

# Desire, need and reality: Education and professionalization of elite groups in Brazil

## Desejo, necessidade e realidade: educação e profissionalização de um grupo de elite no Brasil

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### Abstract

*The objective of this paper is to report a study carried out at three Brazilian universities addressing only production engineering undergraduate courses. We sought to locate agents that had the same professional education to identify their different social positions, struggles, and disputes. The reason is based on the hypothesis that the students enrolled in the same university course, such as a prestigious engineering university course, are marked by different trajectories that may depend on symbolic capitals (cultural and economic) and the social origin and life trajectory of these students and of future graduates.*

**Keywords:** economic sociology, Pierre Bourdieu's sociology, social reproduction, occupation and education.

### Resumo

*Este artigo tem como objetivo relatar o estudo de três instituições universitárias de ensino no Brasil levando em conta a análise de somente um curso universitário, o curso de engenharia de produção. Sendo assim, buscamos localizar agentes que possuem a mesma escolha profissional formativa para localizar suas diferentes posições, lutas e disputas no espaço social, uma vez que especula-se que os entrantes de um mesmo curso universitário, como um prestigioso curso de engenharia, é marcado por trajetórias distintas que podem depender dos capitais simbólicos (cultural e econômico) e da pela origem social determinada na trajetória desses estudantes e futuros egressos.*

**Palavras-chave:** sociologia econômica, sociologia de Pierre Bourdieu, reprodução social, ocupação e educação.

### Introduction

The purpose of this article is to search through the theoretical inspiration of Pierre Bourdieu, to test his central hypothesis described in the author's works regarding the dynamics between the diploma obtained in a graduation and the position occupied after the end of the undergraduate studies. For this, we analyze the central propositions contained in the text "Le titre et le post: rapport entre système de production" originally published in the journal *Actes de la*

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*Recherche en Sciences Sociales* in Paris, 1975, seeking to verify its applicability to the Brazilian case.

Thus, initially, the degree of social fluidity within the different social classes of these agents, ranging from low-wage workers to elite, was shown. Such fluidity will be discussed later using the methodological tool prosopographical analysis, by carrying out a multiple correspondence analysis (MCA), a statistical technique widely used by Pierre Bourdieu in his studies to show how these agents locate their struggles in social spaces.

This analysis will be used to study the trajectories of incoming students and students who graduated from two prestigious Brazilian public higher education institutions, Universidade Politécnica de São Paulo (Polytechnic School of the University of São Paulo, USP) and Universidade Federal de São Carlos (Federal University of São Carlos, UFSCar), which is located in São Carlos, state of São Paulo, Brazil. Fragments of semi-structured interviews characterizing the profile and trajectories of students who graduated from a private university in the State of São Paulo<sup>3</sup> will also be used. Finally, we will discuss the correlation among these three universities to draw conclusions about the initial hypothesis that a same engineering course can determine different trajectories depending on the capital acquired and social origin of the agents and especially on what we call extension of cultural capital, moment when it converts into new forms in the Brazilian society.

## Among elite, middle class, and strugglers: Determining the position of our social agents

There have always been difficulties in properly characterizing the elite and middle class social class statuses. Firstly, Carvalho (2003) shows that engineers were included as part of the national elite in the Imperial Brazil government, holding mainly ministerial positions. Coelho (1999) also argued that in the nineteenth century engineers were considered as an elite group due to the prestigious status of their profession, which contributed to set a pattern for the dominant relationships in the country. Later, in the 1960s, due to the a massive increase in the number of engineering schools, engineers started to face a more competitive environment, holding more technical positions as a result of fierce competition. On the other hand, in the 1970s, due to the crisis of Fordism, and in the 1980s, amid the economic recession in Brazil, there was a decline in engineering jobs accompanied by the emblematic case of the “the engineer who became juice”; which refers to the case of an engineer who, after facing bankruptcy, opened a sandwich bar under that name on Avenida Paulista in São Paulo, Brazil.<sup>4</sup>

What we mean by this rebound in the career of engineers in Brazil is that it is important to point out the existence of a fluid movement of the elites which were have been considered as upper or middle class. In other words, in different settings and at different times, the categorization of engineers as a professional group has also varied; they were regarded as being elite in Imperial Brazil and at other times, they were considered as middle class.

This fluidity, resulting from different economic and historical moments in Brazil, makes us see this group from a relational perspective, and it was precisely our intention to choose three different universities to be studied at the same period of time: our objective is to show that this “relationality” can also exist at the same time due to inter-institutional disputes and struggles, which often seem natural, i.e., they do not do not appear to be “struggles”.

Based on Bourdieu's (2008) multiple correspondence analysis, the location of each agent in social space and at the present time can be determined by the construction of a social space of agents. Bourdieu's explanations can be easily understood, by considering the existence of a three-dimensional space, which would be a practical representation of social space (2008).

The first two dimensions (axes) measure the individuals' volume of capital and the structure of capital. The volume of global capital (economic, cultural, social, etc.) is on vertical axis. Considering a vertical line of division, global capital is differentiated on the right and left. The third dimension (axis) represents the composition of global capital and structure over time (i.e., life course trajectory within the social space).

Therefore, the location of the dominant class (as well as its most dominant fractions) can be determined according to the volume of global capital possessed by these agents. Senior civil servants, stakeholders, and college professors have a very high degree of cultural capital. On the other hand, small business owners, for example, have average economic capital and little cultural capital. With regard to the third dimension (temporal), small business owners are on a downward trajectory.

However, in terms of cultural capital, the intermediate occupations that have an upward temporal trajectory share an opposed class location. Thus, using Pierre Bourdieu's theory, the location of classes and class fractions within the social space can be determined, establishing boundaries between them indicating classificatory struggle. According to Bourdieu (2008), the awareness of those dominated of the representation of positions occupied in the social space is very important and necessary to seek political and social solutions to change this social class domination “game” in order to rectify this situation.

<sup>3</sup> We did not use multiple correspondence analysis in this case because the number of variables was significantly larger than the number of production engineering students in that private university.

<sup>4</sup> Granovetter (2005) emphasized the importance of considering global and local recessions, the great impact of these “economic disasters”, and their relationship with the vitality of social networks.

We made an effort to insert the social agents investigated in the present study into the context of this game of society or in a possible field of forces. Based on the position that the engineers occupied in the space at a given moment in time, it was possible to examine their status movement and to investigate how the changes due to the acquired capital and their different positions determine the degree of social fluidity and the distribution of these individuals across class locations; some were upper class, others were middle class, and some were working class within the production engineering social space in Brazil.

## Reflecting on prosopographical analysis

According to Christophe Charle (2006), prosopographic analysis derives from the historiographic studies, and prosopography development is closely related to ancient and medieval history studies. It has been intensely developed, particularly in the last 40 years. The prosopographical method consists of defining a population based on a biographical questionnaire that describes the social, private, public, and even ideological or political dynamics of a population.

The author argued that the first and the longest step of this analysis would be interviews and data collection using individual questionnaires. The next step includes data analysis using quantitative or qualitative techniques, statistical charts, factor analysis (depending on the data obtained by questionnaire), and documents. The analysis is then carried out according to collective generalizations because the focus is to analyze the biographies collectively<sup>5</sup>.

The prosopographies carried out include collective and individual monographs. One collective monograph deserves to be highlighted: the *Prosopographia Imperii romani* by Theodor Mommsen (1897-1898) analyzed by Eck (2003), followed by *The prosopography of the later Roman Empire* by Jones *et al.* (1971), and the *Prosopographie chrétienne Du Bas-Empire* published by Pietri *et al.* (1999).

Many monographs the *Prosopographia Imperii romani* by Theodor Mommsen analyzed by Eck (2003), contain prosopographies of elites, such as Kirchner and Lauffer's *Prosopographie attica* (1901-1906), among others, applied to medieval times focusing on administrative personnel and the entourage of the sovereigns of the principal Western European states. However, since 1960, there has been a large body of literature with studies on English, French, and Italian elites. French and Italian research has focused on public administration and the judiciary, as well as on ecclesiastical, intellectual, financial, and commercial elites.

From the 1950s onwards, North American studies on elites, such as the theses of Pareto and Mosca, influenced of this type of methodology. On the other hand, in France, the starting point was the debate on the French revolution, based on the prosopographic studies on elites before and after that period of time. This was the background of the studies by Bergeron and Chaussinand-Nogaret (1979 *in* Charle, 2006) on notables of the Napoleonic Era. Other works on prominent figures of the nineteenth century and the bourgeoisie were conducted after the 1960s, inspired by Ernest Labrousse. From the 1970s onwards, French sociology, influenced by Pierre Bourdieu, has conducted prosopographic studies on education<sup>6</sup>. In Britain, France, the United States, Italy, Spain, and Switzerland, many researchers have carried out studies on political, religious, economic, intellectual, artistic, and military elites (Kocka and Frevert, 1988; Tanner, 1990; Augustine, 1994; Banti, 1989; Malatesta, 1995 *in* Charle 2006).

It is important is to understand that all of these collective biographies, especially the studies on elites, are intended to answer important open-ended questions, i.e., and the answers are not constrained to a fixed set of possible responses. In this method, the groups have relational characteristics. Charle (2006) raised important issues about the methods to be considered, such as: firstly, one should be aware of the risk of losing the collective nature of the research due to the fact that the questionnaires address individual situations, and, secondly, one cannot assume that the questionnaires in a certain research represent the whole society. Therefore, data interpretation is very important and must be carried out considering the extent to which the data can be applied.

## Principles of research practices: Questionnaires and interviews

The sample<sup>7</sup> of UFSCar's production engineering students and graduates was divided as follows: (i) fourth- and fifth-year students (approximately 119 students) answered the questionnaires in the classroom. These students started college in 2008 and 2009; (ii) some graduates (alumni) who started college in 2002, who were already working, were found and also participated in is study; the questionnaires were sent to them via e-mail; (iii) the alumni who participated in the 35-year reunion were invited to take part in this study, and those who agreed to participate in this study also received, the questionnaires via e-mail; (iv) the last group consisted of former production engineering professors who worked in the department in the 2012 and 2013. Interviews were conducted with the fourth- and

<sup>5</sup> Collective biographies differ from ethnography and life history methods in terms of data analysis because although data are collected individually, the individuals' data are analyzed together.

<sup>6</sup> It is worth mentioning that part of these prosopographic studies above mentioned were searched in the French libraries.

<sup>7</sup> Non-probability sampling was used in the present study.

fifth-year students and the former professors, and we also tried to establish contact with students who graduated in the 1970s and 1980s. At last, attempts to establish contact were made through social networks such as Facebook and LinkedIn.

As for the students of the USP, interviews were conducted with fourth- and fifth-year students in 2013. In addition, ethnographic observations were made during visits to the production engineering building and the library of the Polytechnic School. Attempts to establish contact with graduates were made through social networks and resumé databases and via e-mail sent to graduates and faculty members who were also former students of this university. Valuable contacts were established through the *Associação de Engenheiros politécnicos* (Association of Polytechnic Engineering Students, AEP), which made our online questionnaire available for former students only in 2013. Other important contacts were made through the AEP; however, no interviews were conducted since no one expressed interest in participating answering the questionnaire.

With regard to the private university, we had the help from a production engineering professor of a university in a city in São Paulo state, who allowed us to hand the questionnaires to 17 industrial and production engineering majors who were attending her class during the last semester of their senior year. This group of students was chosen because it would be easy to conduct follow-up assessment with them regarding the job positions they were holding after graduating.

## Descriptive statistics and multiple correspondence analysis

The methods for analyzing the data in the present study include descriptive statistics and multiple correspondence analysis. According to Frédéric Lebaron (2006), descriptive statistics helps us summarize the questionnaire data and put them into perspective; thus, it is the starting point of systematic exploration, which, in turn, allows us to prove hypothesis and draw conclusions. Multiple correspondence analysis was also carried

out, which can be defined as an adapted method to study Bourdieu's (2008) concept of field. Therefore, the concept of field introduced by the author specifies a subspace within the social space in which a specific activity can be carried out, such as in the scientific, art, and fashion fields among others. Within a field, there are rules that coordinate the activities and determine the structure of its class relations, regarded as a field of forces. When they are related to social determinations that are external to the field, these rules are autonomous. Social agents can be hierarchized in the field according to the overall volume of capital (economic, social, cultural, and symbolic) they possess.

According to Coradini (2014), this would be the most adequate technique to establish an interdependence relationship between different variables since it allows us to examine the effects that some variables exert on others. Therefore, one can verify how much each variable contributes to the research hypothesis and data. Factor analysis is a statistical method which aims to summarize large number of variables, such as tables, into a small set of synthetic traits called factors. This method aims to simplify complex sets of data, and it can be described as:

- (i) The treated data are presented in a table, which can include qualitative or quantitative data (individual-variable)<sup>8</sup> or absolute frequency<sup>9</sup> or relative frequency<sup>10</sup> data and correlation coefficients<sup>11</sup> (variable-variable).
- (ii) The mathematical algorithm<sup>12</sup> is based on the calculus of vectors<sup>13</sup>. Matrix transpose<sup>14</sup> and multidimensional geometry<sup>15</sup> allow determining the distance between rows according to the respective profiles of different columns and symmetrically the distance between columns according to their row profiles. This algorithm works by successive interactions; each interaction provides a value that represents an explanatory factor in algebraic terms. These factors are synthetic, i.e., they do not materialize anywhere in pure state in the raw data, even if they find objective parameters of the studied phenomena. The first interaction explains the information contained in the initial table (variance<sup>16</sup> in the table); the second

<sup>8</sup> Variable would be the characteristic or property of a population.

<sup>9</sup> The number of times the data, individual, or variable were mentioned.

<sup>10</sup> Expressed as percentage representing the frequency in which the data, individual, or variable were mentioned.

<sup>11</sup> A measure of the degree of correlation between two variables. It is generally expressed as  $p$ :  $p=1$  indicates perfect positive correlation. If between the two variables;  $p=-1$  indicates a perfect negative correlation between the two variables, i.e., an increase in one variable increases is associated with a decrease in another variable;  $p=0$  indicates that there is no linear correlation between the two variables. However, in exceptional cases, there may be a linear correlation between the variable; thus, a  $p=0$  result should be further investigated.

<sup>12</sup> The sequence of mathematical instructions or the sequence of calculations.

<sup>13</sup> Mathematics area related to the multivariate analysis of the vectors (a vector has magnitude and direction in the space; it can be associated with the relationship between two points in space. In this case, a point can be the origin of the vector (initial point) and the arrow can point to the terminal point) in two or more dimensions.

<sup>14</sup> A table with rows and columns represented as a frame (data frame).

<sup>15</sup> It can be described as several points that form a straight line (x), which in turn forms a dimension. Together with another line (y), this dimension forms another dimension and another line (z) thus forming a third dimension. These points are therefore located in a three-dimensional space.

<sup>16</sup> The variance of a random variable is a measure of its statistical dispersion, i.e., how far its values are from the expected value.

interaction explains the residual information that was not explained by the first interaction and so on, using the initial table residuals.

- (iii) The result includes all general rules: the hierarchical list of hierarchized factors, the proportion of initial variance per factor, the contribution of some variables and each individual to the construction of each axis (inertia), the contribution of each factor, the explained variance of each variable and each individual (contribution), the coordinates of each variable and each individual per axis, and the factor data located.
- (iv) The supplementary variables can be placed together with the active variables on the factor map; however, the supplementary variables will not be taken into account during the construction of the factorial axes. They can explain the active variables (or be explained by them), compare the first and second groups of individuals, or test the same data without individuals in extreme positions, which are likely to hinder the result.
- (v) To facilitate reading the maps, several views are possible: points that fit better to the initial problem, cloud with nearby points, and their dummy inertial points, etc.

## Geometric data analysis method

Lebaron (2006) points out that the multiple correspondence analysis was introduced in France between 1963 and 1973 by the mathematician Jean-Paul Benzécri. This type of analysis was very popular in France between 1973 and 1980; however, it was not known in the Anglo-Saxon world. There are three paradigms for correspondence data analysis (CA, PCA, MAC). Multiple correspondence analysis is particularly helpful in analyzing data such as those of the present study, in which the individuals investigated are represented as a cloud of points bearing distance relations to from one another in a multidimensional space. The space is defined by the choice of variables called active variables. This type of analysis consists in reducing the number of dimensions of that space by creating a new system of axes (main axes, factorial axes, etc.). This new space is such that the dispersion (variance) of the cloud projected on the first dimension is maximal (i.e., on this axis, variance is the highest possible), and so on for the other dimensions.

Lebaron (2006) added that the determination of the main dimensions results from a spectral analysis theorem. Conducting a geometric analysis in a table consists of determining the eigenvalues and eigenvectors of a linear application. When the variables to be analyzed are categorical (nominal), as in the case of our variables, the best type of geometric analysis is the

multiple correspondence analysis (MCA). The variables are defined as: when the individuals do not agree with the answer of a given question, it can be said that they are at odds. The distance between the individuals is influenced by the frequency of response categories. The smaller the frequencies of disagreement categories, the greater the distance between the individuals.

However, it is important to mention that statistical analyses have been strongly criticized by some sociologists such as Sewell (1987), among others, who defend that making generalized statements can be a problem. However, we agree with Desrosières (1989), who states that in addition to these criticisms and ambiguities about statistical methods, which are considered either consistent or inconsistent, data coding and the construction of equivalence classes should be taken into serious consideration.

In other words, statistical categories should be seen as political categories in the world and consider their impact after analysis. Therefore, Desrosières (1989) suggests considering the notion of representation to perceive codifications through a cognitive, political, and statistical process. An example of this in the present study is that many different occupations of the students' parents were mentioned by the respondents; thus, they had to be codified into recognizable taxonomies within the universe of Brazilian sociology so that they would make sense within the national context.

However, Desrosières (1989) even goes further by stating that we must develop universal taxonomies for making things work together. The author gives an example of a socio-professional category term that is different around the world, which hampers a common understanding and may hinder statistical analysis. The term *cadres* is used in France, while in the United States and the Great Britain, the term *professionals and managers* are used, and the term *angestellte* (private sector employees) is used in Germany. Each one of these taxonomies was developed at different moments in history and under different circumstances, but they are all somewhat close since they designate very similar categories. To avoid confusion between these categories that have distinct logics, the author urges the development of statistical taxonomies that would allow these distinct logics to connect and work together.

Therefore, an effort was made regarding the creation of categories and their respective coding; thus, during the writing of this thesis a reasonable amount of time was spent doing it because without the statistical and sociological theory and without the cognitive process to connect them, our efforts would lead to a classification error and wrong choices of taxonomy codes<sup>17</sup>.

It is important to mention that this analysis consisted of only 16 variables and that the real occupations of the individuals were analyzed after they graduated and started their first jobs.

<sup>17</sup> We would like to make it clear that, in the present study, we did not explain how the taxonomies were chosen and how the process of creating codes and recoding took place. The reason is that we believe that the present study was carried out based on a thesis. Therefore, such explanations will be addressed in a future methodological study.

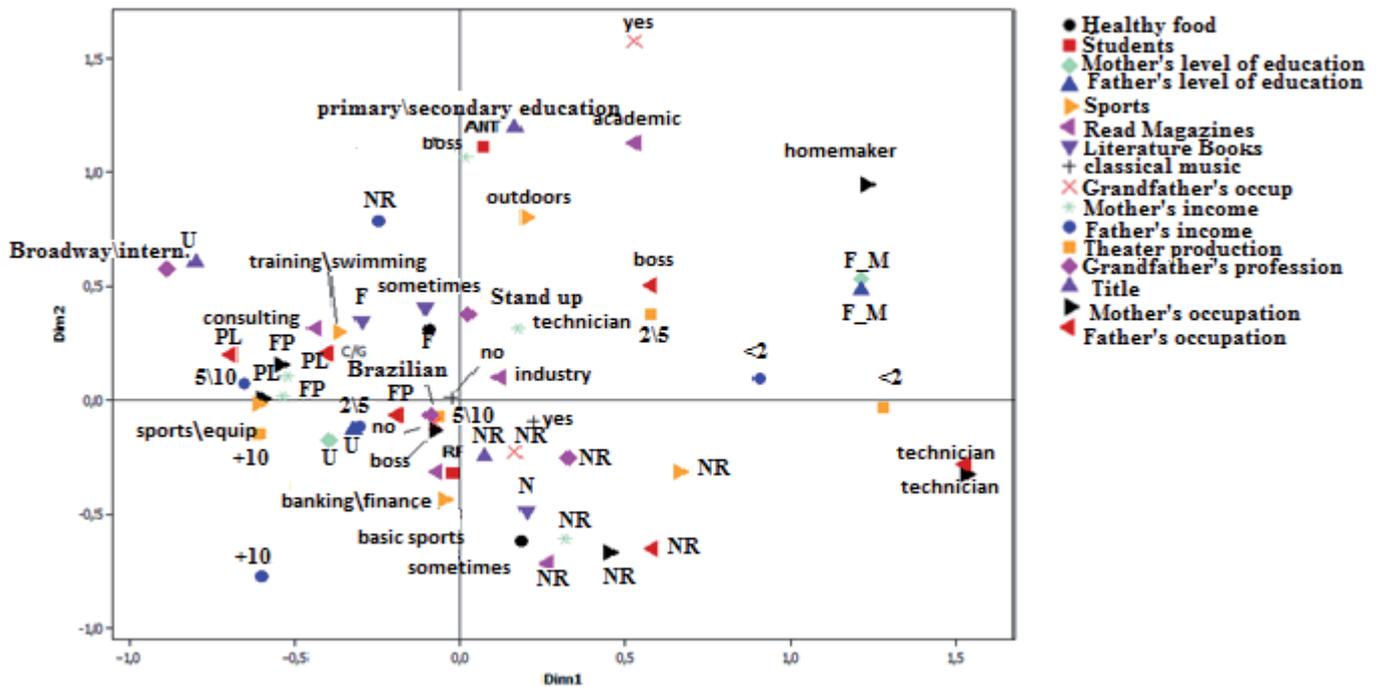


Figure 1. Multiple correspondence analysis - UFSCar participants.

Note: (PL) Liberal professional; (FP) civil servant; (C/G) consultant\stakeholder; stand up: stand up comedy; (F) frequently; (N) never; (U) university degree; (NR) no answer; (F-M) F-female; M-male; (ANT) former studens; (RF) current student; 2\5 (between 2 and 5 thousand reais; 5\10 (between 5 and 10 thousand reais); <2: less than 2 thousand reais; +10 (more than 10 thousand reais).

Source: created by the authors based on the data obtained.

In the lower left quadrant, it can be seen: the graduates' parents income higher than R\$ 10,000.00; their parents had a university degree; civil servants was the father's most frequently mentioned occupation; their mothers' income varied between R\$ 2,000.00 and R\$ 5,000.00 and they were business owners, they preferred Brazilian theater productions; they did not read literature; and they were engaged in basic ball sports (soccer, volleyball, basketball, and handball). In this analysis, this quadrant refers to the graduates who had jobs in banking and finance.

In the upper left quadrant (the quadrant with the highest cultural capital in the previous analysis), the following compositions and associations can be seen: the graduates' grandfathers had a university degree and were public servants or self-employed; their fathers were self-employed; and their mothers were civil servants, self-employed, consultants, and stakeholders and had an income between R\$ 5,000.00 and R\$ 10,000.00. With regard to cultural capital, the sports highlighted were those that require specific equipment (tennis, riding, climbing,

track and field, golf, squash, and water polo) and middle-class sports (gym training, strength training, fitness classes, yoga, and swimming). These graduates ate healthy foods often, watched Broadway plays, and sometimes or often read culture magazines. This quadrant refers to graduates who worked as consultants.

Therefore, it can be concluded that the students with the highest cultural and economic capitals are the ones who get banking, finance, and consultant jobs. We also point out that the highest cultural capitals are associated with those who work as consultants, and an average capital is associated with those who have banking and finance jobs (which was expected since according to the literature discussed here, consultant jobs requires high cultural capital)<sup>18</sup>.

An interesting fact is that at an earlier moment, the students were asked about their dream jobs or career before they graduated. The answers revealed their choices for the industrial sectors. The students whose dream job was in banking and finance (the same students who chose finance often also chose

<sup>18</sup> Despite all these findings, it is very important to always perform a critical evaluation of the events and the data obtained relativizing them whenever necessary. Thus, we refer to Pierre Faguer's speech in a lecture he gave in Brazil, in which he said that not all upper-class individuals will be successful and not all working class individuals will remain being low-wage workers. All individuals face disqualification at some point in their trajectory and all institutions have some losers. This statement contradicts the existing belief that there is a single pattern of trajectory for the different class fractions.



students are related to middle class choices such as: some were private club members and were engaged in middle-class sports (gym training and swimming, for example); they sometimes read cultural magazines and sometimes went walking. Other characteristics of these students were: they did not read business books; their mothers' income was less than R\$ 2,000.00; most of their fathers' income ranged between R\$ 5,000.00 and R\$ 10,000.00; most of their fathers were civil servants or consultants/stakeholders; they read technical books; they did not answer the question about the type of theatrical productions they usually attend; they read literature books and most identified themselves with left-wing political parties. Finally, the variables that characterize this group of students are related to the middle class since most of them stated belonging to this social class, confirming our findings.

Therefore, it was found that consulting and finance were associated with high economic capital, and that those who chose working in consulting were upper middle class or upper class graduates and had a slightly higher cultural capital than those who chose working in finance. Students who had not yet graduated were associated with middle class and middle class occupations since they were undertaking exchange programs or were engaged in other activities. Most class upper students were already employed and were therefore in the labor market.

## Some findings about private university graduates

From the charts below, which show some specific topics, it can be seen that some private university graduates stand out from the others regarding some categories. Firstly, some stand out for choices associated with higher cultural capital. It was observed that their parents were civil servants who had university degree and went to private schools; factors that may have strongly influenced their cultural capital (Chart 1).

There was one graduate who played a classical instrument; however, when asked about classical composers and other classical music related questions, he did not know the answers or did not answer for some other reasons (Chart 2).

As for body representation, few graduates played sports. One of them, however, mentioned going to the gym and that his/her parents owned a small business, i.e., this graduate's parents possibly have habitus of the middle class. This graduate showed body aesthetic and health concerns, factors related to body representation (Chart 3).

Chart 4 shows the importance and impact of private primary or secondary schools in Brazil in terms of education quality. Graduates who went to private schools are those who mentioned at least a few famous painters.

One final example is about economic capital and how it is directly related to cultural capital. There were two individuals: one mentioned famous painters and the other was the only one who was able to mention a composer and his work. It is impor-

### Chart 1. Cultural capital.

One characteristic deserves highlighting is that only one private university graduate mentioned playing tennis and having attended a Broadway play. This differential characteristic was then further analyzed. It was found that this graduate's parents, despite having completed high school, were civil servants; a fact that may have influenced him/her since it indicates an average cultural capital.

Another student, whose father was a carpenter, had a university degree, and had an income of less than R\$ 2,000.00 and whose mother was a homemaker who had completed high school, mentioned that Da Vinci was his/her favorite painter. Another differential characteristic of is that this graduate went to private schools (only six of the respondents went to private schools).

Source: research data.

### Chart 2. Musical instrument.

Another interesting atypical example is of a graduate whose father's income ranged between R\$ 2,000.00 and R\$ 5,000.00 (worked as a private driver) and whose mother's income was R\$ 2,000.00, and who mentioned playing the cello and liking classical music. However, when asked about classical composers, he did not answer.

Source: research data.

### Chart 3. Body representation.

Another notable example is of a middle class graduate who was the son of small business owners and whose father's income ranged between R\$ 2,000.00 and R\$ 5,000.00. He is one of the only respondents who mentioned being engaged in weight training activities. It was observed some evidence for body representation in this class fraction, which owns some kind of business, even if it is a small one.

Source: research data.

### Chart 4. Academic capital.

One of the only respondents who mentioned a famous painter (Van Gogh) was a graduate whose father was a private driver and whose mother was a secretary, and who mentioned having gone to a private school in his hometown, unlike the other graduates who either did not answer the question or indicated having gone to public schools.

Source: research data.

Chart 5. Economic capital.

Only two respondents mentioned parental income raging between R\$ 5,000.00 and R\$ 10,000.00.

One of them is the son of a father with incomplete university education and mother with a university degree. This graduate stated that his parents worked in the private sector but did not identify their occupations and that he went to private schools, and he was the second respondent able to mention at least one famous painter (Van Gogh).

The other graduate is the son of father who was a furniture sales representative and mother who worked in clothing sales (both had incomplete secondary education). This respondent's paternal grandfather was an entrepreneur, and his son went to private schools. This was the only graduate who mentioned a classical music, "The four Seasons" (Vivaldi).

Source: research data.

tant to highlight that these graduates' parents had the highest economic capital and their children went to private schools. One of the graduates' paternal grandfather was an entrepreneur (the only one with this characteristic), which clearly indicates reproduction of the middle class fraction in that family (Chart 5).

### Three institutional poles with multiple polarizations

In the present study, three "universes" represented by three higher education institutions, in which-production engineers can be part, were identified. One of them is a traditional university more closely related to legitimate culture (USP). The second is a progressive university strongly related to intermediate forms of culture (UFSCar). Lastly, the third universe was represented by a university which is not traditional or progressive and is hardly related to legitimate culture; it is characterized as a low culture or "technical culture" institution (private university).

There is, therefore, a contradiction inscribed within these three higher education institutions. One of them could bear the slogan published in a popular Brazilian Business and Economy magazine, revista *Exame* (Abrantes, 2013), "Degrees that most millionaires earn; engineering is the first one", while the other could bear an opposite slogan posted on the "blogue da enge-

nharia" (engineering blog) and commonly used by the media, "the heated market is lacking professionals".

The latter is a misleading slogan, it shows that the shortage of the so-called "qualified" professionals (who speak English fluently, have leadership skills, and are familiar with some software programs) is hurting; in other words, it lacks qualified individuals or individuals that have legitimate culture. That is the reason why some engineers in the report (most likely those who graduated from universities or colleges with lower rankings) complain about lack of opportunity, lack of jobs, and post comments on channels such as the "engineering blog" stating that "it has been easier to teach math or physics". Although in the present study this type of complaint was not very frequent, it was observed that the graduates contradicted themselves in their comments on the blog when they highlighted the lack of opportunities; at the same time, they indicated their Portuguese grammar mistakes as reasons why they are not hired, but the reasons are in front of their eyes, that is, they are on their computer keyboards.

The situation gets even worse when the media uses headlines about the lack of engineers in the job market and the high salaries earned by engineers (in an attempt to motivate this group of professionals). This measure taken by the press media is misleading, and it makes more people become interested in engineering courses in search of this dream job. However, these individuals end up unemployed or settle for low-paying jobs. This frustrating reality is often justified by the fact that these individuals who went to private universities left as "unqualified professionals", without having a degree from a top or ivy league school (*grande école*); another complicating factor would be considering these individuals' low economic and cultural capitals.

It worth mentioning what Collins (1979) called credential inflation, which occurs when the value of a credential (or the degree in this case) declines because too many people earn a particular credential, and consequently more and more individuals face disadvantage in the labor market.

Accordingly, Bourdieu (2008) argued that the importance given by these individuals or social groups to their degrees<sup>19</sup> (an overestimation of their academic degrees instead of acknowledging the objective truth) will lead them to disqualification. This allodoxy<sup>20</sup> characterizes the conformity of the devalued with their devaluation<sup>21</sup>. In contrast, within this game of devaluation of academic credentials, there is the valorization of the degree, which will also take place through some mechanisms

<sup>19</sup> An important thing to remember in this regard is that Dubet *et al.* (2010) argued that the greater the influence of the degree, the greater and the more marked are the school inequalities and that the greater the importance of these degrees, the more people and families pursue them through competition to gain the differential advantages bought by them.

<sup>20</sup> Superiority of one opinion over the other; i.e., mistake one for the other (in Bourdieu's speech, classifying the waltzes of Strauss as classical music, for example).

<sup>21</sup> In the present study, the individuals who will seek to avoid disqualification resulting from social facts related to historical processes (crisis of Fordism, managerial crisis, and the beginning of the process of corporate governance, which were discussed in the first section) or from the absence of social or cultural capitals will redefine their professions based on the advantages brought by their academic degree.

of social reproduction. These mechanisms can be characterized by inheritance or the transmission of innate dispositions (the polytechnic school graduate whose father got a degree from the polytechnic school and the metallurgical technician whose father was a metallurgical technician). However, the transmission by inheritance from parents to children does not complete the succession cycle; school plays a very important role in maintaining the stratification system or social inequality.

Therefore, it can be said that the previously discussed phenomenon known as "the engineer who became juice", which occurred in the 1980s, can be occurring again but with a new facet, which goes beyond the 1980s recession. We are considering the idea that the lack of qualification is the real reason why these engineers remain at risk of becoming unemployed and often holding inferior jobs. The data obtained in the present study allow us to assert that this lack of qualification is misinterpreted since its real causes are individuals' social origins, institutionalized cultural capital, and symbolic skills.

We can go even further and say that the engineers who are at risk of becoming unemployed and that are subject of humiliating situations in the competitive market would be part of groups called "the new middle class" or "the strugglers", as pointed out by Souza (2013). According to Neri (2011), the new middle class is defined as those with an income between R\$ 1,315.00 and R\$ 5,672.00. The income of the private university respondents falls into this range. However, in order to sustain a middle-class lifestyle, Uchôa argues that there are minimum requirements to be part of the "sociological middle class", such as: [...] owning a high standard home, household with access to credit, head of household has a university degree and private health insurance, and children go to private schools (Kerstenetzky and Uchôa, 2013).

The author investigated Brazilian households within this income range and found that they did not meet the minimum standards of living to be considered as "middle class". In other words, the author found that the level of home ownership rate is very low, i.e., most Brazilian heads of household are not homeowners, only 35% of heads of households have credit cards, 28% have private health insurance, 7.8% have higher education, and 82% of the children go to public school. Therefore, it can be seen that the so-called "new middle class" does not meet the requirements to be qualified as middle class.

Another further complicating factor for this class fraction is having low economic, cultural, and social capital, as found in the present study. Although there has been an increased access to consumer goods in this class fraction, its cultural capital and lifestyle are not typical of middle class. Based on Pierre Bourdieu's reflection, we can say that economic capital is an

important attribute to gain social advantages, but it is not the only one. Accordingly, Souza (2013, p. 58) states that:

*Thus, a middle-class family, which has lower economic capital than the upper class, can only ensure the reproduction of its privileges if the family has enough economic capital to financially support their children so that they do not need to start working too young, as it happens with working class children, and they can learn foreign languages or acquire more sophisticated technical or literary cultural capital.*

Thus, the author adds that the real middle classes will be able to possess the cultural capital that will grant them some privileges and will be considered as "winners", that is, they will have good quality education to enter the labor market and occupy positions that the working classes and even the *ralé social* (lowest social class or underclass) cannot achieve. This is what we found among the Federal University of São Carlos and Polytechnic School of the University of São Paulo graduates.

## Conclusion

In sum, the present study deepens the understanding with the statement that simply holding a cultural capital is not enough to occupy certain positions in the labor market; the volume of capital and the specific type of cultural capital held are other important determining factors. This is the case of the production engineers who graduated from the USP and are possessors of a larger cultural capital than the engineers who graduated from UFSCar and possess other types of cultural capital, such as that we denominate as "indicator of class position" (literally distancing from "others" and legitimating the distinction) and others like resourcefulness, powers of rhetoric and persuasion in business, and a high social capital<sup>22</sup>. The social capital of the USP graduates is marked by their personal and professional contacts, which determine their proximity to the legitimate culture from the moment they pass the competitive university entrance exam to their achievement of the most prestigious positions in the finance sector (consulting and the financial market).

Rich individuals without cultural capital will not go very far, as clearly articulated by Souza (2013, p. 59):

*Not only are the relations between economic and cultural capital, which enable "naturalness", "lightness", and "personal charm" and that are very important in business and in any other field, are hampered for the "uncultured rich people", but the relations with a third important form of capital - albeit secondary - the "social capital of personal relations" are also hampered for them.*

<sup>22</sup> It is worth mentioning the three hypotheses of Granovetter (2005) about "social capital or social networks": (i) many people get jobs through personal contacts and not only through formal means; (ii) Social networks increase the chances of finding high-paying jobs and better opportunities; (iii) The best contacts are those held by weak ties (since information from strong contact can be redundant), and new information is generated by networks whose members are dispersed (which supports weak ties).

With regard to the private university respondents, they would be in an intermediate position. The *ralé social* (Lowest social class or underclass), as pointed out by Souza (2013), would lack capital, cognitive and emotional structures, and family capital to sustain a competitive advantage. Conversely, the workers denominated by the author as strugglers would hold at least a technical capital to compete in the labor market.

Middle classes (including middle and upper middle classes), which hold cultural capital, are in another position, but further studies on these different class fractions are necessary instead of uniquely privileging or concentrating on the group of individuals who actually go to public universities and have higher education. We just want to point out, once again, the importance of the volume of cultural capital and its degrees of sophistication ("indicator of class position" and symbolic skills) to identify class fractions that are often seen as homogeneous by most studies carried out in Brazil.

Therefore, we go beyond Souza's (2013) analysis, who argues that in order to prevail in competitive sectors, one has to acquire the "forms of knowledge and cultural capital" that are the preconditions of capitalism for climbing the social ladder. Therefore, we affirm that in addition to cultural capital as a homogeneous "entity", its volume, types, and sub-types exert more influence than the notion of cultural capital as a "whole".

## References

- ABRANTES, T. 2013. Os diplomas que formam mais milionários; Engenharia é o 1º. *Exame*. Disponível em: <https://exame.abril.com.br/carreira/os-diplomas-que-formam-mais-milionarios-engenharia-e-o-1o/>. Acesso em: 20/10/2017.
- BOURDIEU, P. 2008. *La distinction: critique Sociale du Jument*. Paris, Minit, 668 p.
- CARVALHO, J.M. 2003. *A construção da ordem: a elite política imperial*. Rio de Janeiro, Civilização Brasileira, 459 p.
- CHARLE, C. 2006. A prosopografia ou biografia coletiva: balanço e perspectivas. In: F.M. HEINZ (org.), *Para uma outra história das elites: Ensaio de prosopografia e política*. Rio de Janeiro, FGV, p. 41-53.
- COELHO, E.C. 1999. *As profissões imperiais: medicina, engenharia e advocacia no Rio de Janeiro: 1822-1930*. Rio de Janeiro, Record, 241 p.
- COLLINS, R. 1979. *The credential society: An historical sociology of education and stratification*. New York, Academic Press, 222 p.
- CORADINI, O.L. 2014. Efeitos da educação formal, categorias ocupacionais e posição social. *Revista Sociedade e Estado*, 29(2):511-538. <https://doi.org/10.1590/S0102-69922014000200010>
- DESROSIÈRES, A. 1989. Comme faire des choses qui tiennent: histoire sociale e statistique. *Actes de la recherche*, 4(3-4):225-242.
- DUBET, F.; DURU-BELLAT, M.; VÉRETOUT, A. 2010. *Les sociétés et leur école: emprise du diplôme et cohésion sociale*. Paris, Seuil, 211 p.
- ECK, W. 2003. The Prosopographia Imperii Romani and Prosopographical Method. In: A. CAMERON (org.), *Fifty Years of Prosopography. The Later Roman Empire, Byzantium and Beyond*. Oxford/New York, Oxford University Press, p. 11-22. <https://doi.org/10.5871/bacad/9780197262924.003.0002>
- GRANOVETTER, M. 2005. The impact of social structure on economic outcomes. *Journal of economic perspectives*, 19(1):33-50. <https://doi.org/10.1257/0895330053147958>
- JONES, M.H.; MARTINDALE, J.R.; MORRIS, J. 1971. *The Prosopography of the Later Roman Empire*. Cambridge, Cambridge University Press.
- KERSTENETZKY, C.L. UCHÔA, C. 2013. Moradia inadequada, escolaridade insuficiente credito limitado: em busca da nova classe média. In: D.D. BARTELT (org.), *A nova classe média no Brasil como conceito e projeto político*. Rio de Janeiro, Fundação Heinrich Boll, p. 16-32.
- KIRCHINER, J.; LAUFFER, S. 1966. *Prosopographie attica*. Berlin, 2nded, 175 p.
- LEBARON, F. 2006. *L'enquête quantitative em sciences sociales: recueil et analyse des donnés*. Paris, Dunod, 182 p.
- NERI, M.C. 2011. *A nova classe média: o lado brilhante da base da pirâmide*. São Paulo, Saraiva, 237 p.
- PIETRI, C.; PALANQUE, J.R., MANDOUZE, A.; MARROU, H.I. 1999. *Prosopographie chrétienne du Bas-Empire: Prosopographie de l'Italie chrétienne*. Rome, École française de Rome, 213 p.
- SEWELL, W.H. 1987. Theory of Action, Dialectic and History: Comment on Coleman. *American Journal of Sociology*, 93(1):166-172. <https://doi.org/10.1086/228710>
- SOUZA, J. 2013. A invisibilidade da luta de classes ou a cegueira do economicismo. In: D.D. BARTELT (org.), *A nova classe média no Brasil como conceito e projeto político*. Rio de Janeiro, Fundação Heinrich Boll p. 56-69.

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