GENDER AND PERSONAL MEANING ATTRIBUTED TO TAKING TECHNICAL COURSES

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ABSTRACT
Reasons guided by socially produced needs shape the meanings that students attribute to the taking of technical courses. A study with students from a Brazilian government program with apparent similar socioeconomic condition showed differences in their responses, which supports the hypothesis that gender is a relevant factor in students’ motivational relationship with their technical courses.

KEYWORDS
Gender; Personal meanings; Technical courses; Pronatec; Leontiev.

Introduction
This research, conducted in Belo Horizonte, Brazil, in 2015 with students recipients of a Student Educational Scholarship (Bolsa Formação Estudante) from the National Program for Access to Technical Education and Employment (Programa Nacional de Acesso ao Ensino Técnico e Emprego - Pronatec), aimed at analyzing the reasons that students attributed to taking specific courses. Pronatec was created by Federal Law No. 12,513/2011 to finance technical courses and professional training. The Student Educational Scholarship is one of its grant lines specific for technical courses. From 2011 to 2014, more than 2.3 million students registered in 220 technical courses were funded, totaling, together with students in qualifying courses, over 8.1 million students in over 4,000 municipalities (Brazil, 2015). According to Gallindo, Feres & Schroeder (2015, p. 34), during this period, 60.37% of the course openings were held by women. Education at a Glance, 2015 reported that:

Men and women with similar education levels face high income disparities in the Brazilian employment market. The average income of a woman with higher education is only 62% of the average income of a man with the same level of education. Brazil, together with Chile, has the largest gender wage gap among all countries and OECD partners with data available. In fact, while 72% of men with higher education earn over twice the average national income, the same is true for only 51% of women with higher education. Income inequality between genders is also great for men and women whose highest level of education is regular high school or professional education. (OECD, 2015, p. 3).

Brazil is, thus, last in income inequality between genders in the comparison of 46 countries conducted by the OECD.

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The survey data reported here were collected from males and females in school environments through an online questionnaire. The students were informed of the ethical guidelines being followed and answered the questionnaire in accordance with them. 258 valid questionnaires were obtained: 153 (59.3%) of the respondents identified themselves as being of male gender (MG) and 105 (40.7%) of female gender (FG). The 258 respondents attended one of nine courses: Industrial Automation, Electrical and Electronics, Electromechanics, Electronics, Mechatronics, Construction Design, Building, Computing and Interior Design.

Data from the National System of Professional and Technological Educational Information of the Ministry of Education and Culture (Sistec/MEC) from November 2015 that discriminated registered students by gender in continued education technical courses and technical courses simultaneous to secondary education indicated that FG predominated in technical courses with a small, but noteworthy advantage (56.0%). A clear predominance of MG was seen in Mechatronics, Electromechanics, Electronics, Industrial Automation and Electrical and Electronics courses, with little predominance in Building and Computing; registration in Construction Design was balanced and FG clearly prevailed in Interior Design courses.

Female participation in the investigated Industrial Automation, Electronics, Electrical and Electronics, Mechatronics and Electromechanics courses was low when compared to national results. The same percent gender distribution was observed in Computing. However, the percentage participation of FG in Interior Design and Construction Design courses was much greater when compared to national figures. A slight FG majority was observed in Building.

Among the 105 FG respondents, 31.4% were registered in predominantly male courses (Industrial Automation, Electrical and Electronics, Electromechanics, Electronics, Computing and Mechatronics) and 68.6% in courses with female predominance (Construction Design, Interior Design and Building).

Theoretical Framework

According to Leontiev (1983, p. 82), studying is a human-specific activity and like every human activity, it: a) meets a given need; b) disappears when the need is satisfied; c) is reproduced in new situations; d) can occur in all different conditions; e) involves vital practice relations of the subjects with the world around them; f) constitutes itself as a system comprised in the system of social relations.

According to the author, human needs stimulate and guide the individuals’ study activity, but they only exert an influence when they have an objective existence. The actual reason for conducting study activities, which provides direction, may be found in the object of the activity itself. That is, in the subject matter that is studied. This object may be external to the subject or exist only in the subject’s imagination. In any event, the importance is the need that the study activity meets.

According to Leontiev, to understand the relationship between the subject and the activity, it is important to consider the objective significance of the activity developed consciously and the personal meaning it has for the subject. Leontiev proposes that “[...] the meanings in the individual consciousness are more or less complete and perfect projections of supra-individual meanings existing in the society in question” (1983, p. 120). The personal
sense may not match the understanding of those meanings and even oppose them. The meanings are objective social consciousness phenomena that reflect the objects of the subject independent of relationships that the objects may have with their lives, needs and reasons to conduct a given activity. Even though technical courses are attributed social meanings, each subject lends his or her own personal sense to them. According to Leontiev, “If the external sensitivity associates in the consciousness of the subject the meanings with the reality of the objective world, the personal sense relates them to the reality of their own life in this world, with their motivations” (1983, p. 125).

For Leontiev, the reason is that objective thing where the subject’s need takes place. In the case of the study activity, it is the object being studied and perceived that fulfills the student’s need, that guides the study activity and leads it to the result wanted. It is thus up to teachers and anyone else who cares about student success to penetrate the motivational sphere, because, according to Leontiev (1983 p. 244), this is what “[...] qualitatively determines the interests from the point of view of his internal sense”.

Gender was considered in this study as a complex construction of the social organization of relations between sexes. They are configured in a dialectical relationship of mutual denial and only exist in this denial, because one cannot be understood without resorting to the other, one produces the other and is produced by the other, in an intrinsic and fundamental negation of this relational dynamics. It is an analytical category in a particular type of social relation, relations that, in class societies, are predominantly asymmetrical and hierarchical.

Each gender is defined by features, attributes or identities that are socially constructed from valuations and representations that take place daily and are reconstructed in different socio-historical contexts. Gender is the result of social and socialization practices conducted along the biological time line, with regard to the evolution of the human species (phylogenesis); the historical time line, with regard to the evolution of societies (sociogenesis) and the ontogenetic time line (the individual’s evolution). Such processes derive from ways of production and reproduction of material life. In class societies, they are held by patriarchal institutionalized mediation,

[...] a form of social organization in which relations are governed by two basic principles: 1) women are hierarchically subordinate to men, and 2) young people are hierarchically subordinate to older men. The male supremacy dictated by patriarchal values attributed a higher value to male activities to the detriment of women’s activities; legitimized the control of sexuality, bodies and women’s autonomy; and established sexual and social roles in which the male has advantages and privileges (Narvaz & Koller, 2006, p.50).

Lobo (1992) and Rowbotham (1984) criticize the use of the concept of patriarchy as an ahistorical, universal and an all-encompassing connotation. Castro & Lavinas (1992) argued that Weber used this concept to describe domination supported on tradition, from simple social forms and domestic communities, and that therefore, patriarchy is not consistent with modernity. However, Narvaz & Koller (2006) report that Pateman (1993) confirms the existence of a modern and structuring patriarchy in capitalist society and Machado (2000) also admits the presence of a contemporary patriarchy despite changes in the familial institution and in the relations between sexes. Narvaz & Koller (2006) reported that for Scott (1995)
rule is formed in the context of production of inequalities and discrimination by comprising linkages between gender, social class and ethnicity, producing differences within differences.

In their ontogenesis, individuals perceive themselves as either male or female when living conditions either favor or limit their freedom to be human, regardless of sex differences. Ontogenesis is a process conducted through different forms of mediation and in contact with other individuals, either male or female, that may be more, or less, confrontational within varying degrees of autonomy, expressing levels of domination and alienation. Within the denial, by force of necessity and internal development, conditions may be created as premises of personal adversity that is overcome and linked to the expression of the positivity of each one, regardless of the gender that one identifies with.

The division of labor by gender is established assuming that, for biological reasons, certain occupations are better suited to one gender or another. Differences in abilities, skills and behavior are taken as innate: women would have more difficulty in the use of logical and mathematical reasoning, would be favorable to occupations that require politeness, patience and attention in the care of people and be unbeatable in manual dexterity. These are gender stereotypes used to justify the gender discrimination of labor, but they also serve in the overexploitation of the labor force, especially women (Holzmann, 2000). In the nineteenth century,

As machinery makes muscle strength dispensable, it becomes the means of using workers without muscle strength or with immature body development, but with members of greater flexibility. So the work of women and children was the first slogan of the capitalist application of machinery! With that, this powerful means of replacing work and workers quickly became a means of increasing the number of employees, putting all the members of the family, regardless of sex or age distinction, under the immediate command of capital (Marx, 1984, p.23).

The increase in schooling and access to scientific and technical knowledge have favored the incorporation of women into the qualified labor market, even in occupations regarded as male, despite limitations and constraints such as prejudice, discrimination, hostility, moral and sexual harassment. (Bruschini & Lombardi, 1999; Bruschini, 2007). Lombardi (2006, p. 200) states that “the pattern of insertion of female engineers in the labor market closely resembles the pattern of all female workers, marked by horizontal (workspaces) and vertical (hierarchical rise) segregation”. The reproduction of what is traditionally considered a feminine role persists in the workplace, as well as negative differences in income and opportunities for professional development. With the restructuring of production, women’s vulnerability with regard to wage, employment and functional flexibility increased:

A new vision was introduced, “global feminization through flexible working” (Standing, 1989), in which was presented an analysis of unified trends from developed and emerging countries, where the feminization was part of a direct employer strategy to reduce wages and increase control over internal (the company) and external labor markets. This feminization strategy rested on the marginalized situation of woman in the labor market as well as the assumptions of “docility” and “homeliness” of women, which would facilitate working relationships (Kon, 2002, p. 99-100).
Despite legislative advances, females still face situations of embarrassment and disadvantage at work, especially in formal and male niches, in terms of respect, autonomy, opportunities, income and social recognition. Overcoming this situation is a significant challenge, especially with respect to the attainment of equilibrium, albeit unstable, between work life and personal life.

Reasons and senses in females (FG) and males (MG) taking technical courses

When the respondents were asked whether the courses they were doing were their personal dream, a relevant difference was noticed between the genders; there was a greater incidence of affirmative responses among FG, 61.5%, against 52.7% in MG. It is important to consider that significant numbers of MG (47.3%) and FG (38.5%) were not doing the technical course that they actually wanted.

Concerning whether they had accurate information about the course at the time of admission, FG gave a slightly higher percentage (18.3%) of ‘were not accurate’ and ‘had no information about the course’ responses. In MG, this percentage reached 13.1%. Would this be evidence that, in the latter, a larger number of individuals were familiar with what the courses were about or where they might work when the courses were finished? Not so much, as confirmed by the responses given to the question on the amount of information that they believed to have on working activities for the course that they were doing: only 7.8% MG and only 9.5% FG responded to ‘have little information and knowledge’ or ‘have no information or knowledge’.

With regard to the information sought concerning the technical professional trained in the courses with the same name as those that they were doing, with 25.7%, FG was quite distinct from MG (13.1%) with respect to the response ‘professional development prospects’. Perhaps this difference indicates that this question is not so significant for MG. On the other hand, this group had a slightly higher percentage (16.3%) in response to the option ‘average wages’, against 11.4% for FG.

FG had the highest percentage (81.7%) of those who said that they often or very often discussed the course with people outside it, in contrast to MG, with 62.6%.

Among the reasons given for taking their courses, those that coincide with the activity object (studying, in this case) were the least mentioned by either group, with the lowest rate (32.2%) in FG, against 41.2% in MG. In contrast, FG had a higher percentage of external reasons (extrinsic gains from such training). More than two thirds of FG (67.8%) mentioned it, against 58.8% in MG. These results can be understood when the students’ work situations in both groups are considered: the majority did not work, sought work or were not working at the time and dedicated themselves only to studying. Based on the data above, it is important to say that a higher percentage (63.9%) of FG than MG (55.6%) were in these situations.

On participation in the household economy, FG presented a high level of personal dependence. 74.0% said that they were supported or received financial help from family members or others even if they performed some work activity. A lower number of MG (57.9%) reported the same situation. Data on personal income also confirm what is behind the high incidence of course completion are external reasons: 63.8% FG do not have any personal income. This proportion is lower in MG, 54.0%.
The questionnaire contained items on the reasons for taking their courses. MG and FG converged with respect to some reasons and diverged in relation to others.

Table 1. Reasons coincident with the activity object (the course itself)

<table>
<thead>
<tr>
<th>Reasons coincident with what is learned in the course</th>
<th>Male - %</th>
<th>Female - %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get new ideas on what I can do</td>
<td>6.3</td>
<td>6.0</td>
</tr>
<tr>
<td>Discover how things work</td>
<td>12.9</td>
<td>7.4</td>
</tr>
<tr>
<td>Use more advanced technologies</td>
<td>11.1</td>
<td>13.4</td>
</tr>
<tr>
<td>Better understanding of the labor market</td>
<td>5.7</td>
<td>9.4</td>
</tr>
<tr>
<td>Increase my initiative capacity</td>
<td>7.8</td>
<td>6.0</td>
</tr>
<tr>
<td>To be able to solve problems</td>
<td>8.1</td>
<td>6.0</td>
</tr>
<tr>
<td>Improve my ability to work in groups</td>
<td>7.2</td>
<td>7.4</td>
</tr>
<tr>
<td>To be a better person</td>
<td>2.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Improve my ability to judge critically</td>
<td>3.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Increase my self-esteem</td>
<td>3.6</td>
<td>5.4</td>
</tr>
<tr>
<td>Meet interesting people</td>
<td>4.8</td>
<td>4.0</td>
</tr>
<tr>
<td>Get knowledge that I would like to have</td>
<td>17.7</td>
<td>22.8</td>
</tr>
<tr>
<td>To be more self-confident</td>
<td>7.2</td>
<td>6.0</td>
</tr>
<tr>
<td>To be more aware of the social and political reality</td>
<td>2.1</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
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</table>

Source: Authors’ survey data.

The MG responses with the highest percentages were: ‘get knowledge that I would like to have’ (17.7%), ‘find out how things work’ (12.9%) and ‘use more advanced technologies’ (11.1%). FG’s top response was the same as MG’s, but with a greater weight (22.8%). FG also answered ‘use more advanced technologies’ (13.4%), followed by ‘better understanding of the labor market’ (9.4%), while in MG it was 5.7% of the responses.

FG respondents who were doing predominantly male courses had a higher percentage than those doing courses with female predominance in the following responses: ‘use more advanced technologies’, ‘find out how things work’, ‘to be able to solve problems’, ‘increase my self-esteem’ and ‘meet interesting people’. Conversely, those doing courses with female predominance had higher percentages in the following responses: ‘better understanding of the labor market’, ‘increase my initiative capacity’, ‘improve my ability to work in groups’, ‘to be a better person’ and ‘improve my ability to judge critically’.

Table 2. Reasons external to the courses

<table>
<thead>
<tr>
<th>Reasons external to the courses</th>
<th>Male - %</th>
<th>Female - %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase my credibility as a professional</td>
<td>18.4</td>
<td>17.2</td>
</tr>
<tr>
<td>Improve my income</td>
<td>15.7</td>
<td>14.3</td>
</tr>
<tr>
<td>Improve my position in the labor market</td>
<td>13.4</td>
<td>11.8</td>
</tr>
<tr>
<td>Enter higher education more easily</td>
<td>10.5</td>
<td>10.2</td>
</tr>
<tr>
<td>Improve my performance at work</td>
<td>11.5</td>
<td>9.9</td>
</tr>
<tr>
<td>To be able to work for myself</td>
<td>10.1</td>
<td>11.1</td>
</tr>
<tr>
<td>To be free to work in what I want</td>
<td>7.5</td>
<td>12.4</td>
</tr>
<tr>
<td>Possibility of performing different functions</td>
<td>5.7</td>
<td>7.3</td>
</tr>
<tr>
<td>Improve my position in the company I work for</td>
<td>3.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Increase my prestige with people</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Improve my personal relationships</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source: Authors’ survey data.
The main extrinsic reasons with the highest percentages were the same for both MG and FG, first, ‘increase my credibility as a professional’ and second, ‘improve my income’. These reasons had slightly higher percentages in MG. In third place, MG gave more emphasis to the response ‘improve my position in the labor market’ and FG to ‘be free to work in what I want’.

FG who were doing predominantly male courses had higher percentages in the following responses: ‘increase my credibility as a professional’, ‘improve my income’, ‘possibility of performing different functions’ and ‘improve my position in the company I work for’. Conversely, those doing predominantly female courses had higher percentages in responses: ‘increase my prestige with people’, ‘improve my position in the labor market’, ‘enter higher education more easily’, ‘improve my performance at work’, ‘be able to work for myself’ and ‘be free to work in what I want’.

To understand these response profiles, it is important to consider that:

a) 11.1% MG said that they already worked in the area of the technical course that they are doing, in contrast to 97.0% FG who did not;

b) 19.6% MG said they already worked in the area of the technical course that they were doing, against 4.8% FG;

c) the percentage of responses for desire to work or continue working in the area of the ongoing technical course in FG was greater: ‘very high’ reached 65.4%, against 57.5% in MG;

d) 11.5% FG, against 6.7% MG, responded negatively about whether they desired to continue their studies in the area of their chosen technical course;

e) 53.9% FG, against 46.4% MG, responded ‘little’ or ‘no’ to the question on whether the course that they were doing met their personal training needs;

f) 70.4% FG responded that ‘studying hard’ was the most important tool for success in a career, against 58.9% MG;

g) in MG, 17.2% chose the option ‘know the right people’ for career success, against 7.6% FG.

Final considerations

The investigated Pronatec scholarship recipients revealed precarious socioeconomic, employment and income conditions; however, FG more intensely, which may explain FG’s personal meanings attributed to the technical courses they were taking. The meanings given by the participants, independent of gender and internal differences to the genders, were not produced regardless of their lives. Leontiev (1983) argues that reasons and human interests are not a priori data, they are historical and social, developed in accordance with living conditions. They are not products of biological destiny, but rather social constructions. Social relations between genders have a material basis and are expressed through the social division of labor between them. If they have a material basis, changes do not occur spontaneously, they need to occur in connection with changes in the concrete conditions of existence. The reasons and personal meanings expressed by the study participants were and are socially constructed and have long-term and deeply rooted dynamics, from birth. Understanding this process requires seeking the dialectical links between objectivity and subjectivity. To this
end, research and reflection on and from personal meanings, such as proposed by Leontiev (1983), are of fundamental importance, to which we hope this article has contributed.

References