked to indicate the reasons that made them feel confident (Table 2). The answers here were interesting because, even though all teachers have stated that they feel safe in teaching classes in Distance Education, they presented the reasons that made them insecure.

Table 2: Reasons that generate security and insecurity to teach in Distance Education

Reasons to feel safe	Reasons not to feel safe
• They interact directly and quickly with students, and using of technological resources opens up diverse opportunities for the exchange of knowledge. • They have knowledge and mastery of the subject. • They feel secure with the methodology used, the support work of the team and the knowledge they have. • They feel safe and eventually challenged to improve. • They apply the experience of the labor market in the contents of the subjects.	• Lack of knowledge of all available resources and how to apply them in the subjects. • Time taken to prepare classes with different methodologies, such as video lectures. • Difficulty in presenting the contents of their subjects in AVA. • Need for a very strong connection with students; it is fundamental to know the reality of the student. • Distance between teacher and student. • Deadlines for preparing the material are sometimes short and released shortly.

Source: Research data

It is therefore confirmed that security concerns knowledge and mastery of content. Among the answers on the reasons that generate insecurity, one is specifically interesting: *Distance between teacher and student.* Therefore, is the teacher prepared to teach in this mode of teaching? Another point worth mentioning is that the lack of interaction between students and teachers is one of the reasons that create insecurities in teachers. However, throughout this study, it has been shown that teachers have not sought to use the tools that would help them to promote such interaction.

In addition, we also investigated the factors that teachers considered to be the most difficult teachers' work in Distance Education. The main responses were: system failures; communication difficulties through asynchronous and synchronous methods; lack of student participation; difficulty in motivating students and organizing discussions; physical distance between teacher and student; difficulty of the student in organizing himself to carry out the proposed tasks; difficulty in mastering

the technologies used in the course and in mastering the teaching system adopted by the institution; lack of specific training to act in Distance Education. Among these answers, the first one (failures in the system) was pointed out by 91% of the teachers, which is a matter of concern for the NEaD team, which needs to be multidisciplinary, as Grossi, Costa and Moreira (2013) remember, to meet to all pedagogical and technical demands of Distance Education courses.

The physical distance between teacher and student should not be considered a difficulty factor, since this is the main characteristic of Distance Education, which makes believe that teachers are not yet prepared to teach in this modality of education, perhaps due to lack of training to act in Distance Education.

5. Final considerations

It is undeniable that teacher training is fundamental for success in pedagogical practice. Therefore, it is reinforced in this study that, to work in EPT in Distance Education mode, teachers need training in the technical area of the courses, that is, to have knowledge in the area of their performance, pedagogical training, as well as knowledge that meet the which are different from those of face-to-face teaching and, thus, to enrich their pedagogical strategies with the various possibilities AVA offers.

However, in this research, it was verified that most of the teachers who work in the distance-learning technical courses of the e-Tec Brasil Network of CEFET-MG do not have a Bachelor's degree or specific training for Distance Education, mainly for the use of the resources and activities of AVA Moodle, which may be making it impossible for teachers to establish their pedagogical practices, so that the teaching work in Distance Education modality does not present any differential regarding the face-to-face modality.

To sum up, this conclusion is exemplified, emphasizing that AVA Moodle has several activities that can promote dialogue and interaction between the participants in the teaching and learning process that are

physically distant. This didactic conversation is that authors like Moore (1993) and Holmberg (1983) believe that it will induce the student's autonomy, which is one of the main characteristics required from a student of a distance course. And unfortunately, it was contacted that the teachers participating in this research did not promote this interaction. Therefore, complementing the training of these teachers who are working in Distance Education is not necessary, especially regarding the use of the digital tools of AVA Moodle, to be able to be together of their students technologically and pedagogically.

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