

TECHNICAL VOCATIONAL EDUCATION IN BRAZIL: THE CONTRACTORS' PERCEPTIONS

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ABSTRACT

The present study aims to address the development of technical skills in fulfilling the needs of the labor market. Essentially qualitative, the field research was conducted from October 2010 to June 2011. Fourteen professionals who had graduated from technical schools of different locations in the Rio de Janeiro were interviewed. Additionally, interviews were conducted with a): four leaders of the professional teams, who reported their expectations and difficulties in developing new professional in face of the demands on the day to day business, b): three human resource professionals who exposed the difficulties of attracting and retaining those professionals. Due to their phenomenographic perspective, declarations by the interviewees were analyzed, interpreted and grouped according to meanings. This procedure made possible the generation of categories according to two types of perspectives: a) contracted parties: professionals who had graduated from technical schools; b) contracting parties: professionals responsible for hiring or managers those who had graduated from technical schools. The findings indicate that contractors perceive the school distant from the professional market both in physical and in conceptual terms. On the other hand, the contracted party reveals that entry in schools for professionalizing education is justified inasmuch as it has to do with a fast professional training.

Keywords: *Training in competencies; Education related to Competencies; Technical Vocational Education*

1 INTRODUCTION

Knowledge, as an issue, and its relevance in terms of the organizational context is well known, particularly when tied to strategic trends on resource-based (Barney, 1991; Penrose, 1956; Wernerfelt, 1984) and on knowledge-based views (Grant, 1996; Prahalad and Hamel, 1991; Spender and Grant, 1996), Teece, Pisano and Shuen, 1997) where resources, capabilities and skills, as knowledge-related assets, become key elements through which the business enterprise can accomplish sustainable competitive advantage while, at the same time, improving its organizational performance. Nonaka, Toyama and Byosière (2001), nonetheless, remind us that grasping the value of knowledge is yet a theme to be investigated. While in this matter the authors referred to a concrete and measurable value, which can be determined by a bookkeeping organizational system (Nonaka, Toyama and Byosière, 2001), it is possible at the same time to identify the existence of a gap in terms of values attributed to knowledge by concerned individuals, a fact which has its impact on the integration of this notion in the organizational context. On the other hand, despite the fact that the crisis regarding employment is a recurring theme in most contemporary formulations relating to the labor market, convergence is not observed among the causes indicated and, therefore, neither is it among the solutions appearing to deal with the problem. Some proposals (Balassiano, Seabra and Lemos, 2005) suggest the following:

- i. Productive restructuring (Rifkin, 1995; Castel, 1998) is the main factor responsible for the decrease in job offers inasmuch as it allows for more production with less work force;
- ii. Productive restructuring in association with economic globalization is the main cause for unemployment, particularly in peripheral countries (Pochmann, 2000);
- iii. Productive restructuring combined with lack of training on the part of workers assuming new positions as they are hired. (Amadeo, 1998; Barros et al. (2001), and Neri, Camargo and Reis, 1999)

In terms of Brazil, despite this controversy, one version is viewed as becoming an important guide in public discussion on unemployment and that is the one which places responsibility on the inadequate qualification for new job positions assumed. Elaborated in recent years by the “Ministério do Trabalho e Emprego – MTE” (Ministry for Work and Employment), in order to deal with this situation, this version, “Plano Nacional de Qualificação do Trabalhador -- Planfor –“(National Plan to Qualify Workers), besides serving as guide for public policies wider in scope, has greater visibility in the media (Balassiano, Seabra and Lemos, 2005). To this debate it should be added that transformations occurring as of the turn of the century have brought forth discussions regarding the profile of the professionals and the competencies required for the creation of a competitive differential both in terms of organizations and of the individual (Shiroma and Campos, 1997).

In view of this situation, investment in professionalizing technical education begins to be regarded as an alternative for solving the unemployment problems presently existing in the country. This would give rise to a larger number of qualified persons for the labor market which would allow for greater competition and productivity to face the challenges presented by technological modernization (Cruz, 1999).

Considering this scenario, it seemed relevant to investigate, as based on the perspective of those who had graduated from, the extent to which the development of competencies in technical schools corresponds to the needs and desires of the labor market, inters of competence and knowledge. To that end, this study has been organized in seven sections, including this introduction. The second section displays a brief historical review of technical education in Brazil, the third shows the theoretical reference, the fourth one describes methodological procedures, the fifth illustrates the results arrived, the sixth illustrates the discussion at and, to conclude, the last one presents the final considerations.

2 A BRIEF HISTORICAL OF TECHNICAL EDUCATION IN BRAZIL

In general, in Brazil, technical education is thought of as having started in 1909 with a decree by President Nilo Peçanha. According to Garcia (2000), however, technical education goes back as far as the arrival of the royal Portuguese family in 1808. At that time, D. João VI's charter of 1785 prohibiting the existence of factories was revoked and that was followed by the creation of the College of Factories whose aim was to teach and educate artists and apprentices arriving from Portugal. Yet, despite this previous existence, technical schools were initiated in effect in 1906 when through Decree No. 787, Nilo Peçanha, then President of the State of Rio de Janeiro, created the School of Craftsmen and Apprentices aimed at teaching craftsmen who would later work in the workshops existing at the time (Garcia, 2000).

Upon the death of president Afonso Penna in 1909, the President of the State of Rio de Janeiro, Nilo Peçanha assumes the presidency of Brazil and that same year signs the Decree No. 7.566, thereby, creating simultaneously in different Units of the Federation, the so-called Schools of Craftsmen and Apprentices subordinated to the Ministry of Businesses in Agriculture, Industry and Commerce and geared to professional, elementary and free education (MEC, 2009). In this respect it should be noted that in 1927, the National Congress sanctioned the Fidélis Reis Project according to which free education would be compulsory in the country.

The Constitution of 1937 was the first to deal directly with the subject through its Law 378, article 129 of the same year which renamed the Schools for Craftsmen Apprentices to Professional Lycées (geared to professional education in all branches and grades). Also the so-called Capanema Reform in 1941, besides dividing the learning process into basic industrial and artisan course, and in supervised training, started to consider professional education as secondary level and conditioned entrance to it to the admission exams (MEC, 2009).

During Juscelino Kubitschek's Government (1956-1961) a deepening took place in Brazil in the relationship between State and economy. During the five years of the Juscelino Government's Target Plan expressive investments took place in infrastructure (according to the PND – Plano Nacional de Desenvolvimento or National Development Plan -- energy and transportation represented 73% of the investments). For the first time in the entire history of the country, the education sector gained 3,4% of the total of investments foreseen for the development of professionals seeking the accomplishment of goals aimed at the country's

industrial revolution (MEC, 2009). In 1959, Technical Schools were transformed into autarchies, autonomous entities, both in terms of didactics or finances, and were named Federal Technical Schools. The transformation of Technical Schools into autarchies increased and accelerated technical training in the country, thereby bringing about the workmanship indispensable for the development of the Brazilian industry. In 1971 the Law of Directives and Bases of the Brazilian Education (Lei de Diretrizes e Bases da Educação Brasileira – LDB), (No. 5.692) was created with the purpose of transforming technical professional schooling into secondary grade curriculum. In 1978 Law No. 6.545 was sanctioned (MEC, 2009).

3 INDIVIDUAL AND ORGANIZATIONAL LEARNING

According to Kolb (1984) both learning process and individual development are related to the experiences lived, which generate reflections and implicate in new knowledge. Kolb (1984) also highlights that this is a continuous process influenced by experiences, perceptions and individual behavior. The author also stresses the importance of continuous learning when it comes to current competitiveness “[...] the dizzying rate of change, and the exponential growth of knowledge all generate nearly overwhelming needs to learn just to survive [...] For individuals and organization alike, learning to adapt to the new “rules of the game” is becoming as critical as performing well under the old rules” (Kolb, 1984, p. 2).

Using Lewin’s, Dewey’s and Piaget’s models, Kolb (1984) describes the learning process, formulates his own interpretations of them and presents a structural approach of learning from lived experience. The models studied by Kolb (1984) can be understood as knowledge generation cycle which involves perception, adaptation, integration, synthesis, and formulation of what was learned. According to Kolb (1984) under Lewin’s, Dewey’s and Piaget’s perspectives, experience is a key factor in the learning process. This is so because each time an individual or an organization completes the mentioned cycle, the experience gained becomes a part of his / its acquired experience.

Kolb (1984) also highlights that learning can occur by divergence, assimilation, convergence and accommodation. According to him, divergent learning is related to experience acquisition by apprehension (lived experience or observation), and transformed into intention, while experience acquired through comprehension and transformed into intention results in learning by assimilation. On the other hand, the learning process is convergent when experience acquired through comprehension is modified by extension. This is so because practical application is a result of a theory, or an abstract model. Finally Kolb (1984) explains that experience acquired by apprehension and transformed by extension results in learning by accommodation, which means that, based on concrete experience, the individual is capable of, through practical application, changing a situation.

As a result of the above, it follows that learning and consequently the knowledge built derives from the individuals’ involvement in new experiences. In other words his or her understandings of these experiences, the reflection upon these experiences and their analyses based on different perspectives constitute the learning itself. According to Kolb (1984), from the observation of the environment, the individual integrates his experiences with theories

that he has been familiar with; giving rise to generalizations related to reality, besides hypotheses that once tested will generate new experiences and observations. Although the learning models presented do not exhaust the subject matter, they demonstrate the origins of the learning process, their attributes, and the way in which the processes happen, while also revealing the importance of experimentation and reflection to the apprenticeship. Taking these approaches into consideration, it is possible to note that an individual and the knowledge generated depend on the capacity to combine and transform acquired experiences. Kolb (1997) asserts that competitive advantage is more and more related to experience derived from continuous exploration of novelties, and because of that, Kolb (1997) argues that both managers and organizations should reserve an exclusive time to learn with their own experiences.

Knowles (1970) clarifies that, at school-age children and teenagers understand education as a knowledge accumulation process. As a result of that, in the author's opinion, learning occurs despite the immediate application of the new knowledge. However, according to Knowles (1970) adult motivation to learn is driven by the immediate applicability of the recent acquired knowledge which enables individuals to handle current problems effectively. Taking into account the differences of learning scope between school-age, adult-age, and andragogy; according to Knowles (1970), aims both at understanding these differences and at proposing an orientation to adult learning process. However, Knowles (1970) highlights that andragogy contributes not only to human being learning but also to children and teenagers education. Andragogy premises are based on the following assumptions about the characteristics of adult learners: self-direction (independence), accumulated experiences, that becomes an increasing resource for learning, readiness to learn associated to the development of skills to manage life situations and immediate application of knowledge. Regarding the above, it is possible to highlight some aspects of learning process as viewed by Knowles (1970). On the basis of these approaches, it is possible to note that an individual's ability to learn and the knowledge acquired are a direct result of his or her ability to rearrange experiences, as well as and his or her commitment with the situation.

Organization is a set of collective practices (Brown and Duguid, 2001; Lave and Wenger, 1991; Wenger, 2000). In that sense it is not a given reality, one made objective but, rather, a reality created through organizational practice (Burrell and Morgan, 2003). Along with the flow of activities, processes, systems, routines, beliefs, culture and information, organization is permanently and continuously constructed and reconstructed by individuals involved, as part of their performance through which they interpret, reinterpret, shape and reshape the organization (Weick, 1995). Therefore, it is possible to inquire about the extent to which, nowadays, the curriculum of a specific technical course is able to keep up to date and compatible to the demands of the industry. After all, today, the very concept of professional and profession is under debate.

Knowledge is something local situated within that social world named organization, where individuals meet in order to produce and create meaning as they work (Cook and Yanow, 1993; Yanow, 2000). From the way things are made, knowledge is created (Brown and Duguid, 2001; Lave and Wenger, 1991; Wenger, 2000); in other words, creation is directly tied to human experience, while the origin of knowledge is the actual living experience (Elkjaer, 2008). This actual living experience refers to the acquisition of

knowledge and of identities. From that standpoint, while individuals learn about (something), they are simultaneously learning to be (Brown and Duguid, 2001; Elkjaer, 2008). That considered, to what extent does it make sense to expect from an outside agent, in this case an institution of technical education, that it be capable of training individuals able to act within business processes which are permanently subject to changes due to pressures originating from various stakeholders or even resulting from technological leaps hard to expect?

Knowledge results both from individual and from collective practices. Individual accrual of knowledge occurs precisely because of the social practices individuals engage in within the organization. Thus, social interaction and the sharing of practices and information contribute both to individual and to collective knowledge (Bartel and Garud, 2008; Tsoukas, 1996).

Collective, organizational knowledge is, nevertheless, different from individual knowledge. It does not result from sharing alone, nor is it the sum of individually-acquired knowledge. It is totally integrated in these collective institutionalized practices thereby dealing with the interactions among the practices of individuals within the organization (Spender, 1994). From that perspective, organizational knowledge is the ability for discrimination developed by members as they carry out their tasks, as well as to make generalizations the application of which depends on collective, historically evolved cycles of understanding (Tsoukas and Vladimirov, 2001). This knowledge is characteristically emergent during the collective interactions and practices (Spender, 1994) and is, furthermore, typically tacit and implicit (Cook and Yanow, 1993; Spender, 1994; Yanow, 2000). So, if knowledge nowadays is considered an essential resource, wouldn't it be up to the organizations to be able to generate it and, therefore, spread it through their operational processes, where supposedly the technical work takes place? Is it not possible to expect that the value applied to knowledge vary from company to company? Above all, when bearing, age and business are taken into account?

Knowledge is approached as something active and flowing, dynamic and relational. At this point, the distinction presented by Cook and Brown (1999), based on Dewey's *productive inquiry* (1948; 1998), is worthy of mention. While these authors establish a distinction between knowledge and the process of knowing, both concepts represent aspects of the same phenomenon. Knowledge refers to something owned or possessed by the individual and, as such, it has a static character; it is abstract but it can be applied and used. Knowing, on the other hand, refers to a dimension of action, something which is an inherent part of individual action and group relation. Thus, getting to know/knowing is dynamic, concrete and relational; it has to do with the interaction between the one who knows and the world, a process which results in acquiring new notions (Cook and Brown, 1999). In addition, if for an adult it is important to gather the meaning from practice and from that experience learn Knowles (1970; Kolb, 1984, 1997), is it at all meaningful for the companies to expect a professional "ready to start" once he/she has completed the technical/professional training of an institution?

The manner in which an organization understands knowledge – as a static asset, explicit, descriptive and transferrable through formal processes; deductive when part of organizational analyses; or as a process in continuous action, tacit and capable of being shared when part of informal social interactions; actually experienced and emerging in daily events – produces an impact when it is put into practice as it even molds the way the organization views itself and its strategic choices (Hedberg and Wolff, 2001).

It has, furthermore, a molding effect upon its ability to learn from its own organizational performance (Starbuck, Barnett and Baumard, 2008; Starbuck and Hedberg, 2001). So, we can argue, to what extent do HR professionals responsible for recruiting, selection and training processes, understand effectively company as a business in order to be able to reach their best judgment both with respect to the skills required by those interested in joining as with respect to those needed in the case of those who search a better performance in the company? Could it be that professional technical training would only be justified in a developing country, as is the case of Brazil, where industries are still localized? In other words, does it make sense to imagine technical training for the services sector?

4 METHODOLOGY

It is important to emphasize that the approach taken by this research is not concerned with the personal attributes of the individuals who perceive the phenomenon (as, for instance, the mental state or psychological aspects). Nor is it concerned with the specific aspects of the phenomenon. Instead of focusing on the person or the phenomenon, what is investigated is the individual's experience with respect to the phenomenon (Marton, 1981).

Thus, the Phenomenographic research seeks to understand the different ways in which a phenomenon can be perceived from the viewpoint of a specific group of persons who experienced that phenomenon. This kind of study would allow persons outside a group to have access to the perception of those who are inside it experiencing the phenomenon. Akerlind (2005b) stresses that the objectives of phenomenographic research directly influence the way data collection and analysis processes take place.

According to Marton (1996), in a phenomenographic research the interview is the main method for data collection and it includes what is asked, the way in which it is asked, as well as the manner in which what is asked is answered. For the data survey stage twenty one interviews were carried out in the course of 8 months (from October, 2010 to June 2011). It should be mentioned that all interviews were conducted at the companies where the interviewees worked at the time of the data collection. It is also important to note that the interviews lasted from 15 (fifteen) minutes to 120 (one hundred and twenty) minutes.

Selection criteria of the subjects were based on intentional identification in order to allow for the participation of the following: a) professionals with technical training, categorized in this study as the contracted party and identified as T (a total of fourteen interviewees); and, b) the technical selectors and managers of these professionals, categorized as the contracting party and identified as M (a total of seven interviewees).

In terms of treating the data obtained subsequent to the conducted interviews, the steps suggested by Marton (1986) were adopted and they consist in transcription, audition and various readings. In addition to that, the researchers used as support the annotations made during the interviews. According to Marton (1986), these procedures make it easier to comprehend the general context of the entire set of collected information. That way it became possible, in light of the objectives of the research, to identify and label the most relevant declarations.

Following this stage the selected declarations were organized, classified and grouped according to the similarity among meanings proposed.

Rubin and Rubin (1995) suggest that the qualitative treatment of data aims at discovering what the interviewee wants to say, what he or she feels and thinks regarding the questions asked, that is, regarding his or her universe. The qualitative research, according to Rubin and Rubin (1995), allows for an understanding of the individuals' experiences and for a reconstruction of the same despite the fact that the researcher does not have an active role in it.

5. RESULTS

Due to their phenomenographic perspective, declarations by the interviewees were analyzed, interpreted and grouped according to meaning (Arkelind, 2005). This procedure made possible the generation of categories and themes according to two types of perspectives: a) contracted parties: professionals who had graduated from technical schools and, b) contracting parties: professionals responsible for hiring or managers of professionals who had graduated from technical schools. The categories and their attributes are exposed in Table 1.

Table 1: Description of the categories

The Contracted Party's View	
Valuing the training	Refers to the value attributed to the vocational technical training in its role as promoter of employability and social mobility.
Evaluation of the training received	Refers to the comparison between the technical training received and the reality found in the actual exercise of the professional activity. It describes, as well, the gaps found in the educational institutions in terms of infrastructure and technology.
Evaluation of the labor market	Relates to the labor market's evaluation potential in absorbing or demanding qualified labor.

Table 1: Description of the categories (cont)

The Contracting Party's View	
Relationship between Business and Educational Institutions	Deals with the aspects constituting the relationship between the professional education institutions and the businesses. It also exposes the determining factors which transform this relationship in an effective partnership.
The training in expected competencies	Refers to the perception regarding the degree to which the educational project of the professionalizing educational institutions effectively contributes to the training of the skills required by the labor market.

5.1 The contracted party's view

This topic relates to three categories of description: placing value on the training, evaluating the training and evaluating the labor market. These themes emerged from the analyses of statements by the professionals who had graduated from technical schools.

5.1.1 Valuing the training

The current management practices, followers of the competency model in the labor market, have led towards valuing education in the recruiting and selection processes. Within such a context, the need for continuous education in the case of graduate professionals is observed on one hand, while on the other, the search in terms of a technical professionalizing education for those who are seeking a fast professional insertion in operational posts is also evident. In that case there is among those interviewed a view that, normally those who enroll in a technical course are seeking a rapid reward. It is supposed that, when someone go to college he/she are getting prepared to assume a function some time, in the future and to work in that specific area. Because during the time someone are in college he/she already know that will only work in that area once finished the course.

For one interviewee: "But it's not so with technical courses. You start a technical course already expecting a job. Normally that's the case. And besides, in the case of the technical course, because the period is shorter you spend less time, and the reward comes faster". (T1) This declaration is reinforced by T9. In his statement, the interviewee identifies the professionalizing technical course as a form of employability.

It was precisely in relation to the labor market at the time I finished my course. The labor market was very much in need of the technical area in those days. And qualified labor was barely sufficient in that area. (T9)

Furthermore, it should be noted that the effort invested in the professional training can represent an additional one in terms of time invested in qualification. It is possible, on occasion, to explain this effort by referring to the internalization of the discourse which places work and professional valuing as central elements contributing to the makeup of the

modern individual That way the workers seek to raise their levels of education, as well as their aspirations while work, simultaneously, assumes a central role in their lives. This may lead to supposing that education is dissociated from the make-up of labor. The imposition of super qualification or an exaggerated emphasis in the search for qualification can be illustrated through the following statement:

To tell the truth, I didn't, actually, stop. I did the two things at the same time. For example, when I passed for UERJ^{1[2]} and started my first period. I was attending CEFET's second period because it was my choice to start the two (courses) in the same period. But, since I didn't know if I could stand to do both CEFET and UERJ at the same time [...] I, then, decided to start CEFET in the first period and started UERJ in the middle of the year. [T10].

T10's perceptions regarding the fact that professionalizing technical education contributes to individual growth. Furthermore when, in the absence of a public policy, the search for qualification demands from the individual the creation of alternatives or being subject to sacrifices in order to build a bridge between education and work and, consequently, social rise, in that sense it justifies taking that path, that is, searching for professionalizing training.

As I told you, because of the financial issue, so I could remain in the public university. Then, I thought that investing in a technical area would make it easier for me; the return would be better, because in the technical area you're a specialist in the thing and I would be able to stick to my objective to continue towards graduation and obtain a Master's; I would reconcile things. [T10].

But this trajectory is not always traced or desired. At times, the determination of the social conditions appears as given, actually fixed. Subjected to his or her social circumstances, the individual remains conditioned by them. He/she remains socially incarcerated. This situation is illustrated in the following statement by T5:

My choice was to be a technician because I wouldn't have the conditions for college. I thought: well, I'll need to earn second degree as technician in order to have a profession [...] I would have to have a profession [...] in the case of the private ones; I wouldn't have the conditions to go to college. [...] OK, I could face this, but I'm not sure I would be able to enter a private one; I wouldn't be able to pay for it. That's when I opted for electronics. (T5)

Interviewees T4 and T1 share the perception that, in a way different than what occurs with basic education, professional education demands focus on employability which is understood both as the ability to obtain a job but, above all, as the capacity to remain in a labor market constantly changing. T5 and T3, in turn, understand that the professional training's advantage resides in the speed with which it is possible to convert training in employability through useful learning. However, a perception exists of certain degradation in terms of the professionalizing condition.

^{1[2]} A public university established in Rio de Janeiro

Taking into account the number of technicians in the labor market: in our days, any institution [in Brazil] can train a technician. For that reason, the number of technicians we have in the market today, with a diploma, is very large. Today, due to their numbers, it became a competition. For that reason, technicians are valued less and less. (T9)

Even though there also is a perception according to which the fact that technical training is an opportunity for professional development is equally real.

Because sometimes you have a lot of practice in terms of the work you execute and don't possess the theory. So, then, gear calculations, calculations of shaft deformations, such things. In this case you become a more technical person. (T3)

[...] you imagine yourself in the labor market in the first place, having a good salary and a good work environment; having nice colleagues at work. Thus, expecting improvement and growth in your work area. (T4)

5.1.2 Evaluation of the training received

This category reveals the professionals' perceptions with respect to the training received as evaluated in pedagogical terms and in that of infrastructure. The interviews revealed the importance of the educational institution credibility and of the professionals involved in the training. However, some deficiencies were highlighted:

At the time the school wasn't such a great deal because it had no laboratories the year I attended; there was no laboratory; sometimes there was no professor. But with theory I was able to keep going and, as for the practical training; that's where I gained the most; as a result of the actual training which I attended for a year and a half or so. For those who aren't familiar with the mechanics area the way we are, the number of hours in the workshops is quite insufficient. [T5]

The interviewee considered that a person with no experience in mechanics will never be a mechanics technician if he doesn't become acquainted with mechanics in a laboratory once a week. In his evaluation, education in the technical sector needs improvement. T5 completed with this statement: "We could benefit from more information coming from first world countries." (T5) T12 partakes of T5's perceptions regarding the gaps in the pedagogical model adopted by professionalizing technical education institutions.

Some things were removed from the curriculum and were missed; so I thought we could have more contact with reality. To mention one case as example, I missed the machine element which would be an extremely important subject matter for the mechanics area. There are many things I should have had in this place and I'm sorry I didn't have. (T12).

Besides this, also presented are the statements of interviewees T1 and T9 regarding the gap between the theory and the practice both in terms of curricular schedules as in relation to the infrastructure offered in the technical institutions.

At SENAI^{2[3]} the training offered by the curricular schedule was not 100% of what the labor market... of what I would need in terms of the labor market. So I had to take several other advanced training courses in other units. (T1)

Some interviews pointed out that in these days, to introduce laboratories in a technical school precisely with this improved technology is somewhat expensive. And, in industry, nowadays, a professional with theory and practice will also cost a lot of money

So, I really believe that due to a social fact in relation to... We don't possess that link because the contractor doesn't want to pay much and the school; doesn't want to invest much in the student (T9)

5.1.3 Evaluation of the labor market

In general way, the interviewees' perception regarding the opportunities presented by the labor market was quite positive. Mainly in the petrochemical industry, in the petrochemical complex. At this time, the companies in this business were seeking technicians in large numbers

I think it has grown a lot... The shipyards are also returning. It's also good for electricians, electronic technicians or for mechanics. I think it grew a lot for those with a technical level training (T5).

To be more precise, perception in terms of the importance of a technical course, both with respect to opportunity as to that of insertion in the labor market, is confirmed by T12 and T1:

The market perceives you as a technician these days, it's open. It considers you a technician, you're competent to accomplish that; you must demonstrate that you are... And it will open its doors because it's clear that there that there is a technician there (T12)

In T1's opinion, if a company has a professional who is strong in the electricity field and who has experience, he has a good background experience to work in the mechanics area. That's the professional sought by the market. That's because instead of paying two people to carry out the job, you only have one. You pay one professional who's more complete and place an assistant there to help out. Perfect. Most organizations are tending towards this kind of market. That's what takes place in the pharmaceutical industries (T1).

As to the meaning of being competent, the following testimonies are in agreement with Zarifian (1999). In whose opinion competence is the practical intelligence for situations based on acquired knowledge whereby such knowledge is transformed with as much strength as the complexity present in these situations:

^{2[3]} SENAI: configured as structured system in federative basis, which develops wide range of vocational programs, seeking to meet the needs of the labor-Brazilian industrial work, always depending on the peculiarities of each region of the country.

[...] it has to do with having an efficient work situation that doesn't compromise the integrity of the other persons in my sector... in the entire industrial and maintenance sector; it means to develop a conscious work, one that will be of use for production within the company (T9).

[...] We can see nowadays that there must be a link between professional experience and qualification. In other words, theory. So, that's how I see this issue of having a totally professional person, a professional who can make the two aspects fit together. That's it, precisely, you'll be able to blend experience with the theoretical aspect. That's a good technician. It's a technician who knows the technical terms as they apply to the practice (T5)

This statement is convergent with Kolb's notion of learning circle. For Kolb (1984) both learning process and individual development are related to the experiences lived, which generate reflections and implicate in new knowledge. Kolb (1984) also highlights that this is a continuous process influenced by experiences, perceptions and individual behavior. Additionally, it is possible, to agree with Sander (1996) when he states that the construction and the reconstruction of technical knowledge in professionalizing education in Brazil, imply a great deal of effort. And this demand shows up frequently in the interviewees' statements.

Furthermore, it is easy as well to agree with Shiroma and Campos (1997) with respect to the fact that the contours of the employability concept, as well as those referring to competence, are not yet adequately delineated, thereby assuming a variety of meanings. In the literature of economics and in statistical analysis employability refers to the crossing over from a situation of being unemployed to one of being employed; in other words, it is formalized as the probability of leaving the situation of unemployment, or as "the capacity of obtaining a job" (Hirata, 1997). However, employability involves other dimensions such as age, gender, previous experience, social relations network, social background, conceptions, values, aspirations, life trajectories, all of which become dominant for obtaining a job and which turn into a "hidden curriculum" of training in competencies (Shiroma and Campos, 1997, p. 27).

5.2 The Contracting Party's View

This topic relates to two categories of description: the Business-Educational Institution Relationship and Evaluation of the training in expected competencies. These themes emerged from the analyses of statements by the professionals responsible for hiring or managers of professionals who had graduated from technical schools.

5.2.1 The Business-Educational Institution Relationship

According to interviewee M1's perception there is an expressive distance between training institutions for technical level professionals and organizations that absorb a considerable part of these resources. Therefore, extinguishing this gap and the resultant tightening of the relationship would represent a great opportunity of improvement as to the insertion of those trained in the labor market. The interviewee's statement regarding the subject follows below:

[...] Faetec^{3[4]} understands getting close in other ways... [...] all of the courses they offer... almost all of them normally contact us requesting a technical visit. [...]. So, I've had people bringing along groups of students of mechanics, electronics. Even a safety technician. They call us asking... they bring 30 to 40 students... if they can come for a technical visit. And then we receive them, we show them the factory and both the person from the specific area and myself are there to assist them: I speak about the company, about the product and the person from the area speaks specifically about the issue pertaining to the area. [...] What doesn't exist is their search in the following sense: "may I refer my students to your curriculum listing? A class of 30 is graduating this year, are you interested in receiving these curricula?" (M1).

M1's vision is in harmony with Cruz's (1999) statement whereby the latter judges it necessary to draw up agreements with businesses. That way the student would be in contact with the activities and, should his/her performance be satisfactory, he/she would have better chances of being hired. But, as a general rule, the students' perceptions reveal a distance, both geographic as well as conceptual, on the part of the technical schools with respect to the labor market's demands. Interviewee M3, for example, stresses the existence of an expressive distance between the needs of the market and the education offered (by the school program). In his opinion there is no pro-activity on the part of the in the search for cooperation on the part of the organizations. For that reason there is an expressive gap between the matrix of competencies and the needs of the market. Interviewee M2 partakes of this viewpoint stating that the organizations could contribute with a view of the labor market geared to professional training. The following is his opinion on the subject:

[...] we went through a period of great shortage in terms of students. So, we went to the schools to show what the work is, the opportunities and, finally, we were able to put together a large register of interested persons. The students exchange comments among them and it becomes a natural path for some people to go to the television industry. But what happens, to answer your question, is that we start a movement, perhaps not systematic; although it could be, and the schools lack... I don't know, they lack a direction, a pro-activity meant to seek the industries. (M3)

[...] I think they could listen to what the organizations have to say and perhaps gather some of that know-how which isn't technical but allows for a view of our reality; the person would leave with a wider perspective with respect to the labor market. (M2)

The interviewees' perspective is in harmony with Cruz's (1999) opinion. According to the author for the project to become reality the professionalizing school must be dynamic. It must interpret the entrepreneurial context and its needs, and put into practice all of the necessary resources to qualify the individual who goes through its training. On the other hand, M3's statement is a demonstration that due to lack of action on the part of the educational institutions what has been happening is the opposite of the path indicated by Cruz (1999). In line with this perspective it is worthy of note that private organizations have taken the initiative of seeking educational institutions and, consequently, students in order to

^{3[4]} Foundation Support Technical School (Faetec), linked to the Department of State for Science and Technology, is responsible for implementing the policy of Professional Education in the State of Rio de Janeiro

present their productive activities. Thus, they assemble their own listing of interested persons who might be absorbed.

Interviewee M2 states that educational institutions should search for a dialogue so as to allow the student the possibility to absorb a part of the non-technical know-how thereby providing him/her with a wider perspective of the market. In terms of technical issues, the interviewees' perceptions are in harmony with Cruz's (1999) viewpoint as follows: the technical disciplines offered by professionalizing schools should be aligned with the demands of the industries through an update of the technical knowledge. This would reduce the gap between the professionalizing school and the advanced industries.

[...] because persons who finish school they leave it with quite a reduced training. It's not just any school that has the money, the conditions needed to set up a laboratory so the guy can learn. Previously we would learn to install a switch star triangle, to give an example. For me to mount a switch star triangle today I spend 300 reais^{4[5]}, 200 reais. It's easy for a school to have these parts. But a soft start laboratory that costs three thousand reais [...] Which school will have that? Not just any school... (M4)

Thus, if there is no integration between the schools and the organizations for the construction of a joint curricular matrix through sharing the needs of the labor market and those of technical demands, it could be concluded that the training for technical competence for professionals would be jeopardized. On the other hand, interviewee M4 observes that there is a considerable distance in the training of the curricular program due to the lack of laboratorial practice. According to the interviewee himself, this lack is tied to the absence of investments due to the costs of the implementation and development of laboratories which require more technology, the result being an inadequate connection between theory and practice.

According to the interviewees geographic location of the school and its proximity to the organization are important factors when it comes to having success in the absorption of the technical professionals. In M4's opinion it is a restriction for the ETE because traffic makes moving about difficult and time consuming.

Above all in this region of Jacarepaguá^{5[6]}. Because it is Faetec that renders assistance to us to this date, 2010, but the restriction has to do with the fact that this student in many cases lives far from the organization, so moving about for him is complicated, above all considering the traffic in Rio. [...] So, we have persons working here today, referred by Faetec, who live in Mesquita, Nova Iguaçu, Duque de Caxias or further away in Magé [cities around Rio de Janeiro]... So there is this physical distance; they take two and a half hours or even three hours to arrive here at the factory. So if I had a school as I will have now, the SENAI, with qualified labor from the region, it would serve me much better. (M4)

^{4[5]} Brazilian currency

^{5[6]} A neighborhood of Rio de Janeiro

During the interviews it was observed that some of the contracting parties would like to be able to hire local labor, that is, professionals residing in areas surrounding the company. It was, nevertheless, difficult for them to have this condition met. The following is a statement regarding this situation:

[...] that I was in need of persons from right here, that I wanted to hire persons from the region to work with us [...] and there were no persons with technical qualification, [...] the person very often hadn't even attended high school and, when they had, it was a normal, basic secondary school. (M1)

5.2.2 Evaluation of the training in expected competencies

From the viewpoint of the contracting party, in many cases, the technical professionals leave school unprepared, unable to carry out the simplest tasks. This reality forces the company to invest in a new training. The great majority of their professionalizing courses concentrate on low cost courses without taking into consideration social and market demands or technological transformations.

[...] Before setting up the courses which they set up at this technical school that has been inaugurated, they came to the companies and did, indeed, work at verifying what we need, what kind of labor is needed by us here in the region of Jacarepaguá. What I'm telling you today I told 4, 5 years ago to this team from SENAI that came to visit us. (M1)

Despite M1's statement about the existence on the part of some educational institutions of a search for information regarding the needs of companies relative to type of professionals, a systematic attitude directed at strengthening the competencies to be developed by the technicians with the aim of structuring a curricular matrix, seems to be absent. Pereira et al. (1999), however, have observed that as a solution to make up for this lack in terms of training, large companies have, for example, set up training centers and corporate universities aimed at shaping and creating behavioral habits and at qualifying professionally their workers as they carry out their tasks.

Interviewee M6's viewpoint is shared by M4's perception as to the lack of some competencies such as aligning theory and practice. According to them there does not seem to exist a synchrony between the school programs and the reality in terms of the working world.

[...] Today what I observe regarding the technicians and those from the other companies where I've worked is that this specific knowledge about a certain process that we carry out within the company doesn't exist. So, then, a company that has a process today, doesn't have that specific training in that process for the technician. That's where the difficulty lies... That's the kind of difficulty we have here. Mechanically, or electronically, or in terms of electricity, the person has theoretical and practical knowledge. Within the general context, not the ideal one which we need due to lack of experience. But, specifically, concerning process, there still exists a deficiency in terms of knowledge for his own training. (M6)

Classes with practice should exist. Classes with practice are greatly lacking in the schools. There should be laboratories. There must be a laboratory for specific tasks which stand apart from other laboratories. There should be more than one type of laboratory with different investments. Well, if in the first year, at the first moment I'll attend a class on building installation, then I have to have. SENAI, by the way, at the end of the course had what they called a house. They had a house, a workshop, a house. A real size house with every installation there is in a house. Then, we'd spend a whole month in a classroom studying house installation. And then, we'd go there and actually make the electrical wiring, pass the cables, install the switches, the lamps, then installed the electric shower, installed the water pump, the Lightning Protection cable. All of this was executed by about 11 or 12 students. So, no way would a guy leave the place without knowing how that was done. (M4)

Interviewee M1's perception stresses the importance of social competence as competitive differential in the organization, and, therefore, with respect to the student's training. In his point of view, 'relationship is everything today'.

To know how to relate with people, even in a technical workplace is everything. Because in any company today you have a smaller team with large work demands, where if you work... [...] me and you on a project, that's not the work of two persons, in the end it's the work of three, because it's me, you and the energy between me and you. So, then in the end we have less needs even in terms of persons. We can see this in practice: my idea together with yours, I start with the idea and you add on to it, then I add on to it and so on and so on. It becomes something much larger than if I remain in my little box and you in yours. Only they don't see this in the technical course. It's a contemporary market demand and they don't have that. Some bring it along with themselves, from social moments outside the course, from their families. But we see that this is not developed in the course. (M1)

As revealed by studies on higher education (Zulauf, 2006), it seems that the contracting parties lack a sense of reality when they present their demands as related to the skills they wish the candidates to the jobs to possess. On the other hand, it should be a consensus that to align the individual competencies with the organizational ones presents one of the challenges faced by companies in our days. And yet, even when successful at that task, the organizations must face a new challenge: the maintenance of this professional whose qualification they have achieved. Because, the professionals developed internally found a better opportunity in the labor market and so they resigned. As stated by interviewee (T1) below:

So, one company takes people away from another one. I came here brought from Coca Cola. I worked for Coca Cola before. They [the schools] aren't training the professional. They were in need of a technician for technical support in automation; the vacancy had been there open, I think for about four months. I came here three times to get everything ready so I could work here. (T1)

6 DISCUSSIONS AND CONCLUSION

It can be stated that the present research fulfilled its main purpose inasmuch as the analysis of the interviews revealed the perception of the professionals interviewed on the subjects of the facilitating factors and of the existing obstacles both with respect to the training in and the construction of technical competencies. In addition to that, the study unveiled the difficulties viewed from two perspectives: contracted party – professionals coming from technical schools and facing the demand / prospect of the labor market; and contractors – selectors / managers who are in search both of making up for the gaps in the professional training of their technicians as well as concentrating their efforts to retain these professionals keeping them away from the harassment of other businesses.

From the viewpoint of the contractor, the school is distant from the professional market both in physical and in conceptual terms. As a result, both the understanding of the business needs as the adaptation to these needs of the pedagogical matrix are in jeopardy. According to the interviewees, the educational institutions do not seek businesses in order to offer systematically the professionals trained by the institution. And neither do they make efforts to improve the relationships so as to build a curricular matrix compatible with the demand in terms of technical competencies and practices. Considering this situation, the drawing up of agreements for cooperation between the parties (educational institutions and businesses) is seen an important factor for broadening the training already promoted by the businesses. Options would include the construction of training centers, the sharing of knowledge, the construction of laboratories. Through these means the theoretical-practical connection could be expanded. In addition to that, such actions might mitigate the need for investments on the part of the educational institutions in the construction of installations as well as for the acquiring of equipment which, due to technological evolution, become obsolete, or as a result of restriction of resources, become scarce.

On the other hand, the contracted party reveals that entry in schools for professionalizing education is justified inasmuch as it has to do with a fast professional training. This allows for a glimpse of the time factor for entry in the labor market as one of the choice determinants. Furthermore, in view of the family's financial condition, which is a hindering factor when it comes to the financing of college education, technical education presents itself as a real and possible alternative for the professional development of the young. And besides, from various accounts it was possible to note that the family encourages aspirants to follow the course of technical education because of a perception of various career opportunities in the labor market. In several cases, the professionals interviewed, when adolescents, ignored the reason why they entered a specific course and, therefore, also had no idea of what expected them while attending it. In various situations, the technical training presented itself as a solution for social ascent. In view of this, it is possible to state that there are persons who initiate their technical course without a specific notion regarding what kinds of tasks, what type of knowledge/competencies they will develop. And, furthermore, they are not fully aware as to whether they actually have a real vocation for that profession. In part, this opinion explains the lags pointed out by the contractors: the gaps existing both in terms of the quality of the qualification as in terms of the profile of those who finished the course. The perception from the market's perspective is that there are unfilled vacancies expecting skilled professionals.

7 FINAL CONSIDERATIONS

Based on previous explanations concerning the methodology, it is possible to say that all research strategy has both strong points and weak ones. As mentioned before, the decision in this case was to analyze the data qualitatively. In this respect Yin (2000) calls our attention to bias risks. This is a valid warning, inasmuch as, if a researcher in a similar position goes to the field with a previously formed opinion, the conclusions arrived at through his or her analyses may be partial, and, consequently, the results will be affected.

Furthermore, it is important to keep in mind that the interviews were guided following the information contained in the literature review, that is, they were based on the following: the demands faced by the organization for the accomplishment of their verbally expressed strategy; the way in which the knowledge transfer takes place; and, some lacking elements identified by the framework authors. Considering all that was explained above, it is reasonable to suppose that there might be other critical issues which have not been considered by this study.

It is possible to consider the contributions of this research when it brings to the fore the relevance of comprehending some aspects related to competency training and professional practice in Brazil. However, it is important to mention that other actors should be heard: the trainers, for example. This way it would be possible to verify systemically the facilitating agents and the obstacles in the training and construction of competencies in three dimensions: the viewpoint of the Technical Education Institutions, the Market (demanding businesses), and the Technical Professional.

It is important to consider, as well, that no evaluation was undertaken with regard to the competencies declared by the contracting parties. In other words, are the businesses right with respect to the technical competencies they need? To what extent are the contracting parties capable of distinguishing the set of functional competencies needed for their business processes so that they are able to recruit, select and establish policies for the maintenance of qualified employees? Is it not possible to suppose/expect that, considering the flow and dynamic of the knowledge applied through the daily activities, technical training processes be in effect shared? In other words, in order to justify its effectiveness, couldn't professional training practices, particularly those related to technical work, mingle practice-theory, in such a way that theory would reside in the educational institution and practice, would be guided and closely followed in the company, locus of the work?

References

- Amadeo, E. (1998). *Ten points about the recent situation of the labor market*. (Dez pontos sobre a situação recente do mercado de trabalho). Brasília: Ministério do Trabalho, ago. 1998 Notes about the labor market. (Notas sobre o mercado de trabalho, n. 5).
- Akerlind, G. (2005). *Learning about phenomenography: Interviewing, data analysis and the qualitative research paradigm*. In: Bowden, J E Green, P. (eds) *Doing Developmental Phenomenography*. Melbourne: RMIT Press, (2005), p. 63-73.
- Balassiano, M.; Seabra, A. A. & Lemos, A H (2005). Education, wages and employment: is right the theory human capital? (Escolaridade, salários e empregabilidade: tem razão a teoria do capital humano)? *Revista de Administração Contemporânea*. [online]. 9(4), pp. 31-52.
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), p. 99-120.
- Barros et al. (2001). The effectiveness of workplace policies and income in combating poverty.. A eficácia das políticas de trabalho e renda no combate à pobreza. In: VELLOSO, J. P. R. et al. (Coords.). *Solutions to the issue of employment (Soluções para a questão do emprego) – Fórum Nacional*. Rio de Janeiro: José Olympio, p. 59-125.
- Brown, J.S. & Duguid, P. (2001) Knowledge and Organization: A Social-Practice Perspective. *Organization Science*, 12(2), p. 198-213.
- Bartel, C.A. & Garud, R. (2008). *Narrative Knowledge in Action: Adaptive Abduction as a Mechanism for Knowledge Creation and Exchange in Organizations*. In: EASTERBY-SMITH, M. & LYLES, M. *The Blackwell Handbook of Organizational Learning and Knowledge Management*. Blackwell. p. 324-342.
- Burrell, G. & Morgan, G. (2003). *Sociological Paradigms and Organizational Analysis*. Vermont: Ashgate Publishing.
- Castel, R., (1998). *The metamorphosis of the social question: a chronicle of the employee*. (As metamorfoses da questão social: uma crônica do salário). Petrópolis: Vozes, 1998
- Cook, S.D.N. & Brown, J.S. (1999). Bridging Epistemologies: The Generative Dance Between Organizational Knowledge and Organizational Knowing. *Organization Science*, 10(4), p. 381-400.
- Cook, S.D.N. & Yanow, D. (1993). Culture and Organizational Learning. *Journal of Management Inquiry*, 2(4), p. 373-390.
- Cruz, P. N., (1999). *The Importance of the Role of Vocational Education in Juiz de Fora Given Industrial Development* (A Importância do Papel do Ensino Profissionalizante em Juiz de Fora Face ao Desenvolvimento Industrial), Proceedings...ENANPAD, 1999
- Dewey, J. (1998). *The Essential Dewey: Pragmatism, Education, Democracy*. IN: Indiana University Press.
- Dewey, J & Bentley, A.F. (1948). *Knowing and the Known*. In: www.aier.org, access on 10/23/2010.
- Elkjaer, B. (2008). *Social Learning Theory: Learning as Participation in Social Processes*. In: EASTERBY-SMITH, M. & LYLES, M. *The Blackwell Handbook of Organizational Learning and Knowledge Management*. Blackwell. p. 38-53.
- Garcia, S. R. de O. (2000). *The thread of the story: the genesis of vocational training in Brazil*. (O fio da história: a gênese da formação profissional no Brasil). In: *Trabalho e Crítica*. São Leopoldo: Ed. Unisinos.
- Grant, R. M. (1996). Toward a Knowledge-Based Theory of the Firm. *Strategic Management Journal*, 17, p. 109-122.
- Hedberg, B. & Wolff, R. (2001). *Organizing, Learning, and Strategizing: From Construction to Discovery*. In: NONAKA, I. *Handbook of Organizational Learning & Knowledge*. Oxford University Press, p. 535-556.
- Hirata, H. (1996). *Skills and social division of labor in the context of new productive paradigms* (Competências e divisão social do trabalho no contexto de novos paradigmas produtivos). In: Proceedings of the International Seminar "Professional Education, Labor and Competence" (Anais do Seminário Internacional "Educação Profissional, Trabalho e Competência". Rio de Janeiro: CIET/SENAI/CNI, novembro/1996.)
- Knowles, M. S. (1970). *The Modern Practice of Adult Education: Andragogy Versus Pedagogy*. New York: Association Press, p.21-55.
- Kolb, D. A. (1984). *Experiential Learning*. New Jersey: Prentice Hall, p. 1-60
- Neri, M.; Camargo, J. M.; Reis, M. C.(1999). *Employment and Productivity in Brazil in the 90s*. Emprego e produtividade no Brasil na década de 90. Rio de Janeiro: PUC, out.. (Text for discussion -Texto para discussão, n. 405).

- Kolb, D. A (1997). *The management and the learning process*. In K. Starkey. How organizations learn: stories of the successes of large companies. (A gestão e o processo de aprendizagem. In K. Starkey. Como as organizações aprendem: relatos dos sucessos das grandes empresas). São Paulo: Futura.
- Lave, J. & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Marton, F. (1986). Phenomenography - A research approach investigating different understandings of reality. *Journal of Thought*, 21(2), 28-49.
- MEC (2009). *Ministry of education and culture*. Ministério da Educação e Cultura.
- Nonaka, I., Toyama, R. & Byosière, (2001). *A Theory of Organizational Knowledge Creation: Understanding the Dynamic Process of Creating Knowledge*. In: NONAKA, I. Handbook of Organizational Learning & Knowledge. Oxford University Press, p. 491-517.
- Penrose E. T. (1959). *The Theory of the Growth of the Firm*. Oxford University Press: New York.
- Pereira, et al. (2009). *Technical Vocational Education: Vocational Training and Citizenship*. (Ensino Técnico Profissionalizante: Formação Profissional e Cidadania). Anais ...EnEPQ, Curitiba, Novembro.
- Pochmann, M. (2001). Employment in globalization.(O emprego na globalização). 1. ed. São Paulo: Boitempo Editorial.
- Prahalad, C. K. & Hamel, G. (1990). *The Core Competence of the Corporation*. Harvard Business Review, v. 68, n. 3, p. 79-91.
- Rubin, H. J., Rubin I. S. (1995). *Qualitative Interviewing; the art of hearing data*. California: Sage Publications.
- Rifkin, J. (1995). *The End of Work: The Decline of the Global Labor Force and the Dawn of the Post-Market Era*. Putnam Publishing Group.
- Shiroma, E. O., Campos, R. F. (1997). Qualification and productive restructuring: an assessment of research in education [in Brazil]. (*Qualificação e reestruturação produtiva: um balanço das pesquisas em educação*). *Educação e Sociedade*. [online]. 18(61), pp. 13-35. ISSN 0101-7330
- Spender, J. C. & Grant, R. M. (1996). Knowledge and the Firm: Overview. *Strategic Management Journal*, 17, p. 5-9.
- Starbuck, W.H., Barnett, M.L. & Baumard, P. (2008). Payoffs and Pitfalls of Strategic Learning. *Journal of Economic Behavior & Organization*, 66, p. 7-21.
- Starbuck, W.H. & Hedberg, B. (2001). *How Organizations Learn from Success and Failure*. In: NONAKA, I. Handbook of Organizational Learning & Knowledge. Oxford University Press, p. 327-349.
- Spender, J.C. (1994). Organizational Knowledge, Collective Practice and Penrose Rents. *International Business Review*, 3, p. 353-367.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), 509-533.
- Wernerfelt, B. (1984). A Resource Based View of the Firm. *Strategic Management Journal*, 5(3), p. 171-180.
- Tsoukas, H. (1996). The Form as a Distributed Knowledge System: A Constructionist Approach. *Strategic Management Journal*, 17, p. 11-25.
- Tsoukas, H. & Vladimirou, E. (2001). What is Organizational Knowledge? *Journal of Management Studies*, 38(7), p. 973-993.
- Weick, K.E. (1995). *Sensemaking in Organizations*. Thousand Oaks: Sage.
- Wenger, E. (2000). Communities of Practice and Social Learning Systems. *Organizations*, 7(2), p. 225-246.
- Yanow, D (2000). Seeing Cultural Learning: A 'Cultural' View. *Organization*, 7(2), p. 247-258.
- Zulauf, M. (2006). Higher education and skills development for employability: exploring [brazilian] students' views (Ensino superior e desenvolvimento de habilidades para a empregabilidade: explorando a visão dos estudantes. *Sociologias* [online], 16, pp. 126-155. ISSN 1517-4522.

APPENDIX

INTERVIEWS SCRIPT:

I - Professional Technical Education

Questions:

1. Why did you choose to be a technician?
2. What it means to be a competent technician?
3. What discriminates a technician from other professions?
4. What is the labor market perception on the technician's job?
5. Which areas require technical professionals?
6. What are the expectations regarding the professional training?
7. What it means excellence in technical education?

Final Question:

1. Would you like to add something? Any point deserves special attention?

II – Labor market Professional

Questions:

1. The company hires students from technical school?
2. Which areas require more technical professionals?
3. Is there some exchange with schools?
4. After admission, there are processes of training or integration of people selected?
5. What is the company's expectation about the technical work?
6. The company provides training to students of technical schools?
7. In your view, what would be the ideal grade of training of technical level?

Final Question:

1. Would you like to add something? Any point deserves special attention?