

# Learning to work, working to learn – the dilemma of professional education

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## Abstract

This article addresses the subject of professional training, which takes place both at school and in work environments, and the need for coordination between these two areas of training. Learning to work and working to learn are formative realities that complement each other and require an adequate approach to allow for important formative contexts, which occur in work environments, to be included in the professional education. This requires structures that communicate with the work context in order to study its possibilities and demands.

**Keywords:** professional education, work, learning.

## Where one learns to work?

Some time ago, I remember reading an interview with the musician Tom Zé<sup>1</sup>, who was very connected to music and grew up in the backlands of Bahia, in the city of Irará, and he once heard that there was a music course at the University of the capital, in the city of Salvador.

This information left him astonished and in disbelief because, used to hearing washerwomen singing in the river and violeiros [guitar players] with no schooling, he could not understand why there would be a school to teach music, as music was not learned at school. As he said, "it would be like having a course to become a saint".

Although this introduction seems a little out of place, when this same perspective is

projected onto professional education, we can see that thousands of workers have learned their trades on the job, far from school benches, and that school makes no sense to them, just like a music course for the violeiros of Irará. Tom Zé's doubts make me reflect on the limits and possibilities of professional education in view of what is learned on the job.

Professional education is provided for in the Law on National Education Guidelines and Framework (Lei de Diretrizes e Bases da Educação Nacional – LDB) (BRASIL, 1996) and is aimed at training for the exercise of a profession. It is about learning to work.

Workplaces are not just places where people work, they are places of human interaction, where workers learn, teach, and build repertoires of knowledge with their know-how. It is about working to learn.

This distinction made between the place of study and the place of work, with little communication between the two, makes us fail to observe the knowledge that is processed in the workplace, which ends up depriving the school, and above all the students, of the most varied training contexts relevant to their desired future profession.

During my Professional Master's Degree in Professional and Technological Education at Instituto Federal de Santa Catarina (IFSC), among the activities I was willing to undertake, the possibility arose of carrying out fieldwork in an auto mechanic workshop.

Training for work in the automotive sector was the topic I set out to investigate, not precisely training, but the need to combine the knowledge of the work that takes place in the workshops and the training for work provided in the courses aimed for working in the sector.

The fieldwork was presented as a possibility to obtain some provisions on the theme of the research with the workers in their work environment, which is presented, as Minayo (2002, p.26) puts it, as "a relational moment of research, practical and of exploratory importance".

This fieldwork was involved in the search to propose a way of bridging these two training institutions, school and work, in favor of professional education.

## **At the workshop**

Working in mechanical workshops is the most common occupation for professionals in the automotive sector, mainly due of the sheer number of them, there being, according to the Scherer Institute's Social Report (2020), around 6,000 workshops in Santa Catarina, 62% of which are classified as micro or small enterprises.

Workplaces are always full of symbolism related to the profession. They make up functional structures in which both the workers and those who seek their services

read the procedures that take place over there, simply by observing the layout of the work instruments and all the aesthetics laden with meanings specific to the profession.

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**Family-run, like most companies in the sector, the business was initially run by the owner and his two sons**

The workshop in question is located in the municipality of São José (SC), at Fazenda Santo Antônio, a neighboring district of the municipality, where the fieldwork took place over 12 non-successive days over the course of a month.

Setting up the research site always has its mishaps, with the researcher, who is not a customer, not an employee, and not really going to study vehicle mechanics, almost always being a part that does not fit into the scenario they want to study, requiring some time for interaction and even acceptance in the work environment.

The workshop was a relatively new establishment, well-located, with its own visual identity, well-equipped, with uniformed employees and operating for around five years in the market, but with a longer history, going back to an auto repair shop that operated from the 1990s until 2018 in a nearby location in the same district.

Family-run, like most companies in the sector, the business was initially run by the owner and his two sons, with further seven employees added. Today, of the ten, eight work in the core business, directly involved with auto mechanics.

The owner's brothers were mechanics and his father owned a workshop. This situation helps tracing a family identity linked to the profession, in which work and learning how to do it are intertwined with family history.

According to Bacal *et al.* (2014, p. 455), when referring to the generational transmission of profession within the family:

The family is a privileged means of transmission. Whether it is the transmission of life itself or a name, surname, heritage, education, culture, or a profession. The process of transmission within the family is key to the construction of the self, in other words, to the formation of an individual's identity. The generations of the family transmit content to ensure the survival of the family group over time.

The profession ends up being the link of identity and cohesion on which the family articulates and recognizes itself, where learning the profession occupies a dimension which is intertwined with life and collective subjectivity in relation to work.

The owner says that he preferred working in the old auto repair shop and that he switched to mechanics as his children wanted him to, saying that the youngsters do not wish to know about the previous activity, as they consider body repair to be unhealthy, heavy, and "dirty", as well as being an almost artisanal service.

This view of the workshop work as unorganized, rough, and even "dirty" was associated with the stigma attached to the profession, as Ferreira (2016, p. 156) reminds us:

The “marks” of the job appear on their bodies (like grease, which is a kind of tattoo that never completely disappears), revealing not only the activity they perform, but also expressing attitudes, identity(ies), and class positions. The negative representations associated with the profession thus fall on the class that predominantly works in it, which is often associated with intellectual, social, and moral inferiority.

The transition auto repair shop work to opening a modern workshop is linked to changes in the automotive industry. The opening up of the economy in the 1990s was responsible for the introduction of cars with more embedded technologies, and at the beginning of the 21st century, flexible-fuel cars became popular, making it necessary to master these new technologies. Stimulated by this scenario, many courses aimed at professional automotive education have emerged.

Due to the gap in technological knowledge, which was restricted to automakers and dealerships, at the time workshops were seen as unprofessional places, and mechanics as an anachronism, as peripheral workers and outside the rationality of the automotive chain, which presents itself as a modern industry. As Ferreira (2016, p. 160) recalls, mechanics were “represented as a kind of counter-progress that threatens the rationality of the automotive chain, which is supposed to be one of the most modern industries since the 20th century”.

The emergence of new technologies into the automotive sector created the need for training, changing the profile of professionals and workshops, which became “cleaner” environments, changing even the language that was used, which got more “technical and abstract”. According to Ferreira (2016, p. 166), with the use of electronics in cars and work tools, “diagnosis has come to be considered as important, if not more important, than the ability to carry out the repair”.

According to the State Center for Auto Mechanics (Núcleo Estadual de Automecânicas – NEA) of Santa Catarina (2021), an association that brings together 26 centers throughout the state and congregates more than 300 establishments in the sector in 60 municipalities, the changes that took place in the 1990s led to:

[...] the difficulty in providing services due to the lack of technical information and specific tools for repairing new vehicles, which were monopolized by the authorized dealerships, and also the need to regain the credibility of entrepreneurs in this segment.

Still according to the NEA, the “independent repair market was characterized as unprofessional and based more on tacit knowledge than on that acquired through technical training”.

This scenario served to change the profile of the workshops, contributing to the distinction between the “practical” service, of direct intervention in the object of work, as “heavy” service, as opposed to the lighter work provided by modern tools and diagnostic equipment, which require a “theory” for their correct use. This distinction is clearly seen in the work carried out in the old auto repair shop as opposed to the new one, with its more “technical” equipment.

The introduction of new technologies ended up boosting the modernization of the sector and the search for the necessary training, resulting in the transition from the old auto repair shop to the current maintenance workshop. These changes had an impact on professional education, which had to adapt to the new demands of the sector.

New technologies or situations that impose new demands imply a constant need to refresh the knowledge, with parameters for its educational appropriation.

Workers and their knowledge

There was a varied profile among workshop workers: from the owner, whose profession is linked to family history, to apprentices, technicians, and workers with exclusive on-the-job training.

**Table 1. Profile of workshop workers**

Worker	Length of service (years)	Training		
		On the job	Technical course	Qualification course
1	3	X		
2	8	X	X	
3	5		X	
4	28	X		
5	1.5	X		
6	12	X	X	X
7	40	X		
8	5		X	

Source: Author.

On-the-job training is a common reality, ranging from an employee who learned their trade this way and has been working in the profession for decades, to apprentices still immersed in the learning and without any specific training, to some technicians who have had professional experience combined with professional education.

The apprentices in the case under study are two brothers, one of whom started working just over a year ago and the other less than six months ago. Both are dedicated to wheel geometry and balancing.

The apprentices usually begin their learning in peripheral situations in the workshop, that is, actions related to tidying, cleaning, and organizing the work environment, and thus they discover the place, functionalities, and names of each thing in the workplace.

One afternoon, I met the apprentice, who had been in the workshop for less time, working on the suspension of a vehicle on the lift. I asked him what he was doing.

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**It is common for workers trained on the job to master processes without having full mastery of the discourse of the process**

According to him, on less busy days, he tinkers with the suspension and carries out other, more operative tasks, assembling and disassembling, as he has not yet learned how to diagnose problems. He helps those who have “practice” and learns more things.

Learning on the job does not follow a linear temporal logic, as proposed in classrooms, but a logic linked to situations that develop according to the context of the work. As Jonnaert (2009, p.58) puts it, competence, doing, is something that appears linked to a situation or context as a result of the person’s elaborate representation of this situation.

It is common for workers trained on the job to master processes without having full mastery of the discourse of the process, as well as to use terms and expressions that, although not recognized in the official technical vocabulary, are expressions of everyday knowledge, capable of naming and giving meaning to the action.

This is the difference between constituted knowledge, the methodical, protocol knowledge of schools, and invested knowledge, the fruit of the worker’s experience. According to Trinquet (2013, p. 5):

The principle of this invested knowledge is that the worker knows from experience how and what to do to solve a given problem. Where did the worker learn? Who said? It is not known. This knowledge is not written anywhere, it is engraved in the head and muscles of the person who does it - and discovered it by doing it.

The most experienced mechanic had all his training in the workplace and started working after his former boss, who owned a workshop, sold the farm where he worked, then migrating to work in his boss’s workshop, where he learned the craft. Although he is formally retired, he continues to work in the sector, which he has done for more than 28 years. He says that he tried other activities when he retired, however, he returned to the workshop, which is where he identifies himself as a worker.

Even among workers with technical training, there are cases of those whose training was concomitantly with that of the workplace. One of them had previously worked with automotive aesthetics, as he puts it, out of necessity and started the course as he simultaneously worked in the workshop, in a combined learning, allowing the experience in the professional environment to give meaning to the learning at school.

According to him, the course provided many important references for the work, although it does not come close to the activity of the workshop. This allowed him to compare what he learned at school with what he did in the workshop.

As Pastré (2017, p. 626) tells us, “There is always more to the actual work than the prescribed task”, and this difference between the prescribed and the executed has to do with the very nature of any job, since the prescribed, or taught, has a protocol nature, and it is up to the workers to manage their actions when intervening in the real world.

For Barato (2003, p. 76), it is about the confrontation between “knowing that”, the

theoretical dimension, provided by the school, and “knowing how”, the operative dimension, of intervention, dimensioned by the action in the workplace.

This view that differentiates what is learned in the professional training from what is found in the workplace was also seen in other situations.

During the conversation with another employee with technical training, he said that he has been working with mechanics for 12 years, since he was 12 years old, and that he took the course while he was already in the profession. In his opinion, the course did not mirror what happens in workshops and was more focused on what he classifies as “dealership service”, for the maintenance of vehicles still in warranty review cycles.

According to him, the service of workshops would begin after the vehicles’ warranty expires, when the owners need “rougher” work, which is not taught in the course, which would be too “theoretical”.

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**It is common for workers who take the training course after working in a workshop for a longer period to have their learning reference linked to their work**

Another technician, the youngest and hired a few weeks earlier, did not have such a distinct view between what was learned and what was done, not least because of his shorter time in the profession. However, while he was using “brutality” to remove a front suspension pivot that had warped from use, he said that he had not been taught that in his training course.

It is common for workers who take the training course after working in a workshop for a longer period to have their learning reference linked to their work and to show more restrictions to what they learn in professional education, as they already have well-established work intervention parameters from their everyday activity.

The possibility of working in the workshop concomitantly with professional training is an interesting situation, as it merges training in two distinct and complementary environments, creating a bridge between school and the world of work, one of the great gaps in professional education.

One day, two mechanics were removing the gearbox from an automobile. Knowing that such repairs were not carried out on the site, I asked what they were doing and was told that they were removing the “box” to be sent to another specialized workshop in the neighboring municipality.

There is a whole network of relationships that are established in the workshop, not only with customers and suppliers, but with other workshops that meet different demands from those met on the site and provide outsourced services. This network allows for the circulation of knowledge, besides refreshing labor expectations among workers, who, once they have been professionally inserted into the sector, can move from one company to another in search of “new training” on the job, expanding their skills and professional possibilities.

On busy days, I spent more time observing than asking questions and was able to notice the relative coordination of the distribution of tasks among the employees, even though there was basically no workshop manager.

There is a whole professional “etiquette” regarding how to receive the customer and how tasks are distributed according to the recognized skills of each employee. These specific skills act as an “identity” linked to the action required.

Is it a problem with the suspension or the steering? It is like mentioning an employee’s name. The specific knowledge of the action articulates a whole network of identities linked to the work. There is a “social learning”, alongside the learning of the action itself, which shapes relationships and behavior in the workplace.

Sigaut recalls that learning is not only the acquisition of knowledge, it is also the acquisition of an identity, that of being a member of the group in which this knowledge is recognized and valued as it is shared.

The apprentices, as they do not have a technique a priori, first learn to get along with the group, to be inserted into the professional environment where they will acquire a professional identity through their learning. There is the dimension of “social practice” in the workplace, which makes all the other “practices” possible.

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**This search for workers with professional training does not eliminate the need to combine knowledge and practice**

The techniques are actions immersed in the social sphere, as they form relational and communication structures between individuals, not simply learned knowledge, but above all, lived knowledge.

What is learned is the result of shared knowledge within a principle of collaboration. In this sense, Barato (2008, p. 13) recalls that “learning is a process that takes place within a framework of participation, not in an individual mind. This means, among other things, that learning is mediated by differences in perspectives among co-participants.”

According to one of the workshop managers, today he would only hire qualified professionals, unlike at the start of the business, which can be seen from the fact that half of the employees linked to the core business have technical training.

This search for workers with professional training does not eliminate the need to combine knowledge and practice.

In professional education, it is taught the general standard imposed on action, as an alleged universalization of doing, as a competence that is imposed collectively. The teaching of the standard serves to anticipate action, not limiting the variability of the work process, nor inhibiting the creativity of the worker’s action.

This standardized world is continually confronted by the demands of the real world, which occur in work environments, where workers manage this distance through their actions, in a constant adaptation of knowing/doing that characterizes human action, in which there is room for subjectivity, rationality, and creativity.



There is an internal dimension to the work that concerns the individuality of each worker, in its transgressive nature of the established standard, linked to creativity and the ability to adapt. It is this nature that is at the core of creative humanity, not allowing work to be a mere collective repetition.

## The need to study the knowledge of the work

The way knowledge is acquired and managed in the workplace differs from the way it is acquired in the classroom. This knowledge follows different dynamics, with different contexts for mobilization and problem-solving strategies.

Knowledge at work is often invisible, not least because it is not a discursive knowledge about the action performed. This invisibility generates a whole set of concepts, distinctions, and prejudices in the way not only knowledge is classified, but also the workers themselves.

According to Barato (2013), the invisibility of professional knowledge is a consequence of a methodological choice and the knowledge, traditions, worldviews, and values developed by workers in their professional activities end up not being included in the research agenda of researchers.

Our production model, combined with our educational system, where educational structures are distinguished from workplaces, mean that we do not see workplaces as educational institutions, which needs to be better studied. As Cunha (2005, p. 91) recalls, for many scholars:

[...] true education is only that which is assimilated by studying books and listening to the voice of the teacher, at the school or university desks. For the ruling classes and their intellectuals, education, at least authentic education, cannot even be considered as such if it takes place in inhospitable workshops, where hands get dirty producing material objects with a utilitarian purpose.

What happens between school and work is the construction of borders that end up dissociating their knowledge as belonging to distinct cultures, which operate as total and isolated instances, as Arroyo (1998, apud Souza Júnior, 2015) recalls.

The lack of proximity between the school and the workplace has repercussions for both workers and students.

Gerbelli (2020), points out that the lack of qualified professionals affects half of the country's industries, a situation that leads to the belief that there are thousands of workers trained on the job, but without the "legal" training that would allow them a better pay and professional recognition.

For these workers, the knowledge, split from doing, that is present at school does not make immediate sense to them, with on-the-job learning already providing them with rational mastery of the actions of their trade. The school still does not speak the language of these professionals.

This estrangement between the school and the workers is due, according to Godinho and collaborators (2013, p.121):

[...] in large part to the radical separation between manual and intellectual work, which, in turn, gives rise to a complex symbolic social construction of the hierarchization of knowledge, between theory and practice, professions and social locations of the subjects, inside and outside the school.

The separation between what would be the field of “practice”, linked to the work, and “theory”, linked to the school, ends up reinforcing the view that dissociates learning from on-the-job knowledge, which reflects in the notion that workers trained on the job are devoid of knowledge that is their own, creating a whole set of classifications, both of a professional and social nature.

At the same time, the knowledge acquired through work, the so-called “on-the-job experience”, ends up being the main barrier to young people getting their first job, as Fuentes (2018) points out.

The common expression “neither studies nor works” shows, at its core, the antagonistic view that is placed between work and school, maintaining an offset relationship, as if the absence of one were offset by the other. Work would thus be as a counterpoint to study, determining an occupation that qualifies the individual beyond idleness.

It would be strange to say that one studies at work, or that works while studying; these categories have been conceptually and mentally separated.

Gonçalves and Monte (2011, p.133) point out that younger workers generally have more schooling than older or more experienced workers, but they have fewer skills for production activities and lower income. Ramos (2009, p. 300), when referring to this reality, states:

We can talk about the crisis of the value of diplomas, which are losing importance to the actual qualification of the worker, promoted by the combination between the skills required by companies and those acquired by the worker, which can be demonstrated in practice.

Qualification can be acquired through professional experience, but qualification itself does not represent experience, but the acquisition of a set of knowledge, acquired through concepts drawn from practice, which is nothing more than the systematic theorization of the knowledge of work taught in schools.

Professional education alone is not capable of validating skills, which are related to the work practice. According to Lazzari *et al.* (2019, p. 3):

The perception of the production of different scientific knowledge between academia and the world of practice counteracts the idea that theory exists to be applied in practice, and that the problems of practice should be tackled using theories derived from scientific knowledge.

Rose (2007, p. 39) recalls the role that schools began to play in the 20th century as certifiers of skills that were previously developed in the workplace, and that the classification of knowledge as specialized, semi-specialized, or non-specialized is categorized by certain power groups, and that even the categorization of what is work depends on time and place.

For Trinquet (2012, p. 100), the uniqueness of professional experience is true knowledge and complementary of that built in schools, and, as he says:

To understand and analyze a work situation, the procedure of associating academic knowledge with the knowledge from the experience of those who work is certainly a deontological and ethical attitude, but it is, above all, a scientific stance.

On-the-job knowledge is just as concrete as school knowledge and needs to be approached in the right way, collaboratively between these two training instances.

As Pastré (2017, p. 626) tells us, it is necessary to “build training content corresponding to the professional situation of reference and use work situations as a support for the development of skills”.

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**It is necessary to build training content corresponding to the professional situation of reference and use work situations as a support for the development of skills**

This makes it necessary to incorporate the investigative practice of workplaces as training instances, with a view to transit with the absorption of their knowledge into professional education and the improvement of the knowledge and skills of workers.

As Pastré, Mayen and Vergnaud (2019, p. 18) put it, it is about seeking to articulate two dimensions that are not necessarily together, namely the theoretical dimension and the operative dimension, of learning from situations.

Mayen (2016) states that we should try to learn in the work situations, learn from the situations and learn through the work situations, which leads to the need for a didactic analysis of work, how learning takes place in work environments, and how to transpose this knowledge into school didactics.

According to Trinquet (2013), it is necessary to create ways of taking advantage of workers’ knowledge by using what he calls “work meeting groups”, which “are a space where academic knowledge can be confronted with the knowledge of experience, allowing them to dialogue” (p. 5).

The study of on-the-job knowledge should foster a dialogue between professional education and the work environment, with the aim of creating better parameters not only for training dynamics, but also for professional certifications of the skills acquired by workers and which take place in training contexts that differ from the parameters offered by formal education.

The LDB recognizes the plurality of training, as provided for in Art. 1, when it states that training processes take place not only in educational and research institutions, but also in the workplace. Similarly, Art. 41 states that “The knowledge acquired in

professional and technological education, including on the job, may be the object of evaluation, recognition, and certification for the continuation or completion of studies”.

This recognition made it possible to create the National Network for Professional Certification and Initial and Continuing Training (Rede CERTIFIC), through Interministerial Ordinance No. 1082, of November 20, 2009, which was replaced by the National System for the Recognition and Certification of Professional Knowledge and Skills (Re-Saber), within the scope of the Ministry of Education, Ordinance No. 24, of January 19, 2021.

Re-Saber is an instrument of educational inclusion that operates through the recognition and formal certification of the knowledge acquired by workers throughout their life and work trajectories. This instrument makes it possible to meet the training demands of workers who can have their knowledge certified and equated to the different levels of professional training by recognized educational institutions, from professional qualification to technological higher education.

Recognizing workers' knowledge prevents their work from being reduced to the perspective of the action they perform, as if it were devoid of knowledge, which means that the wealth of knowledge that is processed in work environments is not explored, feeding the mistaken view that these workers belong to a category that is devoid of reasoning.

## Final considerations

Studying to work is a modern way of acquiring professional training, which has not suppressed the learning that takes place in the workplace.

The lack of articulation between the knowledge processed at school and the knowledge processed in the workplace ends up affecting not only training, but also future insertion and performance in the world of work.

Learning to work and working to learn do not contradict each other in terms of how learning takes place. When they enter the world of work, every graduate of professional education goes through a new training process, which concerns the resizing of the methodical school knowledge, given the dynamics imposed by work situations.

This leads to the need to create structures that make it possible to dialogue with the world of work as the bearer of the knowledge needed for professional education. Study groups, thematic tables, forums, focus groups that allow us to see, hear, and feel what the demands, needs, and possibilities are for students and workers.

If we consider that workplaces are places of learning, we must also believe that professional education prepares for a new stage in their education, providing them with the knowledge that they need for training, and on-the-job learning the continuity of the learning in professional education.

The encounter between the on-the-job knowledge and the knowledge of professional education is almost restricted to mutual certifications, mainly occurring through internships and certification of skills, which, rather than bringing people together, attest to the distance between them, since there is no exchange of knowledge, but rather an exchange between “students” who are trained in different training contexts, without the knowledge and training dynamics interacting and transitioning both in didactic form and in the curriculum.

The Pedagogical Projects of Courses cannot just be a set of process descriptors, it must incorporate the processes themselves, which must be articulated with the reality of work. This is a necessary reconciliation of the school with its origins.

## Note

<sup>1</sup> Antônio José Santana Martins, born in Irará (BA) on October 11, 1936, known as Tom Zé, is one of the most original musicians of Brazilian music and an icon of the musical movement known as Tropicália.

## References

BACAL, Maria Elisa Almeida; MAGALHÃES, Andrea S.; FÉRES-CARNEIRO, Terezinha. Transmissão geracional da profissão na família: repetição e diferenciação. **Psico**, Porto Alegre, v. 45, n. 4, p. 454-462, 23 dez. 2014. Disponível em: <https://revistaseletronicas.pucrs.br/ojs/index.php/revistapsico/article/view/15344/12472>. Acesso em: 12 jun. 2022.

BARATO, Jarbas Novelino. Conhecimento, trabalho e obra: uma proposta metodológica para a educação profissional. **Boletim Técnico do Senac**, Rio de Janeiro, set./dez. 2008, v. 34, n. 3, p. 4-15. Disponível em: <https://bts.senac.br/bts/article/view/262>. Acesso em: 10 nov. 2019.

BARATO, Jarbas Novelino. **A técnica como saber**: investigação sobre o conteúdo do conhecimento do fazer. 250 f. Tese (Doutorado em Educação) - Universidade de Brasília, Brasília, 2003. Disponível em: <https://doi.org/10.47749/T/UNICAMP.2003.282348>. Acesso em 08 jun. 2020.

BARATO, Jarbas Novelino. Educação e saberes no trabalho. In: BARATO, Jarbas Novelino. **[Blog] Boteco escola**, [S. l.], 2013. Disponível em: <https://jarbas.wordpress.com/2021/11/14/educacao-e-saberes-do-trabalho/>. Acesso em: 15 nov. 2021.

BRASIL. **Lei n. 9.394, de 20 de dezembro de 1996**. Estabelece as diretrizes e bases da educação nacional. Brasília, DF: Presidência da República, Casa Civil, 23 dez. 1996. Disponível em: [http://www.planalto.gov.br/ccivil\\_03/leis/l9394.htm](http://www.planalto.gov.br/ccivil_03/leis/l9394.htm). Acesso em: 10 nov. 2019.

BRASIL. Portaria n. 24, de 19 de janeiro de 2021. Dispõe sobre o Sistema Nacional de Reconhecimento e Certificação de Saberes e Competências Profissionais - Re-Saber, no âmbito do Ministério da Educação. **Diário Oficial da União**: seção 1, Brasília, DF, n. 14, p. 96-97, 21 jan. 2021. Disponível em: <https://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp?data=21/01/2021&jornal=515&pagina=96&totalArquivos=141>. Acesso em: 30 set. 2022.

BRASIL. Portaria Interministerial n. 1.082, de 20 de novembro de 2009. Dispõe sobre a criação da Rede Nacional de Certificação Profissional e Formação Inicial Continuada (Rede CERTIFIC). **Diário Oficial da União**: seção 1, Brasília, DF, n. 223, 23 nov. 2009. Disponível em: [http://www.adur-rj.org.br/4poli/gruposadur/gtpe/portaria\\_interministerial\\_1082\\_20\\_11\\_09.htm](http://www.adur-rj.org.br/4poli/gruposadur/gtpe/portaria_interministerial_1082_20_11_09.htm). Acesso em: 30 set. 2022.

COSTA, Edson de Andrade. **Difusão tecnológica pelo CEFET/SC junto às empresas de reparação automotiva independentes da região da Grande Florianópolis**. 2006. Dissertação (Mestrado em Administração). Universidade Federal de Santa Catarina, Florianópolis. 2006. Disponível em: <https://repositorio.ufsc.br/handle/123456789/88432>. Acesso em: 11 jul. 2021.

CUNHA, Luiz Antônio da. **O ensino de ofícios artesanais e manufatureiros no Brasil escravocrata**. 2. ed. São Paulo: UNESP; Brasília, DF: FLACSO, 2005.

DIONÍSIO, Bibiana. Apesar do aumento de vagas, jovens têm dificuldades para o 1º emprego. **G1**, Curitiba, 11 mar. 2014. Disponível em: <https://g1.globo.com/pr/parana/noticia/2014/03/apesar-do-aumento-de-vagas-jovens-tem-dificuldades-para-o-1-emprego.html>. Acesso em: 20 dez. 2021.

FERREIRA, Laura Senna. Trabalho, estigmas e trapaças: a profissão do mecânico automotivo. **Revista Cronos**, Natal, v. 15, n. 2, p. 155-171, 4 out. 2016. Disponível em: [file:///C:/Users/luis.macena/Downloads/cronoseditores,+10\\_Trabalho,+estigmas+e+trapa%C3%A7as+e+profiss%C3%A3o+do+mec%C3%A2nico+automotivo.pdf](file:///C:/Users/luis.macena/Downloads/cronoseditores,+10_Trabalho,+estigmas+e+trapa%C3%A7as+e+profiss%C3%A3o+do+mec%C3%A2nico+automotivo.pdf). Acesso em: 22 set. 21.

FUENTES, Leticia. Emprego: falta de experiência é barreira para 77% dos jovens. **Revista Veja**, [São Paulo], 16 jan. 2018. Disponível em: <https://veja.abril.com.br/economia/emprego-falta-de-experiencia-e-barreira-para-77-dos-jovens/>. Acesso em: 10 mar. 2020.

GERBELLI, Luiz Guilherme. Falta de mão de obra qualificada afeta metade das indústrias do país. **G1**, [S. l.], 11 fev. 2020. Disponível em: <https://g1.globo.com/economia/concursos-e-emprego/noticia/2020/02/11/falta-de-mao-de-obra-qualificada-afeta-metade-das-industrias-do-pais.ghtml>. Acesso em: 5 mai. 2020.

GODINHO, Ana Cláudia Ferreira; FISCHER, Maria Clara Bueno; FRANZOI, Naira Lisboa (org.). A dinâmica da produção e a circulação de saberes: entre o trabalho e a formação – produção e circulação de saberes. **Trabalho & Educação**, Belo Horizonte, v. 22, n. 3, p. 117-124, set./dez. 2013.

GONÇALVES, Michelle Ferreira; MONTE, Paulo Aguiar do. A importância da experiência profissional na admissão e na disparidade salarial: um estudo para o mercado de trabalho formal do nordeste. **Revista Economia e Desenvolvimento**, Recife, v. 10, n. 1, p. 131-168, 2011. Disponível em: <https://www.periodicos.ufpb.br/index.php/economia/article/view/11539/6634>. Acesso em: 12 maio 2020.

Instituto Scherer. **Relatório Social 2020**. Joaçaba: Instituto Scherer, 31 dez. 2020. Disponível: <https://www.institutoscherer.org/>. Acesso em: 29 nov. 2021.

JONNAERT, Philippe. **Competências e socioconstrutivismo**: um quadro teórico. Lisboa: Instituto Piaget, 2009.

LAZZARI, Daniele Delacanal; MARTINI, Jussara Gue; PRADO, Marta Lenise do; BACKES, Vânia Marli Schubert; RODRIGUES, Jeferson; TESTONI, Ana Karoliny. Entre os que pensam e os que fazem: prática e teoria na docência em enfermagem. **Revista Texto & Contexto Enfermagem**, Florianópolis, v. 28, 2019. Disponível em: [https://www.scielo.br/pdf/tce/v28/pt\\_1980-265X-tce-28-e20170459.pdf](https://www.scielo.br/pdf/tce/v28/pt_1980-265X-tce-28-e20170459.pdf). Acesso em: 12 mai. 2020.

MAYEN, Patrick. A didática profissional: aprender em situação de trabalho, aprender das situações e aprender pelas situações de trabalho. In: ALVES, Wanderson Ferreira; MACHADO, Maria Margarida (org.). **Trabalho & Saber**: questões e proposições na interface entre formação e trabalho. Campinas: Mercado de Letras. 2016. p. 225-254.

MINAYO, Maria Cecília de Souza. Ciência, técnica e arte: O desafio da pesquisa social. In: MINAYO, Maria Cecília de Souza; DESLANDES, Suely Ferreira; CRUZ NETO, Otávio; GOMEZ, Romeu (org.). **Pesquisa Social**: teoria, método e criatividade. 21. ed. Petrópolis: Vozes, 2002, p. 9-27.

NÚCLEO ESTADUAL DE AUTOMECÂNICAS (Santa Catarina). **Home page**. 2021. Disponível em: <https://nea-sc.com.br/>. Acesso em: 8 ago. 2021.

PAIVA, Vanilda. Desmistificação das profissões: quando as competências reais moldam as formas de inserção no mundo do trabalho. **Contemporaneidade e Educação**, Rio de Janeiro, v. 2, n. 1, p. 117-134, 1997.

PASTRÉ, Pierre. A análise do trabalho em didática profissional. **Revista Brasileira de Estudos Pedagógicos**, Brasília, DF, v. 98, n. 250, p. 624-637, set./dez. 2017. Disponível em: <http://rbep.inep.gov.br/ojs3/index.php/rbep/article/view/3334>. Acesso em: 14 jun. 2021.

PASTRÉ, Pierre; MAYEN, Patrick; VERGNAUD, Gérard. A didática profissional. In: GRUBER, Crislaine; ALLAIN, Olivier; WOLLINGER, Paulo (org.). **Didática profissional**: princípios e referências para a Educação Profissional. Florianópolis: Publicações do IFSC, 2019. p.11-87. Disponível em: <https://www.ifsc.edu.br/documents/30701/523474/Livro+Didatica+Profissional-VFINAL-ISBN-online.pdf/9367b0c5-009e-4552-9330-2503828e71ad>. Acesso em: 14 fev. 2020.

RAMOS, Marise Nogueira. Pedagogia das competências. In: PEREIRA, Isabel Brasil; LIMA, Julio César França. **Dicionário da educação profissional em saúde**. Rio de Janeiro: Fiocruz, 2009.

ROSE, Mike. **O Saber no trabalho**: valorização da inteligência do trabalhador. São Paulo: Editora SENAC, 2007.

SIGAUT, François. **Observações sobre a técnica e a tecnologia**. [S. l.: s. n.], 2009. Disponível em: [https://moodle.ead.ifsc.edu.br/pluginfile.php/261063/mod\\_resource/content/3/Tehnhique%20tehnologies%20%281%29.pdf](https://moodle.ead.ifsc.edu.br/pluginfile.php/261063/mod_resource/content/3/Tehnhique%20tehnologies%20%281%29.pdf). Acesso em: 06 maio 2020.

SIMONDON, Michel. Mentalidade técnica. **Revista Filosofia e Educação**, v. 6, n. 3, out. de 2014. Disponível em: <https://periodicos.sbu.unicamp.br/ojs/index.php/rfe/article/view/1754/1809>. Acesso em: 14 Set 2021.

SOUZA JÚNIOR, Justino. **Trabalho e educação**: diálogos necessários. In: 37ª REUNIÃO NACIONAL DA ANPED, 37., 2015, Florianópolis. Anais [...]. Florianópolis: UFSC, 2015. Disponível em: <https://www.anped.org.br/biblioteca/item/trabalho-e-educacao-dialo-gos-necessarios>. Acesso em: 12 jan. 2022.

TRINQUET, Pierre. Trabalho e educação: o método ergológico. **Revista HISTEDBR On-line**, Campinas, São Paulo, v. 10, n. 38e, p. 93-113, 2012. Disponível em: <https://periodicos.sbu.unicamp.br/ojs/index.php/histedbr/article/view/8639753>. Acesso em: 16 jul. 2021.

TRINQUET, Pierre. Entrevista. **Revista Extra Classe**. Abril/2013. Disponível em: <https://www.extraclasse.org.br/geral/2013/04/o-trabalho-pensado/>. Acesso em: 20 mai. 2021.