

THE CURRICULAR REFORMULATION OF TECHNICAL EDUCATION INTEGRATED WITH HIGH SCHOOL IN IFSULDEMINAS - CAMPUS MUZAMBINHO

O PROCESSO DE REFORMULAÇÃO CURRICULAR DO ENSINO TÉCNICO INTEGRADO AO ENSINO MÉDIO NO IFSULDEMINAS - CAMPUS MUZAMBINHO

EL PROCESO REFORMULACIÓN CURRICULAR DE LA EDUCACIÓN TÉCNICA INTEGRADA CON LA ESCUELA SECUNDARIA EN IFSULDEMINAS - CAMPUS MUZAMBINHO

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ABSTRACT: The text aims to describe the reformulation of the Technical Course Pedagogical Projects (PPCs) integrated to the high school of IFSULDEMINAS - Campus Muzambinho. This is an experience report, from the perspective of the school manager, during the first semester of 2019. About 100 teachers were involved in this process. The reformulation was structured in: (i) creation of Working Groups (WGs); (ii) establishing the graduate profile; and (iii) Construction of curricular guidelines with the definition of the knowledge necessary to achieve the formative profile. As an outcome, there were two dimensions: (i) Profile of the restructured graduate and (ii) restructuring of the total workload. The curriculum reformulation process ended with the construction of normative instruments based mainly on the demands of innovation and entrepreneurship, establishing coherence with the formative itinerary, giving sequence to the formative stages, and going beyond the curricular vision as isolated sets of knowledge and disjointed practices.

KEYWORDS: Professional technical education. Active methodologies. Student-centered learning.

RESUMO: O texto objetiva descrever a reformulação dos Projetos Pedagógicos dos Cursos (PPCs) técnicos integrados ao ensino médio do IFSULDEMINAS - Campus Muzambinho. Trata-se de um relato de experiência, na perspectiva do gestor escolar, durante o primeiro semestre do ano de 2019. Cerca de 100 professores foram envolvidos neste processo. A reformulação foi estruturada em: (i) criação de Grupos de Trabalho (GTs); (ii)

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estabelecimento do perfil do egresso; e (iii) Construção das diretrizes curriculares com a definição dos conhecimentos necessários para atingir o perfil de formação. Como desfecho houve duas dimensões: (i) Perfil do egresso reestruturado e (ii) reestruturação da carga horária em sua totalidade. O processo de reformulação curricular foi finalizado com a construção de instrumentos normativos baseados sobretudo nas demandas de inovação e empreendedorismo, estabelecendo coerência com itinerário formativo, dando sequencialidade nas etapas formativas e ultrapassando a visão curricular como conjuntos isolados de conhecimentos e práticas desarticuladas.

PALAVRAS-CHAVE: *Ensino técnico profissionalizante. Metodologias ativas. Aprendizagem centrada no estudante.*

RESUMEN: *El texto tiene como objetivo describir la reformulación de Proyectos Pedagógicos (PPC) del Curso Técnico integrados a la escuela secundaria de IFSULDEMINAS - Campus Muzambinho. Este es un informe de experiencia, desde la perspectiva del gerente de la escuela, durante el primer semestre de 2019. Alrededor de 100 maestros participaron en este proceso. La reformulación se estructuró en: (i) creación de Grupos de Trabajo (GT); (ii) establecer el perfil del graduado; y (iii) Construcción de pautas curriculares con la definición del conocimiento necesario para lograr el perfil de capacitación. Como resultado, había dos dimensiones: (i) Perfil del graduado reestructurado y (ii) reestructuración de la carga de trabajo total. El proceso de reformulación curricular finalizó con la construcción de instrumentos normativos basados principalmente en las demandas de innovación y emprendimiento, estableciendo coherencia con el itinerario formativo, dando secuencia a las etapas formativas y yendo más allá de la visión curricular como conjuntos aislados de conocimiento y prácticas desarticuladas.*

PALABRAS CLAVE: *Educación técnica profesional. Metodologías activas. Aprendizaje centrado en el alumno.*

Introduction

A challenge has been absorbing the reality of technical professional education courses in an articulated way with secondary education in the Federal Institutes of Education, Science and Technology: the need to reformulate Pedagogical Course Projects (PPCs), in order to effectively apply innovative teaching strategies and learning that contemplate the integrated curriculum in practice, which implies articulation between basic and technical knowledge, envisioning the students' integral human formation.

In line with this national policy, the Federal Institute of Education, Science and Technology of Southern Minas Gerais - IFSULDEMINAS, planned to prepare, by the end of 2019, an Institutional Reference Matrix for the organization of the pedagogical projects of its integrated technical courses, by course and by campus, adopting as reference the workload of

technical courses integrated to those established in CNE/CEB Resolution no. 06/2012, or CNE Resolution that replaces it, of 3,000, 3,100 or 3,200 hours, according to the number of hours for the respective professional qualifications in the National Catalog of Technical Courses, excluding the workload of the Mandatory Supervised Internship and activities complementary, when foreseen (IFSULDEMINAS, 2019).

Technical education integrated with secondary education in Brazil has a historical link with the world of work, whether for the possibility of getting a job soon after this stage of education is completed, or for the purpose of entering Higher Education (with a focus on preparing for entrance exams and other selective processes), in which formation at this level is linked to insertion in the labor market (RAMOS, 2008). In fact, an integrated curriculum organizes knowledge and develops the teaching-learning process so that concepts are apprehended as a system of relations of a concrete totality that is intended to be explained/understood (COTRIM-GUIMARÃES; OUVENEY-KING, 2018).

The curriculum restructuring process presents new perspectives (and sometimes old ones, but with an updated look), and it reinvigorates the teaching and learning environment, promoting the exchange of knowledge and practices (MALLINEN; PROKKI, 2016). Particularly at IFSULDEMINAS - Campus Muzambinho, the restructuring process of PPCs has been established by the immersion of its teaching community and technicians in educational matters in the thought of reformulating pedagogical processes, adopting methods centered on the student and collaborative work (SOUZA; SILVA; COIMBRA, 2018).

Inserted in this context and considering the current need for reformulation of technical courses integrated to high school at IFSULDEMINAS - Campus Muzambinho, this study arises, which aimed to describe the reformulation of PPCs for technical courses in agriculture, food and information technology, both integrated into teaching high school, in the light of innovative curricula, with student-centered methodologies and in an attempt to better meet the demands of learning in the 21st century. This is an experience report, from the perspective of the school manager who directed and structured all the PPC reformulation processes. Finally, the results are presented establishing a documental parallel between the reformulated/before and idealized/current curricula.

Material and methods

This is an experience report developed during the first half of 2019, at IFSULDEMINAS - Campus Muzambinho, which presents the processes and stages of

reformulation of the PPCs of technical courses integrated into secondary education: technician in Agriculture, Technician in Food and Computer Technician.

The entire curricular restructuring of IFSULDEMINAS - Campus Muzambinho was guided by guiding principles, such as: (a) relationship and articulation between formation developed in high school and qualification for work, from the perspective of integral formation of students through activities of teaching, research and extension planned according to the student's egress profile; (b) work assumed as an educational principle, having its integration with science, technology and culture as the basis of the political-pedagogical proposal and curriculum development; (c) articulation of Basic Education with Professional and Technological Education, from the perspective of integration between specific knowledge for the production of knowledge and social intervention, assuming research and extension as pedagogical principles; (d) focusing on articulation and integral human formation; (e) inclusion of pedagogical didactic activities that articulate and guarantee the curricularization of teaching, research and extension; (f) carrying out professional practices that enable the student to have contact with the world of work and ensure theoretical-practical formation intrinsic to the profile of technical formation; (g) creation of an organic curricular organization that favors the articulation and interdisciplinarity between the curricular components and the integrative methodologies, with a view to promoting ethical and political education, among others, treating them as fundamental for the integral education of students; (h) specific workload forecast for Integrated Professional Practice (IPP), to be developed throughout the course, in order to promote real and/or simulated contact with the professional practice intended by the specific qualification (IFSULDEMINAS, 2019).

The reformulation was structured in three methodological steps: (i) creation of Working Groups (WGs) and understanding of the current legislation; (ii) establishment of the egress profile; and (iii) Construction of curriculum guidelines defining the knowledge needed to achieve the formative profile. As an outcome, there were two dimensions: (i) Profile of the restructured graduate, considering, above all, the demands of innovation and entrepreneurship, establishing coherence with the training itinerary, giving sequentiality to the formative stages and going beyond the curricular vision as isolated sets of knowledge and disjointed practices; and (ii) Restructuring of the entire workload, both for the basic and technical core, as well as the number of vacancies offered in the entrance exam.

For that, the methodology of integration of the theoretical-practical sets of the Pedagogical Nucleus involved in the process was adopted: Basic (NB), Technological Nucleus (NT) and Polytechnic Nucleus (NPoli). The methodological process was based on

that reported by the pedagogical team of the Farroupilha Federal Institute (SILVA; ROSA, 2013).

The first step was to formalize the creation of Working Groups (WGs) (Frame 1) with their respective competencies that worked in the process of studying the foundations and current legislation, adopting above all Law no. 11,892 of 29 December 2008, which created the Federal Network of Professional, Scientific and Technological Education, creates the Federal Institutes of Education, Science and Technology, and takes other measures; and CNE/CEB Opinion no.: 11/2012, which gave rise to Resolution CNE/CEB 06/2012, which regulates professional education and technical courses. About 100 professionals were involved in the reformulation of the PPCs for the three courses, including teachers and administrative technicians in education from the Muzambinho Campus.

Frame 1 – Work Groups for the preparation of pedagogical projects

Work Groups	Composition
Teaching Advisory Committee	Educational Development Directors from all IFSULDEMINAS campuses; Members of the Dean of Education; Pedagogues; Course coordinators.
Muzambinho Campus Management Committee	Educational Development Board; General Teaching Coordination; Pedagogue; Educational Guidance Sector.
Technical Nucleus (NT)	Composed of 3 groups: Computer Technical Area WG, Agricultural Technical Area WG, Food Technical Area WG.
Basic Nucleus (NB)	High School Teachers, divided into subgroups, at times, such as: a) <i>Human Sciences and its Technologies</i> : History, Geography, Philosophy and Sociology. b) <i>Natural Sciences and its Technologies</i> : Chemistry, Physics and Biology. c) <i>Languages, Codes and its Technologies</i> : Portuguese Language, Literature, Foreign Language (English or Spanish), Arts, Physical Education. d) <i>Mathematics and its Technologies</i> : Mathematics.
Polytechnic Nucleus (NPoli)	Integration of members of the Institutional Research and Extension Nucleus (NIPE), Local Innovation Office (ELITT), Entrepreneurship Club, Junior Companies, in order to ensure work as an educational principle, research and curriculum extension and as a pedagogical principle.
Cross-cutting Themes and Inclusive Education	Integration of members of the Support Center for People with Specific Needs (NAPNE), Studies and Research in Gender, Education and Sexuality (NEGES), Afro-Brazilian and Indigenous Studies Center (NEABI), Ethics Committee, Committee on Ethics in the Use of Animals (CEUA), Center for Environmental Studies (CEAM). In order to take account of integral formation, in addition to human and political formation, the curricula also seek to recognize gender and ethnic-racial identities. This training is carried out through actions articulated with the Inclusive Nucleus that work on the campus.
Faculty Normative	Integration of the Faculty Regulation Monitoring Committee and WG's of the courses, with the objective of valuing and giving weight to the main activities: teaching, research and extension.
Distance education	Professionals linked to Distance Learning. Verification of possibilities related to Distance Learning in the curriculum. Resources and support needed: training, curriculum organization, related laws.

Source: Devised by the authors

Then, the understanding of the training profile of the graduates of the course began, which was defined based on the Study of the National Catalog of Technical Courses (CNCT) and, when necessary, complemented with the Brazilian Code of Occupations (CBO). In order to favor and promote the understanding of student-centered learning in the process of restructuring the PPCs, the campus management promoted a formation called “Formation for professional education: Interdisciplinarity and Curriculum Integration”. The instructors of this formation, in addition to having pedagogical formation in Finland, have worked in several other Federal Institutes that have already gone through the process of restructuring PPCs for technical courses integrated into secondary education.

The capacitation included two meetings and the main topics covered were: active methodologies, curriculum integration, research and extension curricularization, adequacy of the curricular workload, graduate profile and digital tools.

Active analog learning methodologies were also used in the restructuring process, since with them it was possible to contemplate moments and environments in which the technology is not viable. In an outstanding way, the development of the profile of the graduates of the Agriculture, Food and Information Technology courses using the empathy map; a collaborative activity called Think, Pair, Share; and the practice of the Game “T.E.A.C.H. project”. In this game created by the workshop managers themselves, using letters specifically created for this purpose, the participants should create connections between concepts and teaching practices, some of them hitherto unknown by some, and curriculum development strategies were developed based on previously chosen letters. This tool allowed creating debate among teachers, presenting pedagogical concepts and practices, encouraging the sharing of successful experiences and promoting innovation in curriculum planning.

In addition to the discussion among peers in the WGs, an online survey was conducted with students, graduates and companies, in order to collect data that could help the WGs update the graduate's profile.

Considering the profile of the graduate, work was then carried out to build the curricular guidelines with the definition of the knowledge needed to achieve the training profile. This curricular organization is of fundamental importance and is what makes the integrated curriculum differ from a classical organization, insofar as knowledge is articulated in an integrated and sequential way to account for the desired formation. This form of organization, however, means that different courses do not have, for example, the same curricular organization or the same sequence of content in the basic area. Finally, in addition to the organization and horizontal curricular articulation between the subjects, it was also

necessary to define strategies so that the vertical integration and integration of activities such as extension occurred throughout the course.

In this way, several meetings were held with the WG-NT professors, in order to refine the contents for the “Technological Center”. Content not selected for technological emphasis became part of the “Polytechnic Nucleus”. In parallel, the WG-NB also met to organize the disciplines and the menu of the “Basic Nucleus”.

One of the crucial moments in this process of restructuring the PPCs were the integration meetings between teachers in the basic area and teachers in the technical area. The basic area teachers were divided into subgroups: Languages, Codes and their Technologies (Art, Physical Education, Languages); Human Sciences and its Technologies (Philosophy/Sociology/Geography/History); Natural Sciences, Mathematics and its Technologies (Biology, Physics, Mathematics, Chemistry). Each subgroup met with professors from the technical area of the computer, food and agricultural courses, presenting the content they worked on. Teachers in the technical areas also described the content and technical skills that are covered. In these meetings, it was possible to identify shaded content, integration possibilities and the appropriateness of the moment to work on certain contents.

For the construction of curricular guidelines, an extension curricularization workshop was held, which allowed teachers to identify didactic-pedagogical activities that effectively articulate teaching, research and, mainly, extension, in a regulated manner within the curriculum. This meant incorporating extension activities into PPCs. For this, the think-pair-share strategy was used. Initially, successful cases conducted at other federal institutes were presented. After individual reflection, teachers gathered in different groups and rooms in order to fill in a specific canvas describing which extension activity could be incorporated into the course matrix. Then, the representatives of each group or course shared the ideas they had (Fig. 1).

Figure 1 – Education professionals involved in a workshop on extension curricularization



Source: Author's archive

The curriculum reformulated based on the steps indicated above began to be worked on in the classes of IFSULDEMINAS - Campus Muzambinho in 2020.

Results and discussion

It has been described that Secondary Education in Brazil is the level of education whose debates about the curriculum are the most controversial, and this factor is considered the major node of the Brazilian educational system (VIEIRA *et al.*, 2020). In this way, secondary education has undergone continuous curricular reforms supported by guiding principles, curriculum design, curricular organization and pedagogically diversified assessment systems, in addition to flexibility in the formative path (SILVEIRA; SILVA, 2018).

In this study, the results of the approved changes are presented considering two dimensions that indicated the main changes obtained with the reformulation of the PPCs for technical courses in agriculture, food and information technology, both integrated into secondary education.

Dimension 1: Profile of graduates restructured considering, above all, the demands of innovation and entrepreneurship, establishing coherence with the training itinerary, giving sequentiality to the formative stages and going beyond the curricular vision as isolated sets of knowledge and disjointed practices. Therefore, the following professional profiles were obtained:

(a) *Agricultural Technician Integrated with High School*: Acting in an entrepreneurial, innovative and inclusive way, following the evolution of the profession; Have communication

skills and work in multidisciplinary teams, adopting a holistic and integrative approach in the construction of new strategies for the multiple use of natural resources that are necessary for professional development, which will allow the interpretation and understanding of social facts (historical, geographic, cultural and economic) and the intervention on reality; Mastering the Know-how, know-how to be, know-know and know-live; Valuing and respecting linguistic variations, understanding them in the historical-cultural dimension, as a mark of the subjects' identity and as an object that enables the interaction of individuals in organizations; Mastering the logical and complex reasoning skills needed to propose and solve everyday problems; Have a critical and consistent humanistic view of the impact of their professional performance on society as a disseminator and facilitator of knowledge, allowing a systemic approach capable of privileging the search for sustainability as a way to promote food security, income generation and conservation of the environment; Combine skills and competences that allow planning, execution, monitoring, marketing, guidance and inspection of all phases of agricultural projects, in animal and vegetable production, rural and agro-industrial engineering practices; and Acting in the administration of rural companies, in technical assistance, rural extension, research and association programs.

(b) *Food Technician Integrated into High School:* Be able to analyze the economic, social and environmental characteristics of the area in order to propose and implement specific activities in a sustainable manner; Have an entrepreneurial and business management vision, integrating the acquired knowledge; interacting and continuously improving their learning from the democratic coexistence with divergent cultures, ways of being and points of view; Understand industrial processes in the areas of manufacturing, processing and preservation of food, acting in the quality control of these products and their raw materials; Implement the execution and follow-up of hygiene and quality programs aimed at food safety, monitoring food quality control through technical and precise handling of instruments and equipment to carry out physical-chemical, microbiological and sensory analyses; Participate in the areas of research, extension and innovation, in the development of new products and marketing; Provide technical assistance in food industries, institutions, inspection agencies, cooperatives, food services and others; Prepare, within the scope of its legal attributions, reports, expertise, opinions and report; and Support nutritional actions based on food security and the concepts of adequate and subjective nutrition.

(c) *Computer Technician Integrated to High School:* Having developed a set of scientific, professional and humanistic skills capable of meeting the current demands of society, which, however, does not mean mechanically reproducing values and attitudes; Being

an individual with a critical, responsible, ethical and scientific posture, respecting differences and the environment, having a holistic and critical view, and the social, cultural, economic and environmental reality of the environment in which it operates, being able to contribute as an agent transforming whether in the world of work, in the family or in life in society. Acting for the development and maintenance of sustainable processes and contributing to the construction of a fairer society; Assume a teamwork profile, being able to deal with contexts characterized by changes, competitiveness, permanent need for innovation, reviewing positions and practices; and being able to contribute to regional development, either by setting up its own business, with possibilities of generating employment and income for the surrounding population, or by developing entrepreneurial actions as a collaborator in third-party organizations.

Dimension 2: Restructuring of the workload in its entirety, both for the basic and technical core, as well as the number of vacancies offered in the entrance exam (Table 1).

Table 1 – Restructuring of the workload and number of places for technical courses on Campus Muzambinho

	Agriculture and livestock	Foods	Computing
Places	Before: 120 After: 140 Variation: +20	Before: 30 Current: 35 Variation: +5	Before: 60 Current: 90 Variation: +30
NB	Before: 2530h Current: 1980h Variation: -550h	Before: 1320h Current: 1833h14min Variation: +513h14min	Before: 1246h40min Current: 1943h20min Variation: +697h40min
NT	Before: 1723h20min Current: 1356h40min Variation: -366h40min	Before: 2493h Current: 953h18min Variation: -1539h42min	Before: 2497h20min Current: 1136h40min Variation: - 1360h40min
NPoli	Before: 0h Current: 100h Variation: +100h	Before: 0h Current: 476h38min Variation: +476h38min	Before: 0h Current: 73h20min Variation: + 73h20min
Total	Before: 4253h20min Current: 3436h40 min Variation: -816h40min	Before: 3813h Current: 3426h40min Variation: - 386h20min	Before: 3860h Current: 3273h20min Variation: -586h40min

Source: Devised by the authors

Through the demand of the workload, at least 4 pedagogical innovations were allowed:

(a) *The curricularization of extension:* Through field practices; visits to laboratories and test runs; Technical visits to companies and fairs in the area; Interpretation and discussion of technical texts; Presentation of technical videos; Presentation of seminars; Development of research with concrete applications in society; Participation in extension projects that are based on technological bases described in this course plan; Teamwork; Test reports and

activities developed in class or extra-class activity; Participation in an Integrating Project during the three series of the course, which develops and articulates the skills and abilities worked during the entire formation; Carrying out interdisciplinary assessments; Participation in cultural, recreation, sport and leisure projects.

(b) *The actual application of an integrative project:* when restructuring the curriculum, several debates led us to avoid overlapping content and even disciplines. An important change was nurtured, such as reallocating the subjects in the proposed periods of the courses so that the subjects would serve the integrated courses and no longer the existing little integrative activities.

(c) *Space in the distribution of classes during the week:* with the reduction of the workload, students will be able to participate in integrative projects, research and extension projects, quality of life projects, among others. One of the classic dilemmas of integrated technical courses was the heavy load (number of classes/week and number of subjects): with the reduction of the workload and the overlapping of contents/subjects, the new distribution is aimed at a very different reality. At least 2 weekly periods (morning or afternoon) are expected so that the activities listed above can be part of the students' daily lives. The projects in question can be carried out in an inter- or multidisciplinary way, or even cover all subjects. Within these projects, the application or even deepening of the contents worked on in the classroom is born.

(d) *Greater space for organization, formation and recycling of teachers:* the expectation is that there is, on the part of teachers, greater use of periods without classes (given the reduction) for weekly meetings of adjustments and pedagogical debates involving the aforementioned courses. In addition to the application of teaching projects and deepening of the contents.

There are several challenges for Brazilian education in this century. In this work, the emphasis was on restructuring pedagogical projects in courses lasting three years and approximately 4000 teaching hours that should be condensed around 3200 hours, providing a healthier environment for all actors in the teaching and learning process.

The reduction did not only imply a cut in disciplines or suppression of content. The reduction was accompanied with quality in the knowledge appropriation processes and this was perhaps the greatest challenge, but it can be mitigated through strategies such as meaningful teaching through learning based on projects and problems or even a trans or interdisciplinary action. Above all, the proposals for reduction were accompanied by

integrative and meaningful solutions for teaching, since despite the need to reduce the workload, it was also necessary to think about the need to combine disciplines to promote meaningful teaching.

The curriculum of the course's pedagogical project was not just 'downsized', from this perspective it is revitalized. It is also important to point out that with the formative actions, the curriculum could be built with the actors who will put it into practice, allowing greater ownership of the actions to be taken, transforming it into a "live" and organic piece and not a bench document to be consulted eventually.

In addition, such actions to transform the educational environment also promote collaboration between knowledge actors and help in the formation of a Professional Learning Community. DuFour *et al.* (2005) emphasize that this community develops the means to (i) promote significant change in the school environment; (ii) offer union and participation among/in the school community; (iii) produce meaningful and lifelong learning, among other elements. However, the application of such a strategy must be accompanied by continuing education that provides a minimum of knowledge so that teachers can, in a collaborative way, start the climb to the top of educational cooperativeness. Continuing education permeated by hands-on actions are spaces that disseminate reflection, discussion and promotion of safety in the execution of group work, as professionals often do not have a moment to get to know each other and the workshop provides opportunities collective communication, which encourages future collaboration in the application of new methodologies.

The maintenance of the quality of the offers made so far by IFSULDEMINAS - Campus Muzambinho should be guaranteed with the awareness of students of the importance of integrated studies (without exaggerated valorization of one nucleus or another); and given the regional reality, to avoid a drop in demand due to the expectations of our students (many looked to the institution to succeed in the ENEM tests), it is necessary to provide ways to suppress the losses suffered by the basic core (where the reduction ended up deeper) and make teachers aware that the project is integrative and, therefore, the work of all values the work of each one.

We believe that the reformulation process must be a work in permanent adjustment. Continuous improvement reflects the challenges faced mainly with regard to working in integrative disciplines, such as the requirement for more time to plan classes, students' difficulty in understanding interdisciplinarity, since they are used to classes in the "traditional" style, as well as difficulty of teachers for cooperative work. On the other hand, the transformations and advances in progress highlight evidence of teamwork, dynamic

classes, rich exchanges of experiences between teachers during classes, meaningful learning, dialogue and pedagogical innovation.

In this way, we describe some accounts of teachers involved in this experience of curriculum reformulation:

(i) *“In the new PPCs of the integrated technical courses, we had the proposal to create and implement an integrating discipline between Physical Education and the Arts, both of which are part of the language area, this proximity favors when we point out the general competences and skills that are recommended by the BNCC. However, it is a challenge, as teachers have to learn to work cooperatively, objectives and activities must be planned to meet both subjects, and we must be concerned with interdisciplinarity, that is, a constant dialogue between teachers, so that no discipline overshadows the other”.*

(ii) *“Although we treat interdisciplinarity as an urgent topic in the field of pedagogical updates or revisions, there is still a lot of resistance to putting it into practice. The lack of experience in this type of methodology and the lack of parameters contribute to a certain fear in adopting this practice. In the school world, from what I know and have lived, there are few institutions interested and committed to adopting interdisciplinarity in a comprehensive way. In this aspect, IFSULDEMINAS – Campus Muzambinho distinguishes itself by incorporating the practice of interdisciplinarity as a model of pedagogical action in an official way in curricular units. I feel privileged to have had the opportunity to participate in this implementation, an old desire of mine, and which until then had not been possible to put into practice”.*

(iii) *“Rethinking the course plan in an interdisciplinary way was a challenge in many ways. First, when we go on to undergraduate, masters and doctoral degrees, we become specialists in one subject, and sort of “let go” of the others – without even realizing that they are all connected. Then we started the teaching career and, again, we focused only on that context of the subjects we teach. At first, I thought it would just be talking to the elementary school teachers who taught subjects that I used in the technician's classes, but along the way I realized that it would be much more than that! We had to rethink all the content taught, depending on the professional profile we would like to form, and associate it with the mandatory content required in high school. It was quite a challenge! After many discussions, explanations and exhausting meetings, we arrived at a document that reflects our desire to make interdisciplinarity work. Within this context, the Integrator Project disciplines generated many doubts among us. How to make the student use several areas of knowledge at the same time in a single project? The only way we understood to make this possible was to put ALL the course professors in this endeavor. Both high school and technical education teachers are currently advisors and co-supervisors of research, extension and teaching projects – all in the course area. And they are chosen by the students themselves, due to their curiosity with the area and affinity with the teacher. We believe that this project, which aims to integrate the different areas of knowledge, will be successful, and we are reaping the fruits of this innovative idea through the enthusiasm and brilliant ideas that the students themselves bring to us.”. (our translation)*

Finally, it should be noted that all processes described here are available on a digital platform with all the products of the curricular restructuring created: <https://sites.google.com/muz.ifsuldeminas.edu.br/integracao>. In addition, the reformulations of the resumes were approved by the Superior Council (CONSUP) of IFSULDEMINAS, and on 18 December 2019, resolutions CONSUP 121/2019, 122/2019 and 123/2019 were published, which respectively provide for the amendment of the Projects Pedagogical Courses (PPCs) of the Technical in Agriculture Integrated to High School, Technical in Food Integrated to High School and Technical in Computer Integrated to High School - IFSULDEMINAS courses at Campus Muzambinho.

Final considerations

Given the current scenario, where Technical Education integrated with High School has occupied the center of national debates based on demands evoked by the Federal Network of Technological Education, the need for discussions about experiences that have promoted throughout history becomes latent, trials of modernization of education whose results are promising, and which have carried out the ideal of promoting quality and inclusive education. In this direction, the present work represented an initial effort to approach studies about teaching experiences that, in different times and spaces, carried out innovative essays.

The process of curricular reformulation of technical education integrated with high school at IFSULDEMINAS - Campus Muzambinho was completed with the participation of the pedagogical community, which built these normative instruments based mainly on the demands of innovation and entrepreneurship, establishing coherence with the formative itinerary, giving sequentiality to the formative stages and going beyond the curricular vision as isolated sets of disjointed knowledge and practices. Fundamentally, at least 4 pedagogical innovations were included in the reformulated PPCs: extension curricularization, de facto application of an integrative project, space for better distribution of classes during the week and greater space for organization, formation and recycling of teachers.

Essays like the ones presented here are fertile examples of teaching projects that dealt with the set of elements necessary for the promotion of the student's integral education, including an effective understanding of the term "Integral Education".

ACKNOWLEDGEMENTS: We would like to thank the entire teaching community and administrative technicians of IFSULDEMINAS - Campus Muzambinho who contributed directly and indirectly to the conclusion of this work.

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How to reference this article

SOUZA, R. A.; FASSBINDER, A. G. O.; MARIA, C. J. The curricular reformulation of technical education integrated with high school in IFSULDEMINAS - Campus Muzambinho. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 16, n. 4, p. 2773-2788, Oct./Dec. 2021. e-ISSN: 1982-5587. DOI: <https://doi.org/10.21723/riaee.v16i4.13634>

Submitted: 01/08/2021

Required revisions: 25/09/2021

Approved: 01/10/2021

Published: 21/10/2021