

## JOB CONTEX AS A PREDICTOR OF CHRONIC FATIGUE SYNDROME IN TEACHERS

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**Abstract:** *The article examines the impact of work on the development of chronic fatigue syndrome (CFS). Today, cause of CFS, the mechanisms of formation and development of this syndrome have not been established, since this syndrome is relatively new. In the domestic science, there is only a medical aspect, within the framework of which symptomatology is established, and some models of therapy are offered. Although working people often have chronic fatigue syndrome, the analysis of the job context and its impact on the development of this syndrome has been poorly studied to date. The study involved 432 teachers, including 216 teachers of additional education and 216 teachers of general education schools. The hypothesis is that the job context (characteristics of work, level of work motivation, satisfaction with work) and self-regulation influence the development of the syndrome of chronic fatigue in teachers. The presence of peculiarities in the formation of self-regulation, the evaluation of the characteristics of work, the level of work motivation and job satisfaction of teachers, depending on the degree of risk of chronic fatigue syndrome, are identified. The influence of the job context, job satisfaction and self-regulation on the level of fatigue and the risk of chronic fatigue syndrome is established.*

**Keywords:** chronic fatigue syndrome, self-regulation, job satisfaction.

Life in modern society is characterized by the continuous development of technology, the increasing pace of life and the flow of information that needs to be processed. Increasing cognitive, emotional and conductive loads can lead to stress, body malfunction and cause new „diseases of civilization”, one of which is the syndrome of chronic fatigue. Since this syndrome is relatively new, today there are no established ideas about the causes, its causes, as well as the mechanisms of formation and development. In Russia, symptomatology of the syndrome is established, some models of therapy are offered only based on medicine. Although working people often have chronic fatigue syndrome, the analysis of the job context and its impact on the development of this syndrome has been poorly studied to date. Due to this, it is one of the most urgent issues in this area.

## The problem statements

Chronic fatigue syndrome is a disease characterized by a combination of symptoms that progress for a long time, usually more than six months. The most important symptom is uncaused, strongly expressed fatigue, which occurs even after minor mental and physical exertion. It should be noted that a person feels tired even after sleep and rest, moreover, it is often accompanied by various somatic symptoms of pain all over the body or in certain organs.<sup>1</sup>

Analysis of scientific data relating to chronic fatigue syndrome indicates that this pathology occurs in different geographical areas, as well as in different socio-demographic groups. It was found that CFS occurs in both sexes, at all ages, and in all racial and ethnic groups. The incidence of the disease in women is 522 cases per 100.000, and in men - 291 cases per 100.000 population.<sup>2</sup>

CFS occurs more often in adult working people and is less common among children and adolescents.<sup>3</sup>

Data on the prevalence of this disease in society are ambiguous. In different sources, the prevalence of CFS varies from 0.2% to 6.41%.<sup>4</sup> In

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<sup>1</sup> N. G. Artsimovich, T. S. Galushkina, *Chronic Fatigue Syndrome*, Moscow, Nauchnyy mir Publ., 2002, p. 220; M. Barrow, *Chronic Fatigue Syndrome*, Moscow, Panorama Publ., 1999, p. 181; A. P. Isaev, G. A. Shorin, S. A. Boars, *Chronic fatigue syndrome. Treatment and prevention*, Chelyabinsk, Versiya Publ., 1997, p. 112; C. Maslach, „The concept of the syndrome of emotional burnout: modern research and its application in psychiatry”, in *World Psychiatry*, no. 15, 2016, p. 104; L. M. Mitina, *Psychology of Labor and Professional Development of Teachers*, Moscow, Akademiya Publ., 2004, p. 302; L. M. Mitina, G. V. Mitin, O. A. Anisimova, *Professional activity and teacher's health*, Moscow, Akademiya Publ., 2005; N. Afari, K. B. Schmaling, R. Herrell, S. Hartman, J. Goldberg, D. S. Buchwald, „Coping strategies in twins with chronic fatigue and chronic fatigue syndrome”, in *Journal of psychosomatic research*, vol. 48, no. 6, 2000, pp. 547-554.

<sup>2</sup> O. Yu. Bogaevskaya, „Prevalence of chronic fatigue syndrome in dental patients”, in *Modern high technologies*, no.12, 2009, pp. 21-22.

<sup>3</sup> M. Barrow, *Chronic Fatigue Syndrome*, Moscow, Panorama Publ., 1999, p. 181; V. Deary, „A precarious balance: Using a self-regulation model to conceptualize and treat chronic fatigue syndrome”, in *British journal of health psychology*, no. 2, 2008, pp. 231-236.

<sup>4</sup> L. F. Bikbulatova, M. A. Kutlubaev, L. R. Akhmadeeva, „The fatigue assessment scale, adaptation and assessment of psychometric properties in the hospitals of neurology and therapy clinics”, in *Medical bulletin of Bashkortostan*, vol. 7, no. 1, 2012; A. P. Isaev, G. A. Shorin, S. A. Boars, *Chronic fatigue syndrome. Treatment and prevention*, Chelyabinsk, Versiya Publ., 1997, p. 112; C. Maslach, „The concept of the syndrome of emotional burnout: modern research and its application in psychiatry”, in *World Psychiatry*, no. 15, 2016, p. 104; L. M. Mitina, *Psychology of Labor and Professional Development of Teachers*, Moscow, Akademiya Publ., 2004, p. 302; S. Hatcher, A. House, „Life events, difficulties and dilemmas in the onset of chronic fatigue syndrome: a case-control study”, in

this case, it is important, based on which the diagnosis of CFS was made, since in self-reporting the prevalence is fixed at 3.28%, and in clinical assessment the prevalence is 0.76%.<sup>5</sup> However, some specialists believe that only 16% of patients are diagnosed with CFS, although there are more persons with this disease.<sup>6</sup>

S. G. Komarov claims that today the prevalence of CFS among the working population of Moscow is 3.7%, and a high risk of developing the disease is observed in 18.5% of the working population. At the same time, the authors believe that the obtained data, most likely, does not reflect the true extent of the problem, since many people with CFS disease are disabled.<sup>7</sup>

It should be noted that most researchers note a tendency to increase the number of people with this disease.<sup>8</sup> Moreover, it is indicated that there are areas of professional activity with a rather high risk of chronic fatigue syndrome. At the same time, pedagogical activity is allocated as potentially dangerous for the emergence of CFS.

The professional activity of the teacher is extremely important, since the quality of education is directly dependent on the knowledge and experience of teachers. However, at present there is a certain

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*Psychological medicine*, no. 7, 2003, pp. 1185-1192; J. Nijs, „In the mind or in the brain? Scientific evidence for central sensitisation in chronic fatigue syndrome”, in *European journal of clinical investigation*, vol. 42, no. 2, 2012, pp. 203-212.

<sup>5</sup> S. Kempke, „Self-critical perfectionism and its relationship to fatigue and pain in the daily flow of life in patients with chronic fatigue syndrome”, in *Psychological medicine*, vol. 43, no. 5, 2013, pp. 995-1002.

<sup>6</sup> A. O. Prokhorov, „Self-regulation of mental states in educational and pedagogical activity”, in *Questions of psychology*, no. 5, 1991, pp. 156-161; J. Nijs, „In the mind or in the brain? Scientific evidence for central sensitisation in chronic fatigue syndrome”, in *European journal of clinical investigation*, vol. 42, no. 2, 2012, pp. 203-212.

<sup>7</sup> S. G. Komarov, *Diagnosis of the syndrome of chronic fatigue and the algorithm of organization of medical care for patients*, Universitetskaya nauka: teoriya, praktika, innovatsii Publ., 2008, p. 247; S. G. Komarov, G. A. Komarov, „The syndrome of chronic fatigue is a disease of civilization”, in *Standards and Quality*, no. 11, 2010.

<sup>8</sup> L. F. Bikbulatova, M. A. Kutlubaev, L. R. Akhmadeeva, „The fatigue assessment scale, adaptation and assessment of psychometric properties in the hospitals of neurology and therapy clinics”, in *Medical bulletin of Bashkortostan*, vol. 7, no. 1, 2012; A. P. Isaev, G. A. Shorin, S. A. Boars, *Chronic fatigue syndrome. Treatment and prevention*, Chelyabinsk, Versiya Publ., 1997, p. 112; C. Maslach, „The concept of the syndrome of emotional burnout: modern research and its application in psychiatry”, in *World Psychiatry*, no. 15, 2016, p. 104; L. M. Mitina, *Psychology of Labor and Professional Development of Teachers*, Moscow, Akademiya Publ., 2004, p. 302; S. Hatcher, A. House, „Life events, difficulties and dilemmas in the onset of chronic fatigue syndrome: a case-control study”, in *Psychological medicine*, no. 7, 2003, pp. 1185-1192.

discrepancy between the social role of the teacher and his real position in society. On the one hand, the state constantly emphasizes the importance of the teacher's work. On the other hand, various difficulties arise (for example: bureaucratic problems) that prevent teachers from effectively fulfilling their professional tasks. This contributes to the stress of teachers and negatively affects their health and ability to work.<sup>9</sup>

It should be noted that various researchers regularly noted problems with physical and mental health in this professional group. For example, it was found that 73% of teachers notice a deterioration in mood, various types of memory impairment, distraction, short temper and disagreement of all cognitive functions in general. At the same time, 91% of teachers complain of pain in various organs and systems of the body. Only 19% of teachers are satisfied with their physical and mental state.<sup>10</sup>

In the studies of A. K. Osnitsky was shown that the likelihood of the occurrence of neurotic conditions in teachers increases in proportion to the work experience. It is noted that almost one third of those surveyed demonstrate a lower level of socio-psychological adaptation than patients with neurosis. The presented data objectively demonstrate the importance of occupational health in the educational sphere, the problem of which is at the center of attention of the acmeological, general pedagogical and valeological approaches.<sup>11</sup>

However, the researchers of this problem did not study the importance of the organizational approach for analyzing the causes of chronic fatigue syndrome the analysis of the impact of the job context. The authors believe that this is a very important aspect that needs to be studied. A feature of the professional activity of the teacher is that the professional activity of the teacher is characterized by insufficient mobility and does not involve serious physical activity. At the same time, doctors emphasize that prolonged sitting in the wrong posture can lead to the development of diseases of the musculoskeletal system radiculitis and osteochondrosis. In addition, staying in a vertical position for a long time can cause chronic insufficiency of the veins of the lower limbs, which will lead to the development of various disorders of the

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<sup>9</sup> F. G. Aminev, *Professional Teacher Health, Proc. of BSU „Material and Spiritual Culture of the Peoples of Russia: History and Modernity”*, Ufa, 2014, p. 25.

<sup>10</sup> O. F. Zhukov, N. S. Rossoshanskaya, Professional health of the teacher”, in *Scientific notes of the University named after P.F. Lesgaft*, vol. 73, no. 3, 2011.

<sup>11</sup> A. K. Markova, *Psychology of teacher's work*, Moscow, Prosveshchenie Publ., 1993, volume 192, p. 5.

cardiovascular system, for example, thrombophlebitis, varicose veins, tachycardia, etc.

The irregular working schedule, the lack of a stable regime of the day and the need to take work at home adversely affect the general condition of teachers.

L. G. Tatarnikova<sup>12</sup> described some features of the work of teachers:

- the need for parallel observation and reflection on the activities of many students;

- the perception and processing of a large stream of diverse information within a limited amount of time;

- the presence of high responsibility for the decisions made, which can turn into emotional stress;

- the emergence of many various problematic situations in the pedagogical process, which must be addressed in the conditions of a time deficit and an excess of information;

- hypokinesia, that is, a state of insufficient physical activity;

- the need to maintain the intensity of mental processes (attention, memory, thinking) at a high level for a long time;

- the need for constant and rapid information switching of attention to various objects, as well as a quick reaction to the situation in the classroom.

Thus, the peculiarities of professional pedagogical activity significantly increase the health risk of teachers. The study of the influence of the job context on the onset of the syndrome of chronic fatigue is very relevant.

## Research

In 2016 and 2017, a study of the psychological predictors of the syndrome of chronic fatigue in teachers was conducted. The study involved 432 teachers: 216 teachers of additional education, including 159 women and 57 men aged 20 to 65 and 216 teachers of general education schools: 179 women, 37 men aged 24 to 71 years. Panteenko I. V. took part in the collection of empirical material during the writing of the dissertation.

This study was conducted in one stage. The presence of chronic fatigue syndrome was determined with the help of the „Scale of fatigue

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<sup>12</sup> V. M. Frolov, I. I. Kutko, N. A. Peresadin, *Syndrome of chronic fatigue: borderline pathology at the junction of the interests of psychiatrists and clinical immunologists*, Kyiv-Kharkiv, 2010.

assessment” (H. J. Michielsen, adaptation of L. F. Bikbulatova) and the questionnaire „Criteria of chronic fatigue syndrome” (S. G. Komarov). The features of self-regulation were investigated using the questionnaire „Style of self-regulation of behavior” (V. I. Morosanova). The characteristics of the work, work motivation and job satisfaction were studied using the questionnaire „The Job Diagnostic Survey” (R. Hackman, G. Oldham, adapted by I.N. Bondarenko). Descriptive statistics, correlation analysis (Spearman rank correlation), U-Mann-Whitney criterion, multiple regression analysis was used for statistical processing of the data obtained. The hypothesis is that the job context (characteristics of work, level of work motivation, satisfaction with work) and self-regulation influence the development of the syndrome of chronic fatigue in teachers.

### Results and its discussion

Correlation analysis was conducted to study the relationship between the job context and the development of chronic fatigue syndrome. Figure 1 shows the correlation of the self-regulation indicators of teachers with the level of chronic fatigue (without indicating the intercorrelation links between the scales of self-regulation).

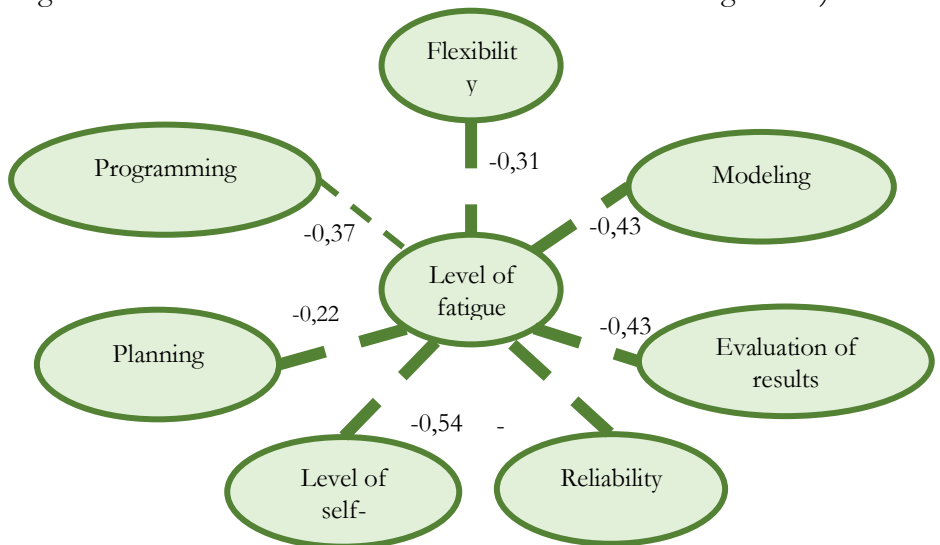


Figure 1: Correlation Pleiad of the fatigue level

### **and features of teacher self-regulation**

The results obtained establish the presence of negative correlations of the main regulatory processes: programming ( $p=0,05$ ), modeling ( $p=0,01$ ), evaluation of the results ( $p=0,01$ ), and regulatory personality traits (flexibility ( $p=0,01$ ), reliability ( $p=0,01$ ), the general level of self-regulation ( $p=0,01$ )) with the level of fatigue.

The revealed negative relationships between the level of fatigue and self-regulation indicators indicate that pathological fatigue is not only accompanied by a lowered regulation of the patient's activity, but also, most likely, provokes this decrease in activity. It can be assumed that if a person does not adequately assess the difficulties, can not clearly determine the priority of goals in the current situation, has difficulty in planning and achieving goals, then perhaps this respondent has pathological fatigue. On the other hand, the presence of pathological fatigue exacerbates the initially inherent difficulties in planning activities and goal-setting, so a person chooses an impulsive strategy of activity, which leads to regulatory failures and, accordingly, to an unsuccessful solution of the assigned task or intended activity.

Consider the correlation graph, the scales of working motivation with the level of fatigue (Figure 2). It should be noted that the level of fatigue is negatively associated not only with such characteristic of work as autonomy, but also with various aspects of satisfaction. It can be assumed that the low level of freedom and independence of an employee in the formation of a work regime and the ways of implementing a professional activity contribute to an increase in the level of fatigue. Thus, the high level of fatigue of teachers is interlinked with such elements of the job context as dissatisfaction with management and interaction with colleagues, as well as the impossibility of professional growth and development in the organization.

The data obtained are consistent with the results of a number of studies aimed at studying the burnout syndrome. N. E. Vodopyanova found that low job satisfaction is a significant risk of developing professional deformities. Consequently, insufficient resources of the employee, combined with high demands of work, lead to the development of chronic stress, various health problems (fatigue).<sup>13</sup>

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<sup>13</sup> O. Yu. Bogaevskaya, „Prevalence of chronic fatigue syndrome in dental patients”, in *Modern high technologies*, no. 12, 2009, pp. 21-22.



**Figure 2: Correlation Pleiad of interrelations between the level of fatigue, job characteristics, level of work motivation, satisfaction with the work of teachers**

According to the theory of requirements and resources, there are the following resources that help workers cope with the high level of professional requirements, increase the efficiency of their activities and preserve their health: autonomy (freedom to choose how and when to do their work); support of colleagues and management, positive relations with them (the basis of social satisfaction and management satisfaction), the possibility of career growth, personal and professional development (the basis of satisfaction in professional growth, and generally a favorable atmosphere at work (overall satisfaction).

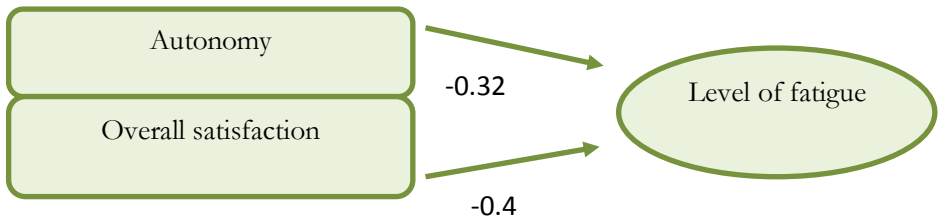
Regression analysis was carried out to determine the possible impact of the job context (job characteristics, level of work motivation, job satisfaction) and self-regulation on the development of the chronic fatigue syndrome.

Independent scales were the scales of questionnaires „The Job Diagnostic Survey” and „Style of Self-Regulation of Behavior”, the dependent variable was the scale of the level of chronic fatigue.

First, the authors clarified which of the characteristics of the work (the variety of professional skills, the completeness of the professional task, the importance of the professional task, autonomy, feedback from work, feedback from others, interaction) determine the variability of the

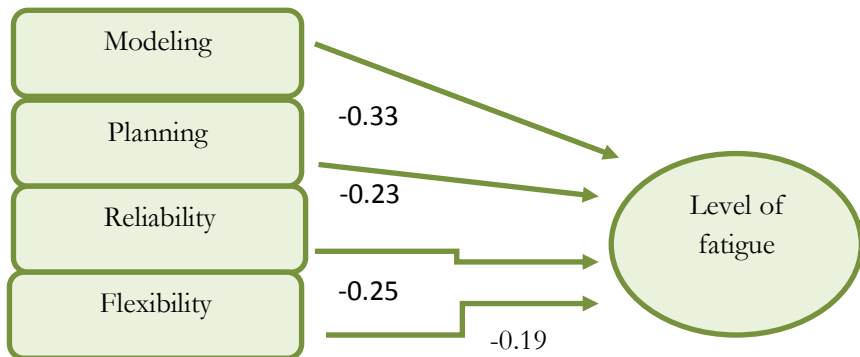


level of chronic fatigue. It was found that only autonomy, which accounts for 10% of the dispersion of the chronic fatigue scale, can be considered as a significant predictor of the fatigue level ( $\beta=-0.32$ ). At the same time, scales of cognitive evaluation of the results of the professional activity of an employee (realized meaning of work, conscious responsibility, knowledge of real results of work) do not affect the level of chronic fatigue. In addition, along with autonomy, only overall job satisfaction, which accounts for 16% of the variance, also serves as a significant predictor of fatigue ( $\beta=-0.4$ ) (Figure 3).



**Figure 3: Regression model of the influence of autonomy and overall satisfaction on the level of fatigue**

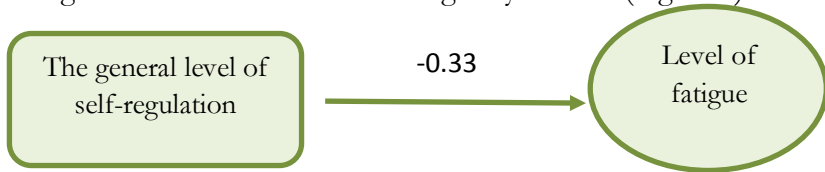
In the subsequent regression analysis, scales of the „Self-control behavior style” methodologies (modeling, flexibility, programming, independence, planning, evaluation of results) were used as independent variables. It was found that only the scales of flexibility ( $\beta=-0.19$ ), planning ( $\beta=-0.23$ ), reliability ( $\beta=-0.25$ ) and modeling ( $\beta=-0.33$ ) have a direct effect on the level of chronic fatigue in teachers (Figure 4).



**Figure 4: Regression model of the influence of regulatory processes and regulatory-personal properties on the level of fatigue**

This model explains 37.6% of the dispersion of the chronic fatigue scale. Therefore, it can be argued that a high level of formation of modeling and planning processes, as well as a high development of regulatory and personal properties of flexibility and reliability, contribute to reducing the level of fatigue and the risk of chronic fatigue.

In addition, a model in which the overall level of self-regulation served as an independent variable was tested separately. A negative effect of this variable was found ( $\beta=-0.33$ ). This model explains 58.8% of the dispersion of the chronic fatigue scale. Consequently, the presence of a high level of self-regulation reduces the risk of developing a pathological level of fatigue and the risk of chronic fatigue syndrome (Figure 5).

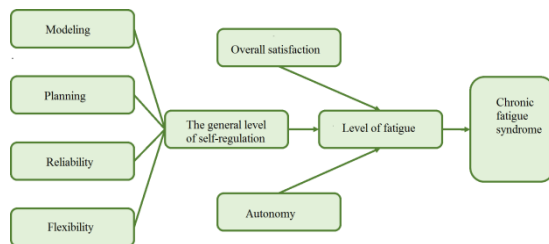


**Figure 5: Regression model of the effect of the general level of self-regulation on the level of fatigue**

Figure 6 shows the scheme of psychological predictors of the syndrome of chronic fatigue in teachers. At the same time, such elements of the working context as a low level of autonomy and overall satisfaction are significant predictors of the development of chronic fatigue syndrome. Also, significant predictors are insufficient development of self-regulation, in particular, such processes as modeling, planning and regulatory and personal properties of flexibility and reliability.

It can be assumed that a high level of self-regulation is an intrasubject resource, elements of the job context (autonomy and overall satisfaction) are intersubjective resources that reduce the risk of chronic fatigue syndrome.

**Figure 6: Psychological predictors of chronic fatigue syndrome in pedagogues**



## **Conclusions**

There are differences in the evaluation of the characteristics of work and the level of satisfaction of teachers, depending on the degree of risk of developing a syndrome of chronic fatigue. Statistically reliable data were obtained from indicators of overall satisfaction and satisfaction with management. The high risk of chronic fatigue syndrome is more typical for teachers with a low level of satisfaction.

There is correlation between the indicators of self-regulation, performance characteristics, satisfaction and fatigue were established.

The job context (indicators of autonomy, overall satisfaction) and the overall level of self-regulation (modeling, planning, reliability and flexibility) affect the level of fatigue.

Thus, researchers should work towards the development of general level educated teachers of self-regulation to reduce the risk of chronic fatigue syndrome. To improve the skills of constructive planning, special attention should be given to the development of regulatory processes, the ability to set goals, and the skills to rationally assess the conditions and circumstances necessary to achieve the goals. Prevention of teacher fatigue should include increasing the autonomy of their work and overall satisfaction with their own professional activities.

