THE PERCEPTION OF COMPETENCE APPROPRIATION IN INTERMEDIATE PROFESSIONAL EDUCATION

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Abstract: This study aims to identify the perception of competences in students from three different Brazilian technical high schools at the beginning and at the end of their Administration course, prior to the internship. Presented the context, the theoretical background is brought under three pillars: the current law, the interpretation of what pedagogy understands as competences for learning in professional education (Freire, 1998; Zabala, 2002; Demo, 2000), and the vision of sociology and administration on education to work (Zarifian, 2001; Le Boterf, 2003), in a changing environment. Evidences were collected through a questionnaire validated for under graduation course (Bitencourt & Klein, 2007), adapted to the technical level. We conducted a survey with 10 questions to assess socio-economic status and 21 for the interpretation of how they understand competences those will be asked professionally. There were 122 respondents, enabling factorial analysis and correlations. We noticed that the pursuit for the course is caused by attempting to enter or be reallocated in the labor market. Assumptions of what competences are exist previously, incipiently. During the course, they appropriate themselves of learning and organizing concepts, helping to clarify how to increase knowledge and skills, based on citizens’ attitudes, coupled with the efficiency and effectiveness.

Keywords: Competences; Technical education; Knowledge; Skills.

1. Introduction

From its origins, education and work has gone hand in hand, more precisely with the first as a trainer of employees that would meet the demands that proposed the labor market. Even before the Industrial Revolution, to educate came to mean, ultimately, to prepare workers, sometimes more propaedeutics, valuing the humanities, and in other times more directed to the technical aspects, promoting technical skills. This rationalist logic prevailed, largely unchanged for centuries until the last decades of the twentieth century. However, the economic dynamics, arising from the phenomenon of globalization, put more ingredients to this relationship: the speed with which the school is able to produce professionals
in line with the need to put into practice the learning in real work situations and the need to develop competences related to knowledge.

In the late twentieth century, teaching systematic tasks in technical schools parallel to basic education was not contemplating the demands of new production systems that prevailed at that time. The professional profile became more elaborated, with needs to answer, that escaped the earlier standard. In Brazil, starting with the promulgation of Law 9394/96 (1996), the Law of Directives and Bases of National Education [Lei das Diretrizes e Bases da Educação Nacional - LDB], there was a pursuit to reorganize the education, restructuring it based on the Federal Constitution of 1988, and also to meet international guidelines that aimed at a global economic reordering after the severe economic crises in the 90s. This article does not intend to analyze all these changes, but the significant ones in the Intermediate Professional Education, included in Section IV-A of the LDB, and also to assess how the necessary competences for this new context are perceived among students. Schools can freely organize their curriculum, while respecting the minimum number of hours: 1000 hours in classrooms and 500 in an internship program. The three evaluated schools divide the attendance period in four modules during one semester each.

Still talking about the legal aspects, it seeks to compare the perceptions of future workers to the Opinion CNE/CEB No. 16/99 (1999), of the National Council of Education (Conselho Nacional de Educação - CNE), which outlines the profile of egresses from this educational level, more precisely the Management and Business Technological Axis, referred to in Opinion CNE/CEB No. 11/2008 (2008), and in particular in Administration Courses taught in three private technical schools, in Rio Grande do Sul State, Brazil.

This study is inspired on two previous works, developed on the perception of competences at undergraduate level (Godoy et al., 2005 cited in Bitencourt and Klein, 2007), but with adaptations that would allow the validation of the proposal in the Intermediate Professional Education, according to the propositions of the LDB and of Opinions CNE/CEB No. 16/99 (1999) and 11/2008 (2008), in schools where the researches were conducted. Assuming that the school is largely responsible for training professionals that meet the needs of the market, this article aims to compare studies related to professional competences in the areas of administration and education, during the formation of subjects that will be taking intermediate positions in organizations. These, in their turn, will require cognitive skills that enable them to deal with uncertainties and complex situations. In this sense, it was formulated the following research question: How do students perceive the appropriation of competences in three schools of Professional Education, in their first and last modules of the Intermediate Level Technical Course of Administration?

To be able to assess whether or not there is the appropriation of these competences, it was elaborated a survey among students in their first and last module in three different schools in an attempt to see if there are changes of perception of appropriation of competences between the phases when one enters
and the egresses of the course. The results are confronted with the proposition of the government and with competences which will be asked from them in the professional life, according to studies in the field of organizational learning (Zarifian, 2001; Le Boterf, 2003) as well as those proposed in the field of pedagogy (Freire, 1998; Demo, 2000; Perrenoud, 2001; Zabala, 2002).

Firstly, the theoretical basis composed of the relationship between these two symbiotic fields of learning serves as foundation for the analysis of the survey, whose methodology is outlined in the following section. In the third section are presented the survey data, giving rise finally to the presentation of results and their interpretations.

2. Theoretical review

To be able to expound the result of the research that guides this article, we will analyze three distinct but not isolated focus: the legislation, the school and the labor market.

2.1 The law and the professional education

According to the LDB, intermediate professional education in Brazil can be developed in three distinct ways: after the high school, concomitantly, even in separate schools, or simultaneously, with an integrated curriculum, since they meet the load of time defined in this law. This variation of forms results in a wide range of ages and formation in the same classes. This article aims to analyze the results of a survey with students from three different professional education schools, not integrated with high school.

LDB delegates to the CNE the regulation of the curriculum procedures, as well as the identification of competences to be achieved. According to Gatti, Barreto and André (2011), Brazilian Rules approved during the 90’ decade are focused in competences, oriented to knowledge, skills and attitudes, instead of mere reproduction of teachings. Meanwhile, the CNE issued in 1999 the Opinion No. 16/99 (1999), proposing the guidelines that schools must follow for developing their Pedagogical Plans. In the view of Perrenoud (2001), only a constructivist approach could avoid the rational structuring of competences that would inhibit understanding of the subject as an organizer element of the world. Among the guidelines, is his understanding of the word competences: “Professional competence is the ability to articulate, mobilize and turn into action values, knowledge and skills necessary for the efficient and effective performance of activities required by the nature of work” (CNE/CEB No. 16/99, 1999, p. 24). Drafted in the neoliberal period in the late twentieth century, it is based on the perception of the link among knowledge, skills and attitudes prevalent at that time, assuming that an individual is competent when he/she manages the articulation, mobilization and application
of values, knowledge and skills that allow him to perform, with efficiency and efficacy, his/her work activities, moved by transversal and interdisciplinary knowledge, as pointed by Gatti et al. (2011).

Within the context of Brazilian post-dictatorship and neoliberal ‘90s, the CNE has delegated to the schools, the establishment of the regulation of competences to be achieved by egresses of technical courses, releasing only a few prerequisites to be followed: guidance on new forms of work organization, recommendation of knowledge originated from practice, methodologies that facilitate the ability to develop solutions to new problems, articulate ideas, make decisions, encourage initiative and creativity, with intellectual autonomy, in a context of respect for democracy. However, Demo (2000, p. 48) warns that solving problems will not be exactly the role of the professional of the future: he/she will have to “manage them with intelligence”; since not everyone has the solution and often one can trigger new problems that must be handled.

In the limited rationality model by Simon (1979), decisions are satisfactory but not great. They are a fiction, because they are limited or influenced by the limitations of human beings to have access to and cognitively process all options; by the inability to obtain all the information due to problems of cost and time and by the beliefs, conflicts and power games that occur within organizations.

Zabala (2002, p.43), in his turn, highlights that the “social function of education corresponds to the conception we have about the kind of person we want to have formed and, as a consequence, the model of society wanted”. If a curriculum was developed aiming only to productivity, but not formation, individuals would be prepared to “follow routines and obedient to work” (Zabala, 2002, p.47), unable to understand, judge, or intervene in the society they live in. Therefore, he suggests that the goal of school would be to get the everyday knowledge as effectively as can be possible in the selection of the learning content that may be involved in the process of improvement of everyday knowledge, so that individuals can analyze and respond to problems that arise in the most appropriate manner.

After a multitude of technical courses across the country, in 2008, the CNE issued Opinion No. 11/2008 (2008), grouping several courses in technological fields. This study was conducted on the axis of Management and Business, more precisely in the course of Administration. Schools that allowed the measurement of data from their students are in accordance with the stipulations of the Ministry of Education in the Pedagogical Plans approved and in line with what was determined after the law was promulgated.

2.2 Work in the prism of education

Perrenoud (2001), analyzing the same period, in which the LDB was passed, refuses to accommodate education and its training function in simplistic schemes that reproduce class-based practices, hidden in a “republican integration”.

According to him, even though the dominant status quo pervades even the teachers, it is essential to seek equity in education, running away from rationalistic ideologies that promote the savoir-faire as an element of social coercion based on enlightened domination.

In proposing the pedagogy domain, Perrenoud (2001) recommends the educational formation through the processes of interaction between activities and knowledge, promoting the desire to learn, which he considers adequate to job training, when done electively, as occurs in professional education. In the student’s role (Freire, 1998; Vasconcellos, 2002), he/she “learns to rebuild the knowledge with his/her own hand, sometimes individually, sometimes collectively” (Demo, 2000, p.26), all the essential elements that will be required in the changing scenario in which he/she will act. In this new environment, he/she must respond appropriately in the lapse of time that circumstances will allow him/her to act (Perrenoud, 2001).

According to Demo (2000), the worker of the future, in any position, will only achieve success if he/she can manage problems, make decisions, negotiate and think in an open and flexible way, besides dealing with innovative technologies and different cultures, always preserving his/her integrity and harmony as a social being. For these professionals to be well prepared, he said, they should always be able to learn, without being satisfied with cognitive reproductive storage but, instead, a constant reconstruction of competences.

In a broad way, Rios (2001, p.23) will meet the sights of Perrenoud and Demo defining competence as “know to do well what is necessary and desirable within the field of the profession,” articulating “technical and political dimensions, mediated by ethics.” In this sense, she raises the concept of competence to civic awareness by promoting creative action in the social context. This widening of perception, which will be essential in the worker of tomorrow, will require an interdisciplinary work that will spare him from the mass reduction and will reveal the ability to rebalance the perception of the whole (Reid, 2001). Holistically, Freire (1998) conducts his view about the relationship of this man with the world and its history in the shape of possibility and not of determination. In the concept of Santomé (1998), another advantage of interdisciplinary as a meaning of learning is the future possibility of relocation of professionals in situations that require the exchange of jobs, either by their own motivation or by technological changes that endanger their profession.

2.3 Education in the perspective of labor

In recent centuries, the school prepared the way of educating man focusing on the logical-formal aspects, using memorization, keeping the linear ritual, based on the misperception of “transmission of knowledge” (Araújo, 2007). According to the author, this assumption has been the basis for the formulation of curriculum practices of teaching and learning, considering only reason
and experimentation, omitting characteristic processes of humanity, such as emotion, its subjectivities, as well as operating through a selection of significant data and rejection of insignificant data. It separates (distinguishes or disjoints), links (associates, identifies), ranks (the primary, the secondary) and centers (based on a core of key concepts). These operations, which use the logic, are actually controlled by “supralogic” principles of organization about thought or paradigms, hidden assumptions that govern the vision of things and of the world without being aware of it (Morin, 2007).

Morin (2007) understands the school as the source of access to knowledge, adding to the individual the ability to understand life, allowing him/her to cognize himself/herself and his/her place in society. Simultaneously, it highlights the role of education as a tool for the individual to be prepared to deal with the usual and unexpected facts, not necessarily defining it as knowledge. He prefers, therefore, to characterize the role of education as the way to teach the spirit to live, living with and surviving to the difficulties imposed on him.

According to Morin (2007), the complex environment does not perceive the individual or object, nor the context in which they live, as separate events. It’s integration that determines the events of life. Thus, knowledge is glimpsed from the dialogues and interactions provided by these interactions and the school should also worry about that. It is directly upon the student the responsibility to realize that such learning makes sense, whatever may be its origin, teachers, books or socialization with colleagues. Morin (2004, cited in Araújo, 2007) realizes that, only in this way, one can share this essence with one’s peers, from a “dialectical relationship between knowledge and action that takes place for the participation of other human dimensions, among them the sensory, intuitive, emotional and rational and, as we know, these dimensions are not dichotomized or ranked, but complementary” (Moraes, 2004a, p. 204, quoted in Araújo, 2007).

If in Morin (2007) the focus of work was a better integration between teacher and student, in order to build up the knowledge, in Zabala (2002) it was more important the dispersion of knowledge by the teaching in multiple disciplines and its consequent “disconnection from each other” (ibid, p.24). The author presents the need for reunification of the content, seeking the establishment of the maximum relationships possible in order to enhance its explanatory capacity, because, to him, the disciplines are mere instruments to provide answers “to complex problems that the intervention of society puts” (ibid, p.36).

Even before the propositions of Morin or Zabala, Freire (1998, p. 52) interpreted that “the ability to teach is not transferring knowledge but creating opportunities for its own production.” For the author, the good teacher is the one who can “bring the student into the intimacy of the movement of his/her thought” (ibid, p.96) and is able to demonstrate to students that change is possible through critical thinking. Meirieu (1998, p.92) notes that “the teacher’s role is to make the desire to learn to be born”, more precisely “to make a puzzle of knowledge” in order to instill in student the desire to discover it by himself, which confirms the thoughts of Freire:
No true teacher training can be estranged from one side of the exercise of criticism that implies the promotion of naive curiosity to epistemological curiosity, and, on the other, without recognition of the value of emotions, sensitivity, affection, intuition or guessing. (Freire, 1998, p.51)

One can not deny, however, that the individual, when seeking knowledge and being an element able to contribute with his/her critical capacity to the formation and renewal of society, is, also, a builder of this society. For that he/she must seek, in some source, a field of competences that enables him to enter the labor market, which, in this particular case study, are the technical schools that form the administrative workforce, based on what is determined by the law of their technological axis. However, the concept of competences is linked, in his view, to the needs of the labor market.

In the light of Zarifian (2001) and Le Boterf (2003), the notion of competences has been addressed in the literature with different approaches considering people, organizations and even countries. When referring to people, the focus is on individual competences. If the focus is the organization, the discussion would be about core competences, and when it pertains to the countries, the discussion permeates the educational system and shaping competences. Core competences are a set of skills, technologies and capabilities in the firm that maintain its success. These competences, in their turn, are related to individual competence to the extent that its acquisition and improvement are directly linked to the allocation of talent in the company (Prahalad and Hamel, 1995).

According to Zarifian (2001), the sense of the word competence arose from the need to restructure the steel industry in France (1960/65), because, at that point, the new jobs that were created required levels of qualification that the steelworkers did not have. It gained momentum in the 80s due to the increasing complexity of working methods and with a large number of contingencies which the worker should be able to cope. (Zarifian, 2001).

Le Boterf (2003, p.37) explains that, due to increased complexity in work situations, it is expected of the professional “[...] that he/she would be able to manage such complexity.” This means knowing how to manage breakdowns, contingencies and processes. Thus, as is no longer possible for the worker to know in advance what needs to be done and how he/she must create, rebuild and innovate, as the author mentions: “We ask the professional to be able to navigate the complexity.” (Ibid, p.38). Le Boterf (2003) adds that, to have competence, is required the presence of a repertoire of resources (knowledge, cognitive skills, relational skills). The definition of competence may vary according to the organizations and work situations and, therefore, does not exist, then, only one relevant definition.

This can lead the educational segment, object of this study, to be based only on ministerial regulations, which may not facilitate the creation of individual competences, really necessary for the labor market. “The competence is ‘taking initiative’ and ‘taking responsibility’ of the individual in professional situations which he/she is faced to” (Zarifian, 2001, p.68).
As a result, Dutra (2001) points out that, if by one side there are the individuals and their competence set (used or not by the organization), on the other there is the organization itself with a set of its own competences whose its origin is in its formation and development process. Thus, “the establishment of individual competences must be linked to the reflection on the organizational competences, since there is a mutual influence between them.” (Dutra, 2001, p. 27).

This concern with putting into action the competences is also signaled by Le Boterf:

Competence is not a state or knowledge you possess. It can not be reduced even to know-how. It can not be assimilated with the acquisition of information. To have the knowledge and skills does not mean having competence. One can learn the techniques and rules of management that are compatible and do not know how to apply them in a timely manner. [...] The competence is not only of the order of simple application, it is important to stress, but is consisted of the construction. The building of an action is not limited to the application of theories of learning or of cognitive psychology. The passing from knowledge to action is a reconstruction, a process. (Le Boterf, 2003, p.12)

3. Methodology

This article aimed to identify how students perceive the appropriation of competences in three different schools of Professional Education, in the first and last modules of the Administration Course in Intermediate Professional Education. Considering this issue and relying on a theoretical framework, we chose to perform a quantitative research, of exploratory nature. To this end, the method adopted was the application of a structured instrument, validated by previous researches (Bitencourt and Klein, 2007), with adaptations that allowed the validation of the proposal on Intermediate Professional Education level, according to the propositions of the LDB and Opinion CNE/CEB No. 16/99 (1999) in schools where the researches were conducted. After adjustments, we performed a testing-application of the questionnaire to validate the understanding of the questions by the students.

The questionnaire comprised 31 questions, shifted into two parts. The first part had 10 questions relating to demographic factors and the second one, a survey composed of 21 questions relating to the appropriation of competences. The survey was formulated in a direct and closed form, with its responses distributed between strongly disagree and strongly agree, organized in a Likert scale of seven levels. The questionnaire took place in person at the three different schools of professional education, in the first and last modules in high school technical courses of management, in the cities of Dois Irmãos, Novo Hamburgo and Santa Cruz do Sul, in the southern region of Brazil. The schools were chosen by the criterion of convenience, respecting access and information about the
course, access to the application of research and socio-economic profiles of the cities. Data collection was performed in June 2010.

The investigated population was a group of 62 students from first and 60 from fourth module, reaching 122 respondents, which was considered satisfactory for the research objectives. The data analysis used the SPSS statistical software, version 17, by which were performed different analysis.

4. Presentation of results

4.1 Characterization of the sample

The collected sample comprised 122 respondents, 48 of which related to school A, 46 to school B and 28 to school C. From these, 62 students are in the first and 60 in the last module. Among the respondents, there was a greater concentration of females (72.1%), as well as an age group ranging from 15 to 45 years, showing a higher concentration between 17 and 23 years (59.7%) and average about 22 years in the population consulted. There is also a relative incidence of scholarships (42.8%).

The main reasons for respondents to choose the course are focused on job search (51.8%) and improving the role they play (22.7%). When comparing the reasons for choosing the course with the factor income, we found that lower income students chose the course motivated by the search for employment, while the higher income student, due to improvements in the current function he/she performs. Besides these two reasons, the recommendation, both from the family and friends totaled 11.8% of the motivating factors in choosing the course, considering that it happens mainly in the younger age groups.

4.2 Results of correlation analysis

The analysis presented below includes the results obtained by bivariate correlation. In this step, we sought to investigate the correlation between two variables and the influence of one in the occurrence of the other (Hair, Anderson, Tatham & Black, 2005).

Among the results found with more emphasis and which, nevertheless showed moderate correlations, there were the competences perceived by respondents related to the knowledge acquired through experience, also known as tacit knowledge. The moderate correlations can be seen in Table 1.
Table 1: Moderate Correlations

<table>
<thead>
<tr>
<th>Participate in activities of planning, evaluation and managing of people and processes</th>
<th>Identify problems and propose solutions</th>
<th>Collaboration on projects</th>
<th>Logical and analytical reasoning linking cause and consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform tasks in the pursuit of quality, productivity and competitiveness</td>
<td>0.663</td>
<td>-</td>
<td>0.621</td>
</tr>
<tr>
<td>Think strategically</td>
<td>-</td>
<td>0.631</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Prepared by authors

Figures in Table 1 suggests that the perception of the appropriation of competences by students happens moderately between the variable *perform tasks in the pursuit of quality, productivity and competitiveness* when correlated to *participate in activities of planning, evaluation and managing of people and processes* (0.663), *collaboration on projects* (0.621), and *logical and analytical reasoning linking cause and consequence* (0.621). Likewise, it was observed that the variables *think strategically* is correlated moderately with the variable *identify problems and propose solutions* (0.631). These correlations suggest a perception of competences aimed at solving problems through logical and analytical reasoning, as well as technical-professionals. Therefore, the highlighted competences characterize a practical and results-oriented focus, characteristic of the technical courses.

Besides the most relevant correlations, we attempted to also identify the variables that were not correlated, or rather, the ones in which the relation of appropriation perceived by students from the three schools proved to be irrelevant when compared to others. Among our results, are highlighted the variables in Table 2:

Table 2: Low Correlations

<table>
<thead>
<tr>
<th>Transfer life knowledge and everyday experience to work situations</th>
<th>Think logically and analytically, using background</th>
<th>Written and verbal communication</th>
<th>Respect for Others</th>
<th>Take into account the ethical values of my professional activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0,120</td>
<td>0,143</td>
<td>0,185</td>
<td>-</td>
</tr>
<tr>
<td>Elaborate and propose changes in work processes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0,189</td>
</tr>
</tbody>
</table>

Source: Prepared by authors

We observed, the perception of the appropriation of competences by students happens quite irrelevantly in the subjects related to transfer of tacit
knowledge to explicit. This can be seen through the low correlation between the variable *Transfer life knowledge and everyday experience to work situations* when correlated with the variable *Think logically and analytically, using background* (0.12), or with the variable *Written and verbal communication* (0.1431) or with *Respect for others*. Likewise, there was a low relation between the variables *Elaborate and propose changes in work processes* and *Take into account the ethical values of my professional activity* (0.189). This demonstrates that there is a low capacity to acquire competences by the students that require transferring knowledge through constant changes and developments.

4.3 Results of analysis of test t

The *t* test looks for checking whether there are differences between the variables. Considering the existence of the first and last modules of the high school management course, we sought to investigate whether there are perceived differences in the appropriation of competences by students in these periods. For this, we used the *t* test in order to compare the modules. The comparison between the first and last module showed differences related to the student’s perception of how they appropriate competences. It may be perceived in issues related to:
- Elaborate and propose changes in work processes;
- Keep productive in spite of obstacles and pressures inherent in work situations;
- Transfer life knowledge and everyday experience to work situations;
- Collaborate in the implementation of projects; and
- Have an own mind about the world and business.

4.4 Factorial analysis

Factorial analysis aims to reduce or simplify the data collected in the survey. In this study, factorial analysis was used in order to verify the number of relevant factors generated by the first and last module. For this purpose, we used the variables with communalities greater than 0.50, as guides Hair et al. (2005), since variables with scores below 0.50 do not have sufficient explanatory power. Thus, we applied the test of factorial analysis, initially, in the first module. The value of KMO (0.763) validates the test, being statistically significant. Through testing it was possible to identify six factors and perform the analysis and interpretation of all the variables of each factor in order to name them according to their characteristics, as shown in Table 3.

As presented in Table 3, it is possible to analyze the percentage of variance in the factors among themselves and to identify that *Factor 1 - Logical and analytical competence in action* represents 37.1% of the factors. The other factors have very similar representations: 8.47% for *Factor 2 - Interpersonal competence,*
7.46% for Factor 3 - Ethic and social competence, 6.63% for Factor 4 - Technical competence (explicit), 5.72% for Factor 5 - Professional competence (tacit) and 5.30% for Factor 6 - Self-criticism competence. The six identified factors explain 70.71% of the variance. We can observe that, in the first module variables research and seek knowledge and identify problems and propose solutions did not get a score with sufficient explanatory power. However, these variables were not discarded in order to verify its aggregation along the evolution of the course and compare them with the results of the fourth module.

Table 3: Factorial Analysis - First Module

<table>
<thead>
<tr>
<th>Rotated Component Matrix</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 - Logical and analytical competence in action</td>
<td>1</td>
</tr>
<tr>
<td>Perform tasks in the pursuit of quality, productivity and competitiveness</td>
<td></td>
</tr>
<tr>
<td>Logical and analytical reasoning linking cause and consequence</td>
<td></td>
</tr>
<tr>
<td>Collaboration on projects</td>
<td></td>
</tr>
<tr>
<td>Logical and analytical reasoning with mathematical background</td>
<td></td>
</tr>
<tr>
<td>Participation in actions of planning, evaluation and managing of people and processes</td>
<td></td>
</tr>
<tr>
<td>Factor 2 - Interpersonal competence</td>
<td></td>
</tr>
<tr>
<td>Written and verbal communication</td>
<td></td>
</tr>
<tr>
<td>Think strategically</td>
<td></td>
</tr>
<tr>
<td>Continuous Improvement</td>
<td></td>
</tr>
<tr>
<td>Respect for Others</td>
<td></td>
</tr>
<tr>
<td>Research and seek knowledge</td>
<td></td>
</tr>
<tr>
<td>Identify problems and propose solutions</td>
<td></td>
</tr>
<tr>
<td>Factor 3 - Ethic and social competence</td>
<td></td>
</tr>
<tr>
<td>Ethical Values</td>
<td></td>
</tr>
<tr>
<td>Social responsibility</td>
<td></td>
</tr>
<tr>
<td>Stay productive in the face of obstacles and pressure</td>
<td></td>
</tr>
<tr>
<td>Factor 4 - Technical competence (explicit)</td>
<td></td>
</tr>
<tr>
<td>Propose changes in processes</td>
<td></td>
</tr>
<tr>
<td>Open channel of communication</td>
<td></td>
</tr>
<tr>
<td>Transfer knowledge</td>
<td></td>
</tr>
<tr>
<td>Factor 5 - Professional competence (tacit)</td>
<td></td>
</tr>
<tr>
<td>Own opinion about the world</td>
<td></td>
</tr>
<tr>
<td>Act interdisciplinarily</td>
<td></td>
</tr>
<tr>
<td>Transfer life knowledge and everyday experience</td>
<td></td>
</tr>
<tr>
<td>Factor 6 - Self-criticism competence</td>
<td></td>
</tr>
<tr>
<td>Have self-criticism</td>
<td></td>
</tr>
<tr>
<td>% of the factor variance</td>
<td>37.10</td>
</tr>
</tbody>
</table>

Source: Prepared by authors

The second factorial analysis involved the last module. In this analysis the value of KMO was 0.824, validating the test, and the same was statistically significant. Through testing it was possible to identify four factors and perform
the analysis and interpretation of all the variables of each factor in order to name them according to their characteristics, as shown in Table 4.

As shown in Table 4, it is possible to analyze the percentage of variance of the factors among themselves and to identify that Factor 1 - Interpersonal competence represents 50.68% of the factors, accounting for over half the explanation of the variance of competences in the last module of the course. The other factors have smaller and similar representations: 8.11% for Factor 2 - Logical and analytical competence in action, 6.7% for Factor 3 - Technical competence (explicit) and 5.3% for Factor 4 - Ethic and Professional Competence (tacit). The total variance explained shows that the four identified factors explain 70.80% of the variance.

Table 4: Factorial Analysis - Final Module

<table>
<thead>
<tr>
<th>Rotated Component Matrix a,b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
</tr>
<tr>
<td>Factor 1 - Interpersonal Competence</td>
</tr>
<tr>
<td>Act interdisciplinarily</td>
</tr>
<tr>
<td>Open channel of communication</td>
</tr>
<tr>
<td>Respect for Others</td>
</tr>
<tr>
<td>Stay productive in the face of obstacles and pressure</td>
</tr>
<tr>
<td>Continuous Improvement</td>
</tr>
<tr>
<td>Factor 2 - Logical and analytical competence in action</td>
</tr>
<tr>
<td>Participation in actions of planning, evaluation and managing of people and processes</td>
</tr>
<tr>
<td>Logical and analytical reasoning linking cause and consequence</td>
</tr>
<tr>
<td>Logical and analytical reasoning with mathematical background</td>
</tr>
<tr>
<td>Written and verbal communication</td>
</tr>
<tr>
<td>Propose changes in processes</td>
</tr>
<tr>
<td>Perform tasks in the pursuit of quality, productivity and competitiveness</td>
</tr>
<tr>
<td>Factor 3 - Technical competence (explicit)</td>
</tr>
<tr>
<td>Identify problems and propose solutions</td>
</tr>
<tr>
<td>Have self-criticism</td>
</tr>
<tr>
<td>Think strategically</td>
</tr>
<tr>
<td>Own opinion about the world</td>
</tr>
<tr>
<td>Transfer knowledge</td>
</tr>
<tr>
<td>Factor 4 - Ethic and Professional competence (tacit)</td>
</tr>
<tr>
<td>Transfer life knowledge and everyday experience</td>
</tr>
<tr>
<td>Ethical Values</td>
</tr>
<tr>
<td>Research and seek knowledge</td>
</tr>
<tr>
<td>Collaboration on projects</td>
</tr>
<tr>
<td>Social responsibility</td>
</tr>
</tbody>
</table>

Source: Prepared by authors
Moreover, one can also observe that the variables *research and seek knowledge* and *identify problems and propose solutions* which, in the first module did not get a score with sufficient explanatory power, began to have it on the last module. This observation can be explained by the aggregation of competences that the course provided to students throughout their development. Likewise, we observed that the number of factors turned from six, in the first module, into four, in the last module, with groups of variables more clear, defined and consolidated in terms of competences. This leads to assume that the students could absorb and develop competences throughout the course.

Other significant changes occurred:
- Act Interdisciplinary used to be recognized as a tacit professional competence – At the end, it moved with intensity to an interpersonal competence factor;
- Firstly, self-criticism was considered important, nevertheless isolated, i.e., without a understanding why – At the fourth level, it was aligned to an explicit technical competence;
- Collaboration in project skills was related to a logical and analytical competence in action – At the end it moved to an ethical and professional competence factor;
- Stay productive in the face of obstacles and pressure becomes an interpersonal factor of competence – In the beginning it was related as an ethical and social competence;
- Proposing changes in processes used to be related as a technical competence – At the final, it moved to a logical and analytical competence in action.

More changes occurred on intensity and factory arrangements and deserve reflection about how competences are reconfigured at students’ perception, what is pursued in the next section.

5. Final considerations

By proposing this study, the authors sought to identify the perception of appropriation of competence on Intermediate Professional Education, based on the responses of students from three different schools in Rio Grande do Sul State, Brazil. We pursued to assess whether the objectives of Law of Directives and Bases of National Education were being reached as well as being related to the concept of competence in two different points of view: education and administration.

We noted that the appropriation of competences acts more as an organizer of yearnings of individuals who are seeking a job placement or reallocation in different areas from those where they were acting. The fact of seeking schools as a means of entering in the labor market already demonstrates a search for
values that are intrinsic in the former perception of the type of professional that they should be and technical courses are the alternative for this to come true. However, the largest gain occurs in the reorganization of their perceptions, what can be better assessed by comparing the factorial analysis of the two groups. It is relevant the inclusion of two items among those competences which they judge to be fundamental to them: research and seek knowledge and identify problems and propose solutions. The first is according to what Boterf Le (2003, p. 38) considers as one of the competences of the professional in complexity: “learn to learn” previewed on Opinion No. 16/99 (1999) as “intellectual autonomy”. In parallel, the variable identify problems and propose solutions refers to Demo (2000, p.48), cited earlier, that warns is not sufficient to identify problems; it is necessary that solutions are proposed. At this point, Zabala (2002) proposes that, in addition to identifying problems, students should be able to choose the instruments of different fields of knowledge to intervene in reality.

The movement of competences could be answered as how students percept competences importance. Act interdisciplinary, for example, used to be considered important professionally, but it was not clear why. At the end, their perception aligns these competences as something interpersonal. It could be understood as the complementary capabilities helping to make a competence of the group, as referred by Dutra (2001). In addition, according to Santomé (1998), interdisciplinary capabilities can help workers to reinsert in different labors when same change threat their profession. Similar change happens to self-criticism. It was considered important, but it was isolated. At the end of the course, students understand it as a technical capability. It can have different meanings. One possibility is that they are reflecting about their actions in order to improve processes, as recommend by Perrenoud (2001). Firstly, collaboration was considered a logical and analytical competence. During the course it moved to an ethical and professional competence factor. The ethical dimension was referred by Rios (2001) as a competence to be acquired in order to have more satisfied professional people living as on work space as in the society. Also it could be inferred as collaboration concept improvement. It was not anything logical, or something related to results. At the end it turns something deeper, necessary, an ethical action. To work under pressure that used to be considered an interpersonal competence factor passed to be seen as an ethical and social attitude. Again, we pointed out the importance of the group responsibility. Proposing changes in process, at first, was considered something that could be done if they had technical competence. At the end, it looks like that it is felt like some logical and analytical action, what could means they are thinking their actions less operational and more related to logic and analytic reasoning, aligned to Zabala (2002) perception about the professional competences when adaptation is necessary. This study was based on Technical Courses of Administration, but could be validated in different courses and another educational levels, as was applied by Godoy (2005, quoted in Bitencourt & Klein, 2007) and Bitencourt
and Klein (2007) in undergraduate level. So, it opens up paths of research that
can assess, in one extended dimension, students before entering in the school
and after their employment and graduation. It would be valid, too, to compare
different perceptions of the profile of competences that the school, government,
individuals and organizations would like to receive, similar to studies of
Woodward (1977), also to validate what originated creation of this term in
France, to better build competences that the professional will have to achieve to
enter into the labor market and become a useful individual to society in which
he/she is inserted. However, it is questionable whether the competences built
over the course, at the risk of obsolescence in a relatively short space of time due
to intense changes, can be validated by the professional in the medium term,
which would require further researches.

Finally, we perceived that the pursuit of technical courses is due to attempt
to enter or be reallocated in the labor market and that these students already
have assumptions about what are the competences which will be required from
them, albeit incipiently. During the course, they seem to take ownership of some
learning that order their concepts and form a clearer picture of how to apply
the new knowledge and skills, based on citizens’ attitudes, coupled with the
efficiency and effectiveness that will be asked from them in the profession of
technical staff in administration.

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