

## SECTION: ARTICLES

# Productivism in postgraduate programs from the perspective of the activity-centered ergonomics\*<sup>1</sup>

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## Abstract

The purpose of this article is to analyze the higher education teaching work, identifying the constraints faced by this professional category mostly due to the system of intellectual production evaluation linked to postgraduate programs. We studied the activities of the faculty that works in the Department of Production Engineering (EP) of a federal public university located in the countryside of the state of São Paulo. This theme has been chosen because teaching work started having a new logic in academic routines, based on the acceleration and intensification of activities and stimulus to productivity, which reproduces the characteristics of flexible work in the university scope. As to the methodological design, it is a qualitative descriptive research, complemented by the application of a single case study, outlined by the methodological approach of the Ergonomic Work Analysis (EWA). The results show that the professors who work in the postgraduate program of the selected institution are submitted to constraints and experience frustration because of the demand for publication in detriment of other activities that they consider to have more meaning and purpose. Some of the professors consider the intellectual production evaluation an oppressive process, which motivates productivism with no results and that does not reflect the good professors' performance when exercising their teaching, research and extension activities.

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## Introduction

Recent transformations in the labor field have had impact on workers and on how they relate to each other and to the labor context. Changes resulting from productive restructuring, flexibilization of labor legislation, precariousness of work routines and new ways of organization management have consequences for the workers' subjectivity and affect many professional categories (VILELA; GARCIA; VIEIRA, 2013; LÉDA, 2009; LANCMAN, 2008; MENDES et al., 2007).

The teaching work, specifically, started having a new logic in academic routines, based on acceleration and intensification of activities and the permanent urgency regime, which stimulates productivity and reproduces the characteristics of flexible work in the university scope, becoming a cause of physical and psychic illnesses in professors (MANCEBO, 2007).

According to Léda (2006), the repercussions of the flexible capitalist economy on the day-to-day of higher education teaching work result in precariousness of such teaching work, visible in public universities due to hiring of temporary professors, work routine intensification, work flexibilization and new assignments to professors.

The dynamics of this new environment is even more intensified when it comes to Master's degree and Doctoral degree programs, whose authorization and recognition are granted for a fixed term, depending on the opinion from the Higher Education Chamber (CES) of the National Council for Education (CNE), based on the results of the evaluation carried out by the Coordination and Improvement of Higher Level -or Education- Personnel - CAPES, and approved according to CNE/CES Resolution No. 1, of April 3, 2001.

According to CAPES, the requirements for authorization, recognition and renewal of postgraduate courses depend on, among other factors: the existence of a previous consolidated research group in the area of knowledge, the control and completion of administrative reports, and a system evaluation for the professors involved, which translates into the internal policies of accreditation and de-accreditation of professors in relation to the program, based essentially on the amount and classification of their publications. Therefore, the academic productivism can be understood as a phenomenon derived from the processes of postgraduation program evaluation, which is characterized by the excessive valuation of academic production quantity and tendency to disregard its quality (PATRUS; DANTAS; SHIGAKI, 2015).

The objective of this article was to analyze professors' work activity in the context of public postgraduate program from the Ergonomic Work Analysis (EWA), seeking to identify the constraints faced by this professional category, especially considering CAPES intellectual production evaluation system in force.

## **Theoretical foundation**

### **Health in higher education teaching work**

In recent years, there has been intensification in teaching work due to the possibilities of expediting the satisfaction of demands by means of information technologies (SGUISSARDI; SILVA JÚNIOR, 2009). The processes related to teaching, research, extension, and even to the administration of the university and departments, brought assignment of activities that are not always included in the teaching workload, forming a sort of invisible work, with participation in administrative meetings, time spent with issuance of opinions and with data input, and systemic assessments (MANCEBO, 2011; MANCEBO; GOULART; DIAS, 2010).

For the authors, changes in the teaching work also refer to the time extension, since the responsibility for the tasks does not end with the working hours, especially with the end of barriers between the personal and professional world promoted by cell phones, e-mails and others electronic means. Therefore, the working schedule has expanded, but it is an invisible fact in statistics in relation to an established 40-hour weekly work.

For Bosi (2007), it is possible to note increased amount of work and the growing idea that professors can be more productive and thus be assigned with more activities, which include preparing and giving classes, orientations, publications, projects, patents, presentation and participation in events, among others.

For Leher; Lopes (2008), this process of targeting in which researchers need to adapt their intellectual creation to rescripts and periodicals, develop scientific productions focusing on the themes and methodologies to be adopted, among other concerns, may represent a reality that is far from the researchers' expectations. In addition to intensifying the work, it brings a kind of professional valuation proclaimed in institutions and programs that stimulates competitiveness.

For Szelwar; Uchida; Lancman (2011), despite their different scientific approaches, the diversity of interpretation of work and its influence on social constructions and human subjectivity are addressed, among other areas, by the Activity-centered Ergonomics, in the sense of understanding the work and the impossibility of working and producing when strictly following the prescribed rules, determined by the production actors. For the authors, the inexorable existence of discrepancy between what is established and reality was and still is, for ergonomics, one of the central points of the discussion about activity.

It is important to emphasize that health construction should integrate a cognitive dimension for the understanding of the concept of competence, which in ergonomics corresponds to the structures that allow the workers to give meaning to their actions in labor situations (MONTMOLLIN; GRIZE, 1995). For Falzon (2004), being competent generates health, because it means that the individual has the skills that allow him/her to be selected, succeed and progress.

Therefore, working can be a way to stimulate initiative, autonomy and the development of specialization, allowing the individual to find personal pleasure at work. On the contrary, it can cause suffering if accompanied by pressure, constraints and multiple demands (FALZON, 2007).

According to Borges et al. (2006), how the work environment will affect the worker varies from individual to individual and can be defined by factors such as work experience, skill level, personality pattern, and self-esteem. For the authors, occupational stress is a general state of physiological tension and is directed related to the demands of the environment, constituting an extremely unpleasant experience, associated with feelings of hostility, tension, anxiety, frustration and depression.

Teaching work can be understood as an intellectual activity, but, in the past few years, professors have been submitted to the same conditions as operational workers, and, in the process of teaching and learning, the student started being seen as a product and the institution as a workforce producer (FRANCELINO, 2003).

Areas such as sociology, social work, health and education, for example, have presented the impacts of the process of transformation experienced in teaching and teacher training, revealing how the productive restructuring reached this professional category's doing (DUARTE et al., 2013; HYPOLITO, 2015; NUNES; OLIVEIRA, 2017). Other studies on teaching work, based on the experiences of professionals working in higher education institutions (HEIs) in Brazil, are particularly concerned with the flexibilization of work contractual relations, stimulation of productivity and privatization (LUZ, 2005; LÉDA, 2009; MANCEBO, 2006, 2010, 2011, 2013), discussing the transformations experienced in the routine of academic work within the scope of the teaching-research-extension tripod.

Other pieces of research (BOSI, 2007; MANCEBO, 2007; ARAÚJO et al., 2003; GASPARIN; BARRETO; ASSUNÇÃO, 2005; LEITE et al., 2008; CARVALHO, 1995) present the precariousness of the professor's work, evidencing the devaluation of the professor's image, lack of material and human resources, increased work rhythm and intensity, and other situations that constitute work psychosocial factors and that may generate physical and mental overloads that influence satisfaction, well-being and health of this professional category (MARTINEZ, 2002). When it comes to postgraduate courses, intensification of intellectual productivity, demand for guidance in the research area, need of obtaining resources, among other factors, make teaching activity an even greater challenge.

## **Method**

This research can be classified as descriptive, in which facts and data are recorded and correlated without manipulation (CERVO; BERVIAN; SILVA, 2007). The approach used is qualitative, in which the existence of a dynamic relation between the real world and the subject is considered, where the objective world and the individual's subjectivity form an inseparable bond (SILVA; MENEZES, 2005).

As for the technical procedures, a theoretical (narrative and documentary bibliographic research) and empirical approach (use of the Ergonomic Work Analysis in the application of a case study) was used, combining a set of tools and instruments for data collection.

A practical adaptation of the EWA was used, and it is important to emphasize that this research is aimed at using this approach as a driver for the analysis of real work, in which the subject plays a central role, and not performing an ergonomic intervention.

Thus, in order to simplify the method described by Guérin et al. (2001), this work is based on four essential stages of analysis: a) demand analysis; b) task analysis (established work); c) activity analysis (real work) and; d) diagnosis.

The case study was carried out at a federal public university, in the Department of Production Engineering, considering the responses of all 21 professors belonging to the board, and 15 of them working in the postgraduate program. This application was made to allow identification of the different perceptions about the intellectual production evaluation by those who work and do not work in the postgraduate program, since, according to Yin (2015), the investigation of the case study should have multiple sources of evidence to increase reliability.

In order to enable data triangulation and collection of information about teaching work, the tools used were:

i) questionnaire applied to the 21 teachers that compound the study object through Google Forms, with 19 multiple-choice and dissertative questions, operationalized from the literature and based on instruments validated in other studies (CORLETT; BISHOP, 1976; CAMERON, 1996; BERTONCELLO et al., 2004; GREGHI, 2007; BRAATZ, 2009; FONTES, 2011; SILVA, 2016). Seventeen respondents returned the questionnaire, representing an 80.95% return rate;

ii) work diary elaborated focusing on creating a simple road map to accompany professors' daily life for one week. The tool offered freedom of completion, and there were some divisions to indicate "planned work activities", "activities you could perform/activities you performed and were not planned" and "observation". Although it is a simple filling tool, it was very difficult to obtain return. Regarding the 19 diaries distributed personally to the professors available in the department, only three were returned filled, making it difficult to analyze the activities and indicating the professors' difficulty in finding additional time to complete one more report;

iii) participant observation, with the objective of evidencing and taking into account relevant events that occur during the activity (GUÉRIN et al., 2001) and;

iv) semi-structured interviews, in order to support the construction of the narrative about teaching work reality in the postgraduate program, confronting the main aspects indicated in the questions of the questionnaire with interviewees' verbalizations.

## **Results**

### **Description of the activity general scenario**

In the Department of Production Engineering studied, 53% of the professors have been working for 6 to 10 years, 19% have been working for 11 years, that is, since the course creation and approval, and the remaining 28% have been working for less than six years at the institution.

Most of the respondents, 58.8%, are between 41 and 45 years old, a little more than 22% are under 40 years old, and 17% are over 45 years old, characterizing a profile of young researchers. In the gender distribution, 53% are women and 47% are men. As for data on marital status, about 65% are married, 30% are single, and 5% are divorced.

Regarding employment relationship, more than 70% of the professors are classified as Adjunct Professor, and about 30% as Associate Professor.

In addition to teaching, administrative, coordination and representation activities are also part of their assignments, and almost half of the interviewees perform some of these activities along with the other duties of the function. Considering these and other activities related to the function, it was observed that, despite the establishment of 40 hours per week for dedication to the teaching activity, the work developed by the professors exceeds this work schedule.

In general, when asked to list the activities and the time dedicated to each of them, it was found that about 30% of the professors work much more than the time established, sometimes amounting to 60 to 73 hours per week. The other professors work, on average, 46 hours per week, which includes extension of working hours and frequent work on weekends.

It was possible to verify, in the verbalizations, the existence of several moments of additional work, in which the professors attend students through electronic means, correct tests, and perform activities that require greater concentration at home, since the constant interruptions at the university make it difficult. Most activities planned are subject to external interference and cannot be carried out within the time frame estimated.

Not all teachers are able to take lunch break every day, others need to pick up their children from school, and it is a moment they try to solve personal problems outside the university. The evening period, which is theoretically free for professors, is used for reading about the research area, filling in and sending formal department documents, answering e-mails and preparing the following day's activities, indicating workload and responsibility for the activities at practically all periods of the day.

Of the total number of interviewees that returned the questionnaire, 71% work directly in the postgraduate program, and with regard to the group that does not participate in the program, half of them have participated at some point, and left. The main reasons for having quit the program include lack of alignment between the requirements of the postgraduate studies and what is considered important in terms of personal and professional goals; and disagreement with the program goals from CAPES rules.

As for the other group members that have never participated in the postgraduate program, when asked if they wanted to join it in the future, most of them responded positively, signaling interest in developing research and integrating the postgraduate program. A minority group (less than 20%) said they had no interest in working in the postgraduate program, without stating the reasons.

On the other hand, most of the professors who are part of the program, 91%, state they are satisfied and consider it rewarding to work in the postgraduate program, especially for the opportunity to develop research, generate knowledge and deal with more mature and interested students who are likely to be future researchers.

Regarding physical tiredness, more than 85% of the respondents indicated that preparing classes and the related activities, as organizing classrooms, moving multimedia equipment, and moving themselves to pick up and return the keys to the university janitorial are considered physically demanding.

In addition, there was indication of mental fatigue factors, as the need for dealing with lack of resources and with scarce time, demand for publications, classified as abusive, and internal evaluations on the professors' intellectual production, which exposes the professor to colleagues and is not in line with all the work he/she produces throughout the year. Chart 1 shows the statement of one of the interviewees.

**Chart 1** - Verbalization about work requirements

“Other variables that make the work environment tense are the requirements for the permanence of the professor in the postgraduate program, in the sense of demand for publications in periodicals. Performing quality research requires a lot of time, and at the same time the professor have to dedicate himself/herself to administrative tasks, which takes a great deal of time and is not valued. This creates a permanent state of tension. Administrative tasks take up a great deal of useful time. They are many, difficult to predict, random, and therefore hinder good planning. Examples are commissions of several types for specific tasks, coordination of course and postgraduate program, department leadership, coordination of internships, and so on. Because they are administrative tasks, many processes are not precisely defined, which makes it necessary to consult multiple people in different instances”.

(Verbal information)

Source: Elaborated by the authors (2018).

Some activities require joint dedication of mind and body, such as: correcting tests (88%), which is perceived as very tiring and requires a differentiated attention, since it is necessary to understand students' reasoning and then give an explanation that justifies the grades, so that there is no harm or doubts for the students.

Next, they mentioned giving classes(53%), which involves standing, exercising the body and mind in the development of reasoning; and, finally, interacting with peers (35%), which usually occurs in administrative meetings where guidelines and allocation of funds are discussed, among other issues that may eventually lead to divergences.

Considering the physical and mental tiredness resulting from work, we sought to know how pauses are performed within the work routine. Half of the respondents said they take breaks ranging from 5 to 10 minutes, or even 20 to 30 minutes, at least once or twice a day, depending on their activity, commitments and fatigue. Some have even said that despite the freedom to stop their activity whenever they want, they often end up forgetting to leave the computer. Also considering this reason, another half of the professors say they do not take breaks on most days. Some say that they perform activities that require a lot of concentration and the pauses make resuming work very complicated and, therefore, choose not to stop working.

## **Impacts from work context**

The impacts arising from the work context were associated with the intensity with which certain procedures, postures and efforts are required in order to carry out the activities pertinent to the work. Need of having good memory and mental concentration (65%), using vision continuously and paying attention (58%), solving problems (41%), and controlling emotions (35%) were the major requirements pointed out by professors. Learning new things and dealing with unforeseen events were both pointed out by 29% of the respondents and, finally, dealing with the need for predicting events, pointed out by 23% of the interviewees, was the last requirement considered highly demanding.

As a result, being in static positions for a long time, having to disguise feelings and standing for a long time, are considered moderately required demands and were pointed out by 35%, 29% and 23% of the professors, respectively. In the space for comments, it was emphasized that the teaching activity is an exhausting and solitary work, in which the system is responsible for causing lack of interaction with co-workers, integration that occurs only in meetings whose objective is many times only to resolve conflicts, without promoting an important social union.

In addition, it was mentioned that the goals and short deadlines associated with the dependence on factors and people that the professor has no control over is a highly stressful factor, bringing serious physical impacts. Another professor said having the impression that most of the colleagues impose the work demands, which have to be dealt with in the daily routine.

Considering tiredness and difficulties mentioned above, it can be seen that the professor's work routine can lead to physical symptoms, which corroborates 85% of the professors' responses that indicated pain and discomfort. Moderate head and neck pain were reported by almost 60% of the respondents, whose reasons mainly include the time they spend on the computer to perform research, prepare classes, fill out forms and other function activities. Mild to moderate pain and tingling in the shoulders, arms and wrists were noted in more than 40% of responses and are associated with activities that require the use of the computer. In the comments, many professors associate the discomforts they feel with tensions and relationships at work and not with physical demands.

## **Work organization conditions**

Concerning the difficulties faced at work, aggressive pressure for results (publications) was pointed out by about 65% of the respondents as the main problem. Existence of conflicts in the work environment was also highlighted, which included comments about individualism and little interaction among colleagues, stimulated by the program evaluation program.

Communication among peers is considered unsatisfactory by 53% of the respondents. This is a relevant question, since co-workers can be considered a psychosocial support to the worker, not only in terms of the quality of interpersonal relationships, but also in the



development of objective conditions to guarantee the work performance (GREGHI, 2007). All work activity should be analyzed from the interactions in the work collective, which, in turn, should be established under the dynamics of trust among its members (DEJOURS, 2004).

Still on the work organization, aspects such as rigid norms for the execution of activities and lack of stimulation to the prioritization of time for self-development appear as negative aspects that frequently occur.

On the other hand, working at a university allows a certain flexibility that reflects very positively on the professors' performance and perception. Autonomy to carry out the activities, for example, is indicated by more than 70% of the professors as a positive factor.

Infrastructure and adequate facilities also contribute to the accomplishment of the work and please more than 60% of the interviewees. Most of the professors, 84%, consider that they have a pleasant work environment in most of the time, and that, despite a differentiated hierarchical structure (in which all are peers), there is the influence of a leadership that directs part of the activities, without limiting the freedom to perform work.

The division of responsibilities relevant to teaching activity is not considered clear to most professors. Almost 90% of the respondents pointed out that teaching, research and extension activities for which they were hired are not well-defined and are mixed in the order of priority, even suffering interference from several other responsibilities that take time and require more or less dedication.

More than 70% of the respondents consider that the eight-hour work period established is not respected and that although there is flexibility to leave work or eventually solve personal issues during that time, and even being possible to develop a part of the work at home, most of the time it is not healthy not to disconnect from activities, working when you should be enjoying your free time.

Other aspects still related to the topic of organization generated division in professors' opinion, such as time management as a generator of anguish at work: half of them consider that this never occurs and corroborates work autonomy; and the others indicate that sometimes, and even with some frequency, they experience distress by having to choose periods or limit work time based on a great demand for activities.

In the interviews, it was made clear that there is some difficulty in finishing work even when at home. In the reports, it was possible to perceive work frequently interfering with personal life and vice versa, making the task of delimiting the responsibilities as professor and as individual complex.

Regarding the recognition of work results and the fair evaluation of the performance, 65% of the professors said that these processes eventually occur. For Dejours (1998), recognition is decisive in the construction of the individual's identity and in the transformation of suffering into pleasure. Recognition is by nature essentially symbolic, but it can also be expressed by material means and derives from the individuals' analysis of their work meaning in the collective, mediated by peers and superiors.

When the quality of work is recognized, efforts, doubts, anxieties, and disappointments make sense. Suffering is validated because it contributed to the organization (productivism) and to the individuals themselves (differentiation between peers, contributing to the

formation of their identity). On the other hand, if recognition is not granted, it generates suffering and a vicious circle that may lead to personality destabilization, and even mental illness (DEJOURS, 2004).

## Issues caused by work context

Pressures at work reflect physically and psychosomatically on workers. Regarding teaching role, more than 70% of the respondents say they feel pain in the body, headaches and malaise as a result of the workday. The second most reported issue involves changes in sleep, reported by 60% of the professors. More than a third of those surveyed said they often used tranquilizers and sedatives. Feeling of emptiness, difficulty in making friends, loss of self-confidence and irritation with everything are reported by 29% of the interviewees. To better explain this context, Chart 2 presents the verbalization of some professors interviewed.

**Chart 2** - Verbalizations indicating issues in the work context

“Major pains are related to bad posture, typical of research activities or that require a lot of concentration, which extends sitting time”.  
“Attending meetings is extremely tiring, and it’s a cultural problem”.  
“I have undergone gastric and anxiety treatment in the last 6 months”.  
“It’s an exhausting and lonely work”.

(Verbal information)

Source: Elaborated by the authors (2018).

With a moderate frequency, there are changes in appetite and digestive disturbances, social isolation, sadness and the habit of drinking to relax, indicated by a little more than 20% of the professors. However, habits such as smoking, using other types of illicit drugs, crying for no apparent reason, losing control or being aggressive are never or rarely experienced. There are also no reports of circulatory or cardiovascular disorders. The medical treatments that professors have undergone in the last six months were related to gastritis, viruses, ringworm, allergies, depression, anxiety, migraine and cervicalgia.

## Perception of CAPES evaluation system

When asked about the intellectual production evaluation system (specifically article publications) proposed by CAPES and internalized in the program norms in accreditation and de-accreditation criteria, their answers are divided into four groups: i) they consider it an unfair and oppressive system (41.2%); ii) they do not consider it unfair, within normality (17.6%); iii) they think it is consistent and necessary for a consistent program evaluation (29.4%); and iv) they do not know or do not want to comment (11.8%).

The first group affirms that the intellectual production evaluation system is considered simplistic, oppressive and limited because it does not consider differences between areas, personal contexts, the reasons why the researcher is not publishing, and it is seen as a single measure of the professor's performance. It does not involve the entire scope of teaching, research and extension that is compulsory for universities.

Some professors consider that being measured only by what is published favors disregard for other important activities such as teaching, developing a student, managing departmental activities, among others. In Chart 3, it is possible to analyze the context considering the words of one of the respondents.

### Chart 3 - Perception of CAPES evaluation system

“(The system) is awful, has made a science of dubious quality to advance, has made professors sick, even caused suicide among doctoral students (see recent case at USP), and it is perverse because the goal setting is always higher, when, in fact, for the professor to meet it, he/she depends on institutional conditions and publication journals over which he/she has no control or management. Not to mention the difficulty of having to publish in English, which is not our mother tongue and which brings us additional difficulties. The evaluation system is also perverse because if we are removed from it, we will no longer participate in the postgraduate program and we will not publish our work, entering a downward spiral ...”

(Verbal information)

Source: Elaborated by the authors (2018).

In the opinion of another respondent, the “publishing meter” stimulates productivism of poor quality and without any return to society, not fulfilling the research scientific role, which is to promote social solutions.

As for the group of professors who do not consider the evaluation system unfair, the verbalizations are more neutral as “normal,” or “subordinated to international mechanisms.”

On this aspect, in one of the interviews, it was pointed out that the evaluation system proposed by CAPES is suggested by peers in the area, colleagues who share the same needs and difficulties found in several programs. If there is desire to change the evaluation reality, attributed weights and other particular criteria, the professor has to become reference with prominent evaluation in order to start having “voice” and representativeness that guarantees the evaluation of new proposals for improvements and changes.

On the other hand, professors who consider the system fair are based, for example, on the coherence of the criteria, which are widely discussed and aligned with all the programs in the same evaluation area. In addition, they consider that the postgraduate program is an individual choice for the career, and the best choice is at the discretion of each professor, enabling the association between the pleasure of the research and the pressure to which they are submitted in this education level.

In one of the positive statements about the evaluation metrics, one of the professors mentioned them, as can be seen in Chart 4.

#### Chart 4 - Perception of evaluation metrics

“I think it’s fair. There is no way to progress without pressure and results. You have to face it as something natural and not as aggressive in the system. I believe that every professor with Doctoral degree has a good academic background, and this should be converted into publications naturally. Accreditation/de-accreditation process by means of indicators as scientific production is natural. Without this, how to progress/improve towards a full and high-performing scientific development? Fighting against these metrics is backsliding and not progress”.

(Verbal information)

Source: Elaborated by the authors (2018).

Other professors in this group report that the accreditation and de-accreditation of professors, based on the volume and quality of the periodicals in which their texts are published, occur in all areas, not only in Engineering III. As it is a criterion by which the program will be evaluated, it should be the reference for the internal evaluations as well.

The professors had room to give their opinion on the possible changes that could be made and how they could be enabled. One of the possibilities mentioned would be to make the indicators of academic productivity flexible, valuing other activities, such as teaching and orientation.

Some reports emphasize that the weight given to article publishing is greater than, for example, the construction of patents or technical books that often represent greater difficulty and more complex development, and end up being less valued.

Another factor cited, which demands change in the logic of evaluation, is that this productivism and marketing system, of “making articles and papers” tends to distort the professors’ role within the university as it encourages activities more directed to article publication than to the development of research and researchers.

In the last questioning about a good professor’s true role, the answers were diverse, but they expressed need to become better people in order to be able to fully exercise their professional activities, which in turn should cover priority aspects of the students’ human formation, both personally and professionally. In addition, they also mentioned, according to Figure 5, that:

#### Chart 5 - Verbalization indicating the role of a “good professor”

“[Being a good professor is being] a tutor capable of motivating students to study and research, as well as promoting the discussion of improvements for society”.

“It means to know the subject, have didactics, develop education in the classroom and bring innovations (...) However, I venture to say that none of us is trained to be a professor. No one in this country has Doctoral degree with focus on teaching, except, of course, professors in education and other related areas”.

(Verbal information)

Source: Elaborated by the authors (2018).

It is important to emphasize that, although research has been an important factor in the formation of a good professor, the valuation of intellectual production does not appear as a criterion to indicate a good professional. None of the respondents mentioned that it is necessary, in order to practice the teaching profession, reference to the publications of each professor or to their recognition and prestige within the postgraduate program or even within the university.

## **Discussion of the results**

The evaluation of the Brazilian postgraduate program, although widely debated (MATTOS, 2008; 2012; BIANCHETTI; MACHADO, 2009; MOREIRA, 2009; TREIN; RODRIGUES, 2010; ALCADIPANI, 2011), has not solved the contradictions pointed out by professors and researchers (PATRUS; SHIGAKI; DANTAS, 2015). For these authors, the culture of productivism has transformed the knowledge process into commodity, limiting it to products, performance levels and quality standards. Although Capes does not evaluate the professors' individual performance but the performance of the Postgraduate Programs, in practice CAPES criteria are those that put the most pressure on the professors to increase their individual performance. Due to this fact, it is relevant to study the contribution of this system in academia.

Thus, based on the analysis presented in this article, it can be observed that the intellectual production evaluation of the professors who work in the postgraduate program greatly increases the constraints in the work, and it occurs because of the need for maintaining the volume of publication according to CAPES criteria.

Pressing themselves to publish articles along with the public process of accreditation and de-accreditation of professors make the work at postgraduate programs an activity that causes constraints, frustrations and even feelings of injustice. The work observation, the verbalizations made at the meetings and the interviews allow affirming that, despite the collective understanding of need to disseminate scientific research in articles and journals, this aspect seems to take greater proportion of the work done, since it is prioritized to the detriment of guidance or giving classes.

When a professor does not reach the goal of publication, he/she have to analyze his/her permanence in the program and stimulate a series of decisions ranging from the systematic increase of his/her intellectual production to his/her self-exclusion from the program. This reflection, which can be done individually or by means of debate in collective forums, may be distressing, and leads a portion of the professors (in the case of the respondents, 41.2%) to consider CAPES evaluation system, proposed and used in the program, unfair and generator of physical and mental tiredness.

However, although it does not influence the professor's monetary return and has little impact on the professional progression of the federal academic career, being part of the group of researchers that composes the postgraduate program brings personal satisfaction, since it enables scientific development for the professor's area,

participation in research, contact with researchers from other institutions, contribution to training of future researchers, and contact with more mature students.

In addition, the postgraduate program forms an “intellectual elite” within the university and participation in this group brings satisfaction that is used by professors as a mechanism of recognition and prestige of their own work. Therefore, even with the embarrassment that comes from acting in the postgraduate program, it brings appreciation, recognition and personal satisfaction.

Teaching activity is defined by the principle of autonomy of intellectual activity, whose objective in education is to train new teachers, encourage new researchers, prepare professionals for non-academic activities, anchored in their culture, awaken individuals for reflection, discovery, invention, creation; finally, in other others, to develop people (CHAUI, 1999, 2016). In this sense, the university should be seen as the place where a theoretical-critical process of ideas, opinions, and positioning is developed, as well as a space capable of generating concrete proposals aimed at the effective development of society (FÁVERO; SGUISSARDI, 2012). However, teaching work is also affected by the transformation of the work environment that takes place at the university, of new priorities and of new ways of organizing work.

Considering the professors’ work of the postgraduate program studied, it is clear that a logic of productive demand - ranging from the basic responsibilities of teaching to the administration and management of the university and culminating in the obligation to frequently publish their intellectual production - compares teaching work with industrial work (monitored, rhythmic and often limited).

In order to monitor and classify the quality of the programs, CAPES proposes an evaluation model that considers the professors’ intellectual production intensely. Although the publication of articles is a usual result of research development, all professors know that this does not reflect the quality of the program as a whole.

It is important to maintain this debate updated, since the rules of classification and evaluation of the intellectual production are the main factors of dissatisfaction of the professors who are part of the postgraduate program of the case studied. In the comments made by the professors, it was possible to identify more than 40% of rejection to this pressure for publication and the discussions about this subject in meetings generate discomforts and diverse embarrassments.

Thus, considering all these aspects of teaching activity reported in the case study of this research, and relating them to the theoretical constructs on teaching work found in the literature, it is possible to confront some verbalizations and verify that they corroborate the research that has been done about the higher education teaching work. Chart 1 presents a synthesis of the theoretical and empirical relationship present in this article.

**Chart 1** - Articulation between theoretical constructs and verbalizations

Aspects evaluated	Theoretical constructs on teaching work reality	Real verbalization that confront and corroborate the literature
<b>Impacts from work context</b>	Increase of workload (MANCEBO, 2010)	"Major pains are related to bad posture, typical of research activities or that require a lot of concentration, which extends sitting time"
	Intensification of teaching work activities (SGUISSARDI; SILVA JÚNIOR, 2009)	"Administrative tasks take up a great deal of useful time. They are many, difficult to predict, random, and therefore hinder good planning"
	Mental overload that affects health (MARTINEZ, 2002)	"In spite of freedom to stop almost all my activities when I want to, many times I forget to leave the computer"
	Productive professors (BOSI, 2007)	"Correcting test is tiring, you have to reproduce the line of reasoning of each student and give a fair grade, whose calculation and achievement should be understood by the student"
<b>Conditions of work organization</b>	Working in the postgraduate program makes the challenge greater (HUTZ et al., 2010)	"Participating in meetings, dealing with lack of resources and scarce time, and abusive demands for publications (for postgraduate program) is mentally tiring"
	Work is not finished with the end of working hours (MANCEBO; GOULART; DIAS, 2010)	"Sometimes, it is Saturday afternoon, Sunday evening and we are correcting tests, academic students' tasks, communicating with students through WhatsApp"
	Invisible work (MANCEBO; GOULART; DIAS, 2010)	"The effort is predominately mental, and less physical"
<b>Issues caused by work context</b>	Feeling that there is something irrational and even unethical about the activity (MANCEBO, 2013)	"I quit the postgraduate program because I got pregnant and realized that I would not meet the necessary publication punctuation"
	Teaching "malaise," apathy, physical, mental and labor illnesses (DEJOURS, 2004; MANCEBO, 2007)	"Relationship with department colleagues is frustrating and discouraging, considering that their positioning in relation to the program values the individual in detriment of the collective"
<b>Perception of CAPES evaluation system</b>	Stimulus to productivity (LUZ, 2005; LÉDA, 2009; MANCEBO 2006; 2010; 2011; 2013)	"The evaluation system of our intellectual productivity is awful and motivates productivism with no quality and no return to society"
	Limitations and mercantilization of the knowledge process (PATRUS; DANTAS, SHIGAKI, 2015).	"It is more advantageous to publish with someone from outside the university than to develop research with a department colleague because we need the punctuation and this is discouraging"

Source: Elaborated by the authors.

## Conclusion

It should be noted that the main constraint pointed out by the professors is the constant demand for publication in journals classified in high Qualis strata, which contributes to the intellectual production evaluation as an oppressive and limited process

that does not reflect a good professor' performance in his/her teaching, research and extension activities.

The effects of CAPES's proposed intellectual production evaluation system, and replicated in the processes of accreditation and de-accreditation of postgraduate program professors include feelings of oppression, emotional tiredness and individualistic attitudes among team members. Therefore, it leads to a disruption of the work collective, observed in most of the opinions evaluated and which is also corroborated by the scientific literature.

Although there are some professors who agree with the formal evaluation procedures, there is no consensus among the group that the pathway adopted by the postgraduate program in Production Engineering continues to be capable of maintaining a multidisciplinary scope, at the same time seeking a higher evaluation grade.

Thus, higher education teaching work proved to be an activity of high physical and cognitive demand, expressed by an even more pronounced dichotomy in the postgraduate program, between the pleasures of knowledge production and the tiredness caused by the demands of intellectual production.

Therefore, the actual analysis of the work activity built in this research contributes to the visualization of an updated panorama of the higher education teaching work reality in the postgraduate programs in the country. Although they are limited to the local university studied, the data analyzed are compatible with other studies in the literature that contextualize the teaching activity, once again explaining the relevance of EWA as a method of analysis and as a driving force to contribute to changes in the work environment.

For future research, the continuity of studies to the proposition of public policies that may alter this reality of work, as well as the construction of broader scenarios of the teaching situation in the postgraduate programs in the country and even in other countries, are possibilities for the effectiveness of the Activity-centered Ergonomic purpose, which is: to transform work and, in this case, contribute not only to the worker professors involved, but also to the whole process of developing higher education and producing quality knowledge through scientific research.

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