Artigo Original

Active Strategies in the Context of Professional end Technological Education – Ept: The Mediotec Courses at the Instituto Federal do Norte de Minas Gerais – Ifnmg (Oferta Bolsa-Formação – 2017/2019) and the Project Methodology

Educação Profissional e Tecnológica – Ept: Os Cursos do Mediotec no Instituto Federal do Norte de Minas Gerais – Ifnmg (Oferta Bolsa-Formação – 2017/2019) e a Metodologia de Projetos

Estrategias Activas en el Contexto de la Educación Profesional y Tecnológica: Los Cursos Mediotec en el Instituto Federal do Norte de Minas Gerais – Ifnmg (Oferta Bolsa-Formação – 2017/2019) y la Metodología del Proyecto

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Abstract

The knowledge society imposes new challenges on schools that are not always overcome by all educational institutions. Those more daring, attentive to the changes, choose two paths: a softer one, with

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progressive changes; and a larger one, with profound changes. The fact is that the way of learning and teaching has changed and requires that education professionals change and adapt to the new times, the new languages. However, public policies, such as MedioTec, have been severely criticized for promoting courses that do not respond to the needs of the world of work. In this sense, the objective of this article is to study the use of active methodologies in the IFNMG MedioTec courses, as a strategy for training young people for the world of work. Therefore, the methodology used is based on bibliographic research in primary and secondary sources and semi-structured interviews with the course coordinators. It is concluded that the IFNMG is in search of teaching based on quality, building a contextualized education, of technical excellence and committed to a citizen posture of its students, despite the public policies for EFA, today, to meet needs neoliberal marketing campaigns.

Keywords: Active Methodologies. Open and Distance Education. Professional and Technological Education. MedioTec. Professional Training Practice.

Resumo

A sociedade do conhecimento impõe novos desafios à escola, que nem sempre são superados por todas as instituições de ensino. Aquelas mais arrojadas, atentas às transformações, optam por dois caminhos: um mais suave, com mudanças progressivas; e outro mais amplo, com mudanças profundas. Fato é que a forma de aprender e ensinar mudou e exige que os profissionais da educação também mudem e se adéquem aos novos tempos, às novas linguagens. No entanto, as políticas públicas, como o MedioTec, têm sido duramente criticadas por fomentar cursos que não respondem às necessidades do mundo do trabalho. Nesse sentido, o objetivo deste artigo é estudar o uso e a eficácia das metodologias ativas nos cursos do MedioTec do IFNMG como estratégia para a formação de jovens para o mundo do trabalho. Para tanto, a metodologia utilizada está baseada em pesquisa bibliográfica em fontes primárias e secundárias e em entrevistas semiestruturadas com os coordenadores e alunos dos cursos. Conclui-se que o IFNMG está em busca de um ensino pautado na qualidade, construindo uma educação contextualizada, de excelência

técnica e comprometida com uma postura cidadã de seus alunos, apesar de as políticas públicas para a EPT, na atualidade, irem de encontro às necessidades mercadológicas neoliberais.

Palavras-chave: Metodologias Ativas. Educação Aberta e a Distância. Educação Profissional e Tecnológica. MedioTec. Prática de Formação Profissional.

Resumen

La sociedad del conocimiento impone nuevos desafíos a las escuelas que no siempre son superados por todas las instituciones educativas. Los más atrevidos, atentos a los cambios, eligen dos caminos: uno más suave, con cambios progresivos; y uno más grande, con profundos cambios. El hecho es que la forma de aprender y enseñar ha cambiado y requiere que los profesionales de la educación cambien y se adapten a los nuevos tiempos, los nuevos idiomas. Sin embargo, las políticas públicas, como MedioTec, han sido severamente criticadas por promover cursos que no responden a las necesidades del mundo del trabajo. En este sentido, el objetivo de este artículo es estudiar el uso de metodologías activas en los cursos de IFNMG MedioTec, como estrategia para la formación de jóvenes para el mundo del trabajo. Por lo tanto, la metodología utilizada se basa en la investigación bibliográfica en fuentes primarias y secundarias y en entrevistas semiestructuradas con los coordinadores del curso. Se concluye que el IFNMG busca una enseñanza basada en la calidad, construyendo una educación contextualizada, de excelencia técnica y comprometida con una postura ciudadana de sus estudiantes, a pesar de las políticas públicas para la EPT, hoy, para satisfacer las necesidades, campañas de marketing neoliberal.

Palabras clave: Metodologías Activas. Educación Abierta y a Distancia. Educación Profesional y Tecnológica. MedioTec. Práctica de Capacitación Profesional.

1. Introdução

We are currently experiencing the impact of technological innovations and economic transformations on contemporary society, understood by many authors, such as Guevara and Dib (2015), as the knowledge, information society. The knowledge society is characterized by complex flows of ideas, information, policies and ideologies, which establish a new form of social and work organization and, therefore, of the school. The latter, despite having been "shaken" successively, in many cases, clings to the strength of its historical structure to "resist" the new.

On the other hand, some more daring educational institutions, attentive to changes, choose two paths: a softer one, with progressive changes; and a wider one, with profound changes. The fact is that the way of learning and teaching has changed and requires that education professionals also change and adapt to new times, new languages.

Against all of this, public policies for Brazilian education have not overcome old barriers, especially in the case of methodologies such as Open and Distance Education - Distance Education. The MedioTec policy receives several criticisms in this regard, in particular, for causing what Frigotto et al. (2017) call it a division between the propaedeutic disciplines of those considered technical, emptying the historical achievements of Professional and Technological Education (EPT).

This educational segment, in particular, needs to be permanently studied and reconstructed, because in order to form a critical subject, a citizen, with effective and meaningful knowledge, it needs to be built, under the risk of training professionals unprepared for the job.

In this sense, the objective of this article is to study the use and effectiveness of active methodologies in IFNMG's MedioTec courses, as a strategy for training young people for the world of work. Therefore, the methodology used is based on bibliographic research in primary and secondary sources and in semi-structured interviews with the coordinators and students of the course.

We can infer that the IFNMG is in search of quality education, achieving a contextualized education, of technical excellence, despite public policies for EFA, which do not contribute so that educational institutions can "dare" in the construction of innovative models of education, especially in distance learning methodology.

2. Contextualization of Active Methodologies in Brazil

The knowledge society calls into question the old way of learning that made sense when information was difficult to access. The standardized school, which teaches and evaluates everyone equally and requires predictable results, ignores today's social and professional needs. It is necessary that the formal education of the 21st century school effectively assumes its role in the development of cognitive and personal competences, in the perspective of training proactive professionals, able to work in teams, collaborative, in addition to forming critical citizens for the world..

In this sense, it is necessary that changes occur in the teaching and learning process, since, currently, it is possible to interact with different people, take different courses (sometimes free) and have access to materials and information in time and space differently thanks to the internet connection.

Based on this understanding, Morán (2015, p. 15) clarifies that teaching and learning takes place in a symbiotic, profound, constant interconnection between "[...] the physical world and the digital world. They are not two worlds or spaces, but an extended space, an expanded classroom, which mixes, constantly hybridizes". Also according to the author, the teacher needs to reinvent the classroom with methodologies that reach face-to-face and digital communication with students, using mobile technologies, balancing the interaction with everyone and each one.

These changes need to happen in an increasingly expressive way, also because the student no longer accepts a vertical, authoritarian and uniform model of learning. Thus, it is necessary to build more dynamic methodologies, which articulate theory and practice, enabling students to

experience the experience of learning to know, to do, to live together, to be (UNESCO, 1999); learn to learn, with clear and open language that makes use of images, videos and games, making content accessible to contemporary learners.

In this sense, Morán (2015, p. 17) points to some models that seek this methodological change in education and are used by classroom and distance education, in public and private education, namely: a) the curricular model, predominantly disciplinary, but that prioritizes greater student involvement with active methodologies, such as teaching by projects, in a more interdisciplinary way, hybrid or blended teaching and the inverted classroom; and, b) the model without disciplines, more innovative, but which designs the project, the physical space, the methodologies based on activities, challenges, problems, games and each student learns at his own pace and need, in addition to learning from others project groups, supervised by supervising teachers.

Active methodologies are starting points for the educational models described, as they help to achieve more advanced processes of reflection, cognitive integration, generalization, and re-elaboration of new practices. These methodologies are not new and are supported by theorists such as Dewey (1950), Freire (2009), Rogers (1973), Novak (1999), among others, who have long emphasized the importance of overcoming bank education and focusing student learning, involving him, motivating him and dialoguing with him.

According to Abreu (2009), the first indication of these methods is found in the work of Emílio by Jean Jacques Rosseau (1712-1778), considered as the first treatise on philosophy and education in the Western world and in which experience is highlighted at the expense of theory.

In the 20th century, the contribution of psychology, through the author Dewey (1950), occurs with greater theoretical support to configure active methods. He was the forerunner and creator of the methodological construction of Escola Nova, in which it is understood that the learner's activity and interest should be valued, and not the teacher. For Dewey (1950), learning occurs through action, placing the student at the center of the teaching and learning processes.

Rogers (1973, p. 104) contributes to the discussion by saying that the central word of education would be learning: the student learning to learn, and the teacher as a facilitator of that learning, which is always unique and free. In his words:

> We face, in my view, an entirely new situation in the field of education, whose objective, if we want to survive, is to facilitate change and learning. The only man who is educated is the one who has learned how to learn; who learned how to adapt and change; who has learned that no knowledge is safe […].

In this sense, one can quote Freire (2009), theorist and educator who was concerned with the issue of liberating people and their lives dehumanized by oppression and social domination. From this understanding, the author creates the theoretical basis of Liberating Education, understood as an instrument of transforming action. Such a process is not performed by someone else, or by the subject himself, but it takes place in the interaction between historical subjects through their words, actions and reflections.

The instrument of his proposal for a Liberating Education is dialogue, as it is through the radical dialogue between reflection-action, supported by dialectics, that reality is problematized. This reflective problematizing pedagogy implies a constant unveiling of reality.

Novac (1999) contributes to the theoretical discussion of active methodologies based on the idea that education is the set of experiences (cognitive, affective and psychomotor) that contributes to the aggrandizement of the individual to deal with daily life, making learning meaningful. The basic premise of this theory is that human beings do three things: they think, feel and act (do). Any educational event is an action to exchange meanings (think) and feelings between peers, whether between apprentices and / or teachers.

However, there are two conditions for this type of learning to occur: one is that the student has a predisposition to learn and the other is that the learning material is potentially significant. Meaningful learning

therefore requires a predisposition to learn, and at the same time, generates this type of affective experience.

It is in the affective field that an analysis of the Schwab theory (1999) fits, which proposed that any educational phenomenon involves, directly and indirectly, four elements: 1) apprentice (learning); 2) teacher (teaching); 3) teaching material (curriculum); 4) and social matrix (environment, context). To these four elements, Novak (1999) added one more, which is, or should be, always present in educational events - the evaluation. The evaluation fits the theory of the author under analysis because much of what happens in the teaching-learning-knowledge-context process depends on the evaluation, that is, the educational process implies an action to exchange meanings and feelings between teacher and student.

Based on the theories discussed so far, we can infer that, in the active method, students occupy the center of educational actions, and knowledge is built collaboratively and by the students' experience. In this sense, the work by Diesel et al. (2017, p. 273) summarizes seven basic principles for active methodologies, described in Flowchart 1.

Flowchart 1 - Principles that constitute active teaching methodologies
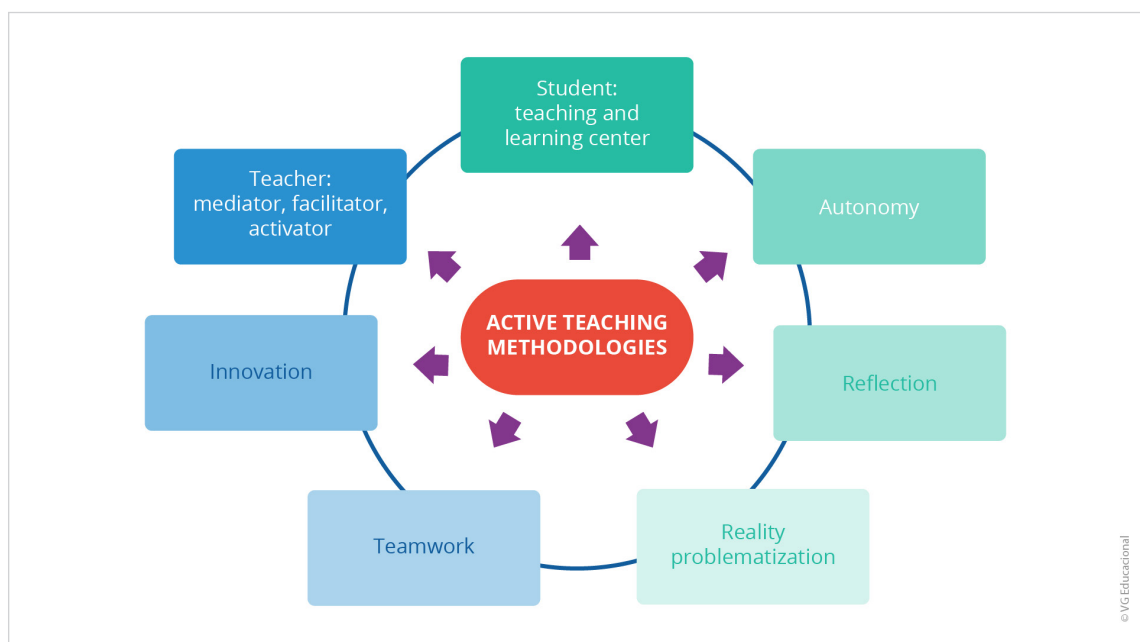
Source: Diesel et al. (2017).

Such principles are described as follows by the authors:

1. Student: center of the learning process

Active methodologies make it possible to activate student learning, placing them at the center of the process, as opposed to the position of spectator, as seen in traditional education, in which the teacher is the protagonist of the learning process. Unlike this method, which first presents the theory and part of it, the active method seeks the practice and part of it for the theory (ABREU, 2009). Along this path, there is a "migration from' teaching 'to' learning ', the shift from the focus of the teacher to the student, who assumes co-responsibility for their learning" (SOUZA *et al.*, 2014, p. 285).

2. Autonomy

Theorization ceases to be the starting point and becomes the arrival point, given the innumerable paths and possibilities that the subjects' historical and cultural reality emanates. When taken as a basis for planning learning situations, active methodologies can contribute significantly to the development of student autonomy and motivation as it favors the feeling of belonging and co-participation.

3. Questioning reality and reflection

Although the problematization of reality and reflection were considered to be two distinct principles, it is clear that they are inseparable. So, they are presented together in this section.In the context of the classroom, problematizing implies making an analysis of reality as a way of becoming aware of it. In another instance, there is a need for the teacher to instigate the student's desire to learn, problematizing the contents. Referring to this issue, Hengemühle (2014) warns that, for this, it is essential that the teacher knows the situations and problems to which the content is linked. The author also points out that, often, there is a difficulty, because the teacher is not always able to meet this requirement.

4. Team work

Working with an active teaching methodology favors constant interaction between students. The expository class, in which students sit in

individual desks and in which they are "forbidden" to exchange ideas with colleagues, gives rise to moments of discussion and exchange. In this approach, "the starting point is the student's social practice, which, once considered, becomes an element of mobilization for the construction of knowledge".

This movement of constant interaction with colleagues and the teacher leads the student to constantly reflect on a certain situation, to express an opinion on each situation, to argue for or against, and to express themselves. Koch (2002) complements this idea by mentioning that the student must know how to understand his reality. The teacher has the task of awakening in the student a critical attitude towards the reality in which he is inserted, preparing him to "read the world": at first, his world, but from then on, and gradually, all the worlds possible (KOCH, 2002, p. 159).

5. Innovation

The term has a significant value in this path of transcending the traditional teaching approach, which privileges only methodologies for the mechanical transmission of content, in which the student's role is that of a passive recipient. To overcome this model, it is necessary to value innovation in the classroom, renewing, inventing or creating methodologies. Thus, the active teaching methodology requires, both from the teacher and the student, the boldness to innovate in the educational field.

6. Teacher: mediator, facilitator, activator

Teaching how to think means not transferring or transmitting to another who receives passively, but the opposite: provoking, challenging or, further, promoting the conditions to build, reflect, understand, transform, without losing sight of the respect for autonomy and dignity this other. This look reflects the teacher's stance, which uses an approach based on the active method.

Based on the presentation made so far on active methodologies, it can be inferred that the role of the teacher is fundamental, who must design a methodology that meets the objectives of the Pedagogical

Course Project (PCP) and, based on its application, carry out a continuous reflection in the course of the process on the developments in student learning, so that the action does not become automatic.

Thus, the resignification of the classroom, as a space for interactions between historical subjects and knowledge, supported by the pillars of active methodologies, such as the educational models presented by Morán (2015, p. 17), debate, curiosity, questioning, doubt, proposition, result in protagonism and development of autonomy.

On the other hand, it is necessary to analyze whether the way in which educational programs and public policies are designed in Brazil are against the understanding of theorists and the effort made by many teachers and educational institutions, as discussed below.

3. Pronatec as A Public Policy for Interiorization and Expansion of EPT

In the history of Professional and Technological Education (EFA) in Brazil, an issue frequently discussed by researchers concerns the changes that occurred in the concept of EFA due to agents that manifest themselves throughout its conceptual, political and legal structure. In the literature, it is possible to identify that the defenders of this line of thought, such as Almeida (2018), Afonso and Gonzales (2016), Caires and Oliveira (2016), point out that, in certain periods, there is the adoption of a technical training aimed at the labor market, the result of public policies influenced by neoliberal interests, to the detriment of a humanistic and unitary formation that goes against the interests of workers.

Dallabona and Fariniuk (2016) complement this understanding by analyzing that there is a cultural way of understanding the general contents of sciences, letters and humanities as valid for the formation of the leaders of the Brazilian elite, with the EFA characterized by instrumental and technical training. These teaching systems are called, in the first case, as propaedeutic or academic and, in the second, as professional and its variations.

In Brazil, public policies for EFA have developed systematically since the 20th century. However, depending on the object of this work, we chose to analyze the development of EFA from the 2000s, specifically with the beginning of the National Program for Access to Technical Education and Employment (Pronatec).

However, it is necessary to mention that the public policies that preceded Pronatec, such as the National Professional Qualification Plan (Planfor), implemented by the Fernando Henrique Cardoso government, in 1995 and the National Qualification Plan (PNQ), implemented in the first mandate of the Luís Inácio Lula da Silva administration, in 2003, were important for the creation of the aforementioned program created in 2001 by the Dilma Rousseff government. Pronatec was responsible for expanding the offer of EPT courses and was complemented by MedioTec, created by the Michel Temer government, in 2017. These programs brought a set of actions developed by the Bolsa-Formação Student and Bolsa-Formação Emprego programs, which are considered innovations for providing remuneration to students during the course.

According to Law No. 12,513 / 2011, which institutes Pronatec, §1º and §2º, the Bolsa-Formação Estudante is intended for students of public high school in the concomitant way; and the Bolsa-Formação Trabalho, to workers and beneficiaries of federal income transfer programs, with the offer of Continuing Initial Training (FIC) courses, through courses of at least 160 hours, in the most diverse areas, whose reference is the Pronatec FIC Course Guide. IFNMG has been offering Pronatec since 2012. In 2017, other actions and projects started, with the purpose of offering more EPT courses, and MedioTec has important contributions in this regard..

MedioTec was born with the objective of enhancing the offer of places for a specific audience, high school students from public schools (including Youth and Adult Education [EJA]), who must study during the school day. According to MEC (2019), 107,465 places were offered in 131 free technical courses throughout Brazil. Courses must take place in person and at distance, with the state departments of each state being responsible for selecting students.

According to the announcement DIEP / SB / SEE nº 1, of May 31, 2017, which regulates the selection process for MedioTec vacancies in the State of Minas Gerais, the priority of the target audience is students in conditions of vulnerability, already that the selection criteria, according to the aforementioned notice, item 5.2, 10% of the vacancies are destined to young people with disabilities and to young people in socio-educational and protective measures, 65% of the vacancies are destined to young people from beneficiary families of the Bolsa Família program enrolled in high school and the remaining 25% are destined for wide competition.

The aforementioned MedioTec notice includes, as an annex, the institutions that will offer technical courses, with the proposal of approximately 75% of the courses being offered in distance education and the others in person, which points to the first modality as the predominant one.

The program's reference document (MINAS GERAIS, 2017) defends integrated training, concomitantly with regular high school, that is, the student has two enrollments, one of which is regular (public) and one of technical education, obtaining , at the end, two certificates of completion.

However, for Frigotto et al. (2017), the program is structured as a catalyst for high school reform, which means that the government gradually implements high school reform and reinforces the disarticulation of technical training with propaedeutics, given that institutions in which students will take the technical courses offered by the program are generally not the same institutions in which they attend high school. Ramos (2017, p. 4) corroborates this understanding by stating that:

> [...] all the historical defense around quality technical training is, first, not to undermine general training for the benefit of technical training, but, on the contrary, to integrate it. But, in the vision expressed in the reform and in MedioTec, for this young man from public school, the needy, this is very.

Ramos (2017) also highlights that, according to the MedioTec reference document, there is the possibility of an internship in the job market by the student. For the author, the idea of stimulating partnerships between the institutions offering secondary education and professional education with the productive sector of the region serves for students to be absorbed, a priori, as apprentices or interns during the course and, later, they can take on jobs, anticipating their insertion in the market without adequate training and in order to exploit their workforce.

At this point, the author refers to Law No. 5,692 / 1970, which promoted the student's "early" entry into the job market, but only in the 3rd year of high school, under the principle of supervised internship effectively curricular, that is, a relationship between theory and practice. In addition, it guaranteed a workload of propaedeutic content well above that proposed by the program in question. Also according to the author, MedioTec does not have these safeguards, it only mentions the terms "apprentice" or "intern", which means the insertion of students prematurely, as an exploited workforce.

On the other hand, IFNMG, an institution that has pedagogical autonomy, proposes, in its courses, a way to fill the lack of mandatory internship, through the curricular component, in the Technical Course Plans (TCP), called Professional Training Practice (PFP). This practice will be discussed in the subsequent topic, but not before characterizing that educational institution.

4. IFNMG: Institutional Characterization

The Federal Institutes of Technological Education (IFs) were established based on Law No. 11,892, of December 29, 2008. Its legal attribution is based on offering professional education in its most varied modalities, covering undergraduate, bachelor's, professional level education basic and secondary education, initial and continuing education courses, in addition to stricto and lato sensu graduate programs.

The Federal Institute of Northern Minas (IFNMG) is a consequence of the expansion of the IFs. Its general objective is to expand and internalize the federal network, encompassing institutes and universities, in

order to democratize and expand the population's access to technical and higher education. Specifically, it seeks to enable the training of specialized and qualified labor to promote regional development, serving as an instrument of government social policies to combat social and territorial inequalities (TCP, 2017).

The IFNMG's coverage area consists of 126 municipalities distributed in three mesoregions (north, northwest and part of the Jequitinhonha Valley, in the State of Minas Gerais), occupying a total area of 184,557.80 Km², occupied by a total population of 2,132 .914 inhabitants (IBGE, 2019). IFNMG is present in Januária, Arinos, Almenara, Araçuaí, Pirapora, Montes Claros and Salinas, Diamantina, Teófilo Otoni, with advanced campuses in Porteirinha and Janaúba, in addition to the Reference Center for Distance Education (CEAD). Most of its campuses are recent, with the exception of Campus Salinas, which originated from Escola Agrotécnica de Salinas and Campus Januária, formerly CEFET de Januária (TCP, 2017).

This whole structure has as its main challenge,

> [...] to be permanently connected with the social and economic needs of the regions where it is present. In promoting development, the institution must contribute to meet existing demands, as well as foster the potential that a given region has, in order to meet future demands (TCP, 2017).

When analyzing the challenges of the IFNMG, and as stated by Otranto (2010), we can see that the IFs are instruments of government intervention in relation to EFA and local / regional development. On the other hand, this institution is committed to a comprehensive education, which seeks the full formation of the destitute classes in underdeveloped regions. Therefore, offering MedioTec within this institution, in view of the criticisms of authors such as Frigotto et al. (2017) and Oliveira and Miranda (2017), it is a challenge that needs to be analyzed.

5. Mediotec Offer 2017/2019: Courses for the North, Northwest and Jequitinhonha Valley in Minas Gerais

MedioTec courses, within the scope of IFNMG, are offered through Pronatec Bolsa-Formação (distance education methodology). Flowchart 2 shows the institution's organizational structure in relation to distance learning.

Flowchart 2 - Institutional Management Organization Chart by CEAD / IFNMG
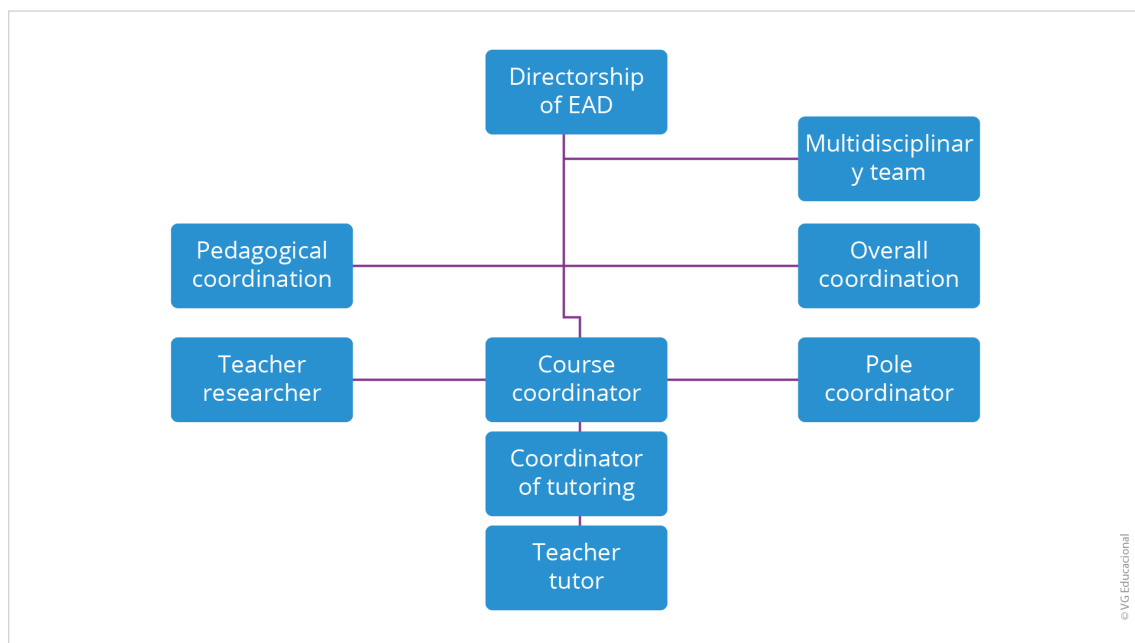
Source: CEAD/IFNMG (2019).

The Distance Education Center (CEAD / IFNMG) is structured in a division of administrative and pedagogical work. It has a director-general, teaching coordinator and administrative coordinator, administrative technicians and information technology (IT), who manage and operationalize the offers, in addition to the course coordinators, tutors and on-site and distance tutors, who are selected. according to specific notices, to manage and monitor the courses.

Like the other institutions and networks that adhered to the MedioTec offer notices, the institution assumed responsibility for the choice and organization of the courses, organization of the on-site support centers (with the support of the prefectures of the host cities), hiring of workers and execution of the courses.

The projects of the MedioTec courses were built or reedited by the teaching coordination of CEAD / IFNMG and approved by the Montes Claros Regional Education Secretariat. In the MedioTec 2017-2019 offer, specifically, five courses are offered, namely: technical course in Administration, Agribusiness, Electrotechnics, Internet Computing and Workplace Safety, lasting two years (four modules). These courses serve the headquarters and advanced centers, according to the Chart 1.

Quadro 1 - Cursos do MedioTec oferecidos em Polos Sede e Avançados pelo CEAD/IFNMG

Technical course	Headquarters	Advanced Poles
Administration	Diamantina	Itamarandiba
		Turmalina
	Janaúba	Jaíba
	Pirapora	Pirapora
	Teófilo Otoni	Teófilo Otoni
		Nanuque
Agribusiness	Arinos	Arinos
		Buritis
		Urucuia
	Januária	Ibiracatu
		Turmalina
	Janaúba	Janaúba
	Montes Claros	Montes Claros
	Salinas	Rio Pardo de Minas
	Porteirinha	Porteirinha
		Riacho dos Machados
Eletrotécnica	Montes Claros	Bocaiúva
	Pirapora	Pirapora
		Várzea da Palma
		Verdelândia

Informática para Internet	Almenara	Divisópolis
		Mata Verde
		Rubim
	Araçuaí	Coronel Murta
		Francisco Badaró
		Medina
		Ponto dos Volantes
	Arinos	Bonfinópolis de Minas
		Chapada Gaúcha
		Formoso
		Riachinho
		Uruana de Minas
		Urucuia
	Montes Claros	Montes Claros
		Bocaiúva
		Brasília de Minas
		Capitão Enéias
		Glaucilândia
		Japonvar
Informática para Internet	Pirapora	Jequitaí
		Lagoa dos Patos
		Lassance
		Ponto Chique
		Santa Fé
		São Romão
	Porteirinha	Catuti
		Gameleiras
		Mato Verde
		Santo Antônio do Retiro
		Serranópolis de Minas
	Salinas	Botumirim
		Cristália
		Indaiabira
		Itacambira
		Josenópolis
		Ninheira
		Rubelita
		Salinas
Segurança do Trabalho	Diamantina	Itamarandiba
	Janaúba	Jaíba
	Pirapora	Pirapora
	Salinas	Itacambira

Source: CEAD/IFNMG (2019).

According to Table 1, 62 municipalities are served, with 3,850 vacancies being offered. These courses have the support of the headquarters center, that is, the municipalities that have IFNMG campuses. In other municipalities, agreements were signed with city halls, which are responsible for the advanced pole and for the indication of a responsible professional, the pole coordinator.

As for the pedagogical organization of the courses, we analyzed the TCPs from the perspective of integral human formation, that is, the one that guarantees the subject a complete formation, guaranteeing a reading of the world and of his performance as a citizen, as attested by Pacheco (2012, p. 58):

> It is about overcoming the reduction of preparation for work to its operational, simplified aspect, drained from the knowledge that is in its scientific-technological genesis and in its historical-social appropriation. As a human formation, what is sought is to guarantee to adolescents, young people and adult workers the right to complete training for reading the world and for acting as a citizen belonging to a country, worthily integrated into their political society. Formation that, in this sense, supposes the understanding of the social relations underlying all phenomena.

In this sense, we can analyze that such projects carry a strong connotation in the training of subjects for the world of work. In the Agribusiness technical course project, this is revealed in the general objective of the course:

> Train professionals for the world of work, investing in strengthening citizenship, collaborating with agro-industrial and technological development to understand, organize, execute and manage Agribusiness activities, with ethics, social and environmental responsibility (TCP, 2017, p. 17).

As for the design of the technical course for Internet Computing, we have a general objective that aims at this broad formation:

Train human resources that promote the technological development of society, in close relationship with ethical, critical and active professional attitudes, with a view to ensuring the expansion of human capacities in an intrinsic relationship with technical and scientific learning in the field of Informatics, especially in the area Internet, so that these professionals are able to use, develop and implement computer systems, focused on the Internet environment, with a view to maximizing the efficiency of work in organizations (TCP, 2017, p. 13).

However, we know that more in-depth analysis is needed to validate, in fact, the IFNMG initiative with an integral human formation. For now, we will make an analysis that calls our attention: the Professional Training Practice integrated to the MedioTec project in the Community. These projects are in accordance with the active methodologies described in this work, since they sought the student's interaction with the world of work through a practical-theoretical relationship. Despite the format of public policy, the institution's pedagogical autonomy was used to adapt the course to the institutional mission, as we will discuss below.

6. Active Methodologies: The Vocational Training Practice and the Mediotec Project in the Community

In addition to all the challenges that education faces, and which, in part, were discussed in this work, it can be said that, when it comes to Open and Distance Education - Distance Education, so many other challenges arise. According to Morán (2017), some institutions have historically trivialized distance education, with very low investments, poorly trained and underpaid professionals, predictable courses with simplified information, few stimulating activities and poor and banal virtual environments, few laboratory and field practices (sometimes nonexistent)), in addition to materials inferior to those required in classroom courses.

The lack of strategic vision of many managers makes it difficult to plan profound changes, including when it comes to public policy directed to distance education, which needs to be flexible, less bureaucratic and integrated with face-to-face education. On the other hand, it is known that the need to think about strategies to make learning meaningful in DE is fundamental and immediate. Therefore, the path goes, fundamentally, in the students' motivation intimately, so that they find meaning in the proposed activities; in provoking engagement in projects in which they bring contributions, dialoguing with proposed activities and how to carry them out.

At IFNMG, MedioTec courses were designed to be worked on in a practical way, reaching the theory and articulating it. Despite the challenge of the program's own public policy, the Professional Training Practice (PFP) curriculum component was the solution found to create a combination between the disciplines offered in each module (and between these modules), in an attempt to build meaningful knowledge.

As for the methodology built for the realization of the MedioTec courses, there are weekly face-to-face classes in the course hours of the student's school, with exposure of recorded classes, individual and group work, with the support of face-to-face teachers. There is also a distance workload, which was accomplished through interaction, in the Virtual Learning Environment (VLE), between distance mediating teachers and training teachers.

From the second week of class, in each module, the dynamics of face-to--face classes was added to the Professional Training Practice (PFP) discipline. In each TCP, a workload was assigned to this discipline: in the technical course in Administration, there are 300 hours; in technical courses in Agribusiness, Internet Computing and Workplace Safety, 240 hours were planned; and, in the technical course in Electrotechnics, 200 hours.

However, after a rigorous reading of the MedioTec TCPs by the general coordination of the course and pedagogy, it was identified that the PFP would not be sufficient to achieve the objective proposed by the discipline: "to articulate theory to professional practice". Then, MedioTec in the Community emerges, a project that aimed to promote

community extension, that is, to articulate the practice of technical courses to the challenges experienced by the local community through products created and services provided by course participants.

For Barbosa and Moura (2013), project-based learning emerges from the recognition of a relevant problem for a given social group. Among the basic assumptions that characterize such learning, the authors highlight the need to explore real situations, which present greater potential to involve the student from his universe of interests.

Based on this perspective, themes were created that generated the MedioTec project in the Community, so that: a) at each module, the student should organize activities based on the generating themes; b) the PFP should be developed together with the project in question, so that there is an articulating activity between the discipline and the project, such activity being a product or service, that is, the culmination of the PFP. Such themes took into account the disciplines offered by course, by module, and sought coverage to articulate the problems experienced in the place, involving the universe of students.

The first module of the PFP and MedioTec courses in the Community had the generating theme "The challenges of professions in the local community". The response to the theme / activity on the part of the course participants was the organization to conduct interviews with local professionals who work in the respective areas of the courses, addressing the challenges and opportunities offered by professions (which they chose to study) in the local labor market. The course participants also proposed a specific date for the MedioTec event in the Community.

This action was the culmination of the activities started with the interview. The planning of the round tables and their execution was totally organized by the course participants, who invited the interviewed professionals, prepared the invitations, organized the event venue and produced questions to be given at the end of the lectures. These events provided, in our analysis, a dialogue between the professionals invited to the exhibition and the subjects studied throughout the module (as pointed out by the course participants' reports made at the end of the activities). Students, on the other hand, understand that:

> *The interviews were great. At first, we were amazed at the infinite possibilities that the career would offer us in the north of Minas. It translated into future employment opportunities. Then, we put our feet on the ground and, in each discipline, discussed the challenges that the professionals pointed out. It is not an easy task, we have to have a lot of responsibility to be a good agribusiness professional. Those professionals signaled this to us, which was confirmed throughout the course (C. E. N., graduated from the Agribusiness course).*

The profession of technician in Agribusiness, an example considered by us when quoting the speech of student C. E. N., is considered a "new" profession, especially in the context of the north, northeast and Vale do Jequitinhonha. Thus, the students sought professionals who work with the object of study of the course, Agribusiness, and proposed to them a day of conversation at the on-site support centers, the day of MedioTec in the Community. The reports created by the course participants deal with the various themes dealt with during the events, notably related to the disciplines studied during the module, which were brought to the local / regional level, such as: the concept and local / regional structure of agribusiness; the challenges faced, from a technical point of view, by agronomy professionals at the regional level; the challenges to be overcome by the profession in the north and northwest regions of Minas Gerais; beyond the challenges and limits of the local / regional environment.

The II MedioTec in the Community was structured for more "mature" students, who could deal directly with the problems of the community. Therefore, the theme that generated PFP II was "The approximation of the professional future to the world of work". Based on the knowledge acquired during the modules and the dilemmas and strengths of the profession discussed in the previous module, the course participants were able to think, at each weekly face-to-face meeting, with the support of the teacher teacher and the teacher teacher, in the execution of PFP II.

The proposal made by the students of the technical course in Workplace Safety was the result of the activities developed in the previous module. Thus, with the support of the professor of the discipline

PFP II, they came to the theme: "Safety in companies that handle chemical products". In the search for the best methodology for the development of the theme chosen by the classes, in the face-to-face classes and during the debates at the AVA, discussions for the suggestion of activity proposals were addressed. The endorsed proposal was to carry out visits to companies in the respective face-to-face centers. The idea was amenable to execution, since the municipalities that offered the course had companies that operated with chemical products.

The next step, then, was the organization of these visits, which should be planned by the course participants with the support of the mediating teachers. The visits were guided by professionals from the Occupational Safety area and took place according to the availability of the companies. The product of the visits was the elaboration of risk maps, identifying harmful agents from each sector of the company visited.

Linked to this practice, planning MedioTec in the Community was a natural step. The students had the autonomy to propose the return activity, that is, the social return to the activity developed in PFP II. Thus, lectures on health and safety issues that emerged from the technical visit were organized. The lectures were given by students in public schools and were attended by professionals involved in the companies.

> *The question that involved PFP II was to raise a problem that we could help solve. That was very important for us at that time. We had raised, in PFP I, when talking to the professionals who work in the area of Work Safety in the municipality, the various problems that they experienced in practice, on a daily basis. But we were not safe enough, we had no technical knowledge to resolve a technical issue. On the other hand, could the visit to the company show us the practice in practice, that is, what are the problems experienced in the daily life of a specific company? How did the professionals working there resolve or plan to resolve the issue? Was that resolution really feasible in light of what we were studying? It was very nice to visit the company ... (L. H., graduated from the technical course in Workplace Safety)*

> *Going to the public school where I studied was really exciting. I was able to contribute in some way, to give a feedback to everything I learned there. It was a great feeling to help, to improve the school in some way (P. S., graduated from the technical course in Workplace Safety).*

As for PFP III, the generating theme was "The intervention of the future professional in the community". This intervention, even more incisively, needed to be the result of previous PFP, that is, based on the problems / challenges understood during previous practices, each course should propose a product or service that would be delivered to the community in the III MedioTec in the Community.

The technical course in Internet Computing conducted, via AVA, polls and discussions in the discussion forums, in order to seek an activity / service that could be applied in the 36 on-site support centers. With the support of teachers of the discipline PFP III, the students argued about the availability of infrastructure, the financial resources invested and the time that would be necessary to carry out the proposals.

> *Teacher support was essential in PFP III. They left everything to us, but they did not abandon us. [...] We students had to do several surveys in order to plan the practice. We raised situations, created hypotheses, thought about execution, it was very laborious. But, like everything that is laborious, the result was also very pleasurable, even rewarding (C. E. T., graduated from the Computer Science course for Internet).*

Knowing the problems experienced in the municipalities by the various local institutions and taking into account the variables mentioned, the course participants reached a common denominator: the understanding that there was an absence of professional support in the area of information technologies and / or the lack of technical competence for the use of the computer by the community, which converged to the definition of a coordinated action with the objective of creating internet pages that would assist in the dissemination of products and services of local institutions.

> *After much discussion, we came to the conclusion that we needed to help the community in publicizing local businesses. The population did not have this service available, at least not easily, either in Almenara or in the surroundings. It was possible to do that, and relatively easy for us at the time of the course. There, we did work for all segments, from churches to the craft fair, from bakery to theater (J. S. S., graduated from the technical course in Internet Computing).*

As student J. S. S. reports, the pages were created for churches, for the health area, they were disseminated at tourist spots, at events, at craft fairs, among others. This service was developed during the module and should culminate with MedioTec in the Community, which was also in charge of course participants. Thus, they proposed a seminar in which the products could be delivered to the local community.

The events had the support of city halls, of the mediating teachers and trainers of the module, coordinators of the course and tutoring. The course participants' reports point to the success of the events and to the personal satisfaction of contributing to the local community, a moment that led "to a great learning, difficult to be achieved if it were not the practice articulated to solidarity" (JSS, graduated from the Internet computing).

As a result of previous PFPs and MedioTec events in the Community, the Agribusiness technical course used a methodology similar to that presented in the Computer Science for Internet course, which led students to discuss the topic "Agribusiness professionals in the practice of research and management in the perspective family farming ", as they understood that this category needed special attention in the management of properties. They then sought around the home (the students were mostly living in the countryside) or near the face-to-face support center (which, in many municipalities, were rural schools), a family property where the farmer authorized the study and wanted to receive the service, the diagnosis of the rural family business.

After discussions, hypothesis creation, experimentation in a nearby community, we, at the Porteirinha center, reached a consensus that family farmers needed help regarding the business strategy to insert their products in the local market. Hence it was "easy" to think of consultancies that would make a diagnosis of their property. The family farmer does not know how much it costs to produce and how to value his product at a fair price. Helping him in that direction was our task. I am proud of my work on the property that I studied (J. S., graduated from the Agribusiness technical course).

With the help of the PFP III teacher and the face-to-face mediators, the course participants did research in family businesses, collecting data and, later, tabulating it with a methodology borrowed from the Administration, the SWOT analysis matrix. Thus, they had, as a possibility, to go to the properties studied and present the result to the families or prepare an event in which the producers and their families went to the center. All hubs chose to hold the event, a seminar, MedioTec in the Community. This event counted on the presence of the families studied, who took products from the properties and offered the academics a fair of handmade products and of the culture of the rural properties.

The academics' reports point to great challenges experienced by family farmers, who often do not know the costs of production, the real profit of the property, the real value of their products and do not know how to "professionalize" the production to make a profit in the rural business. The service offered by the students tried to point out such characteristics and highlight where the owners should intervene.

The last PFP, number IV, had the purpose of rescuing the products and services offered by the courses or, eventually, offering something unprecedented to the local community. MedioTec in the Community, on the other hand, should be the "EXPOTEC: MedioTec products and services fair". The fair should be unique, that is, assembled by students from the various courses of the face-to-face support pole.

To the surprise of many course coordinators interviewed during this work, many hubs created new products and services, often in an interdisciplinary way. This was the case of the Technical course in Electrotechnics, which carried out services related to the inappropriate use of technological equipment that caused the waste of electricity, whether industrial or domestic. The experiment was carried out in practice, in houses of the local and / or industrial community and, later, reproduced at EXPOTEC, held in the mobile laboratory of the IFNMG, on the Montes Claros campus. In addition to this practice, the Workplace Safety course chose the theme "Analysis of Accidents", including accidents with the electricity network. Since then, the sectors with the highest risk of accidents in the municipalities have been surveyed, which are the main injuries caused by accidents so that, in the end, course participants organize lectures, alerting professionals to the need for prevention and challenges in each sector.

> It was a great responsibility to organize the event, which, for me, was huge. We need to organize everything, from the smallest details to more practical aspects, like who would help us with lectures, these things. But the result was nice, especially because we worked with another course, with very competent and committed people. The people at Eletrotécnica were very professional, I really liked the works presented and the lectures, not only theirs, ours as well. I think we won a lot. I congratulate the teachers for supporting us and contributing, including giving lectures at the event (J. B. C., graduated from the technical course in Workplace Safety).

> I translate my participation in the event in three words: commitment, work and gratitude. I thank the IF and my teachers for the opportunity (A. I. F., graduated from the technical course in Electrotechnics).

The technical course in Internet Computing draws attention for the initiative of the students of the Medina pole, where an electronic scrap collection center was created with the support of the city hall. From the discarded electronic waste, new computers were assembled and donated to municipal public schools, solving part of the municipal solid waste problem and contributing to access to technological resources

in public schools. The face-to-face teacher who coordinated the project estimates that more than half a ton of scrap was removed from the environment in the first year of the project. The proceeds of the work, usually computers, were donated to municipal schools. In the second half of 2019, 42 computers were donated.

The technical course in Agribusiness created a fictitious company that, as a rule, should aim to commercialize an agroecological product. With the support of the professor at PFP IV, the course participants set up a business plan, created packaging and displays and took the products of each team to a local fair where the product was marketed. All the profits made by the classes went to the graduation party of the course. The report prepared by the students is always about the satisfaction of taking the course, about the satisfactory possibility of better knowing the reality of the municipalities and of having been able to contribute in some way to the solution of problems experienced by the local community.

> We created a company that even had a logo. The business plan helped us to tax the price of the product and even organize the form of exhibition at the fair. It was very cool. An agroecological product, which historically was not highly valued, gained value in our hands. I felt, in fact, an entrepreneur. [...] Cool was also using the money to celebrate a great victory, the diploma of the course with money from our work as a technician in Agribusiness! (A. C. F., graduated from the Agribusiness technical course).

From the above, the path to meaningful learning seems to have already been traced by some in Vocational and Technological Education (EFA) and, necessarily, passes through autonomy, self-knowledge, teamwork, and problematizing reality in a reflexive way. Despite all the "plaster" of public policies for Brazilian education, as is the case with MedioTec, adding the barriers imposed by the distance learning methodology, especially when working with young people of school age to make them "future professionals", all of this ends up challenging us (education professionals) to think of these possible "obstacles" as potentials for change, for building a more just society, in fact democratic, in which quality education is everyone's right!

7. Final Considerations

From the above, we can infer that changes in the form of teaching and learning, which can, in fact, contribute to the construction of effective and meaningful learning, pass through active methodologies, which are able to make the student the protagonist of their learning and transform the teacher in advisor in the process. Achieving success on this path means having achieved the formation of collaborative, creative, entrepreneurial professionals, who respond, each in their own way, to the daily challenges, characteristics that are dear to the world of work in the knowledge society.

On the other hand, public policies for EFA have fostered courses that often train professionals for the job market. This has happened under the slogan of access to employment, disregarding structural unemployment, typical of the capitalist system, or providing young people with low wages, access to precarious jobs.

The professional qualification offered by these policies has been severely questioned, as they end up returning to the starting point of the history of EFA, when the need for integration between professional education and propaedeutics is defended. Against this process, public institutions appear, which dialectically seek the formation of excellence of these subjects, even if public policy does not legitimize and materialize integral human formation.

Despite the EPT policies, the IFNMG has shown itself to be against this massification of the EPT by committing itself to full and citizen training, even in adverse situations, as shown by the Professional Training Practice and the project methodology of the MedioTec courses. It is worth noting that there are no funds to carry out the activities, nor financial support from the city halls, which go through several financial problems, but it has professionals committed to the students, who dream and operationalize the construction of a fairer world.

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31

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