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TEACHING AND TELEWORKING IN PANDEMIC TIMES: IMPACT ON JOB SATISFACTION (ISEG)

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Abstract

The aim of this thesis is to analyse the impact of pandemic on teachers' job satisfaction. Four hypotheses are studied as having impact on job satisfaction: i) the teachers' levels of technostress and of adaptation to the emergency remote teaching; ii) the work-life conflict associated to changes in time allocation, workload, and displacement of the workplace; iii) the decrease of mental well-being and mental health; iv) the motivation and sense of success levels associated to student engagement and outcomes and student-teacher communication. The empirical research is based on an original online survey applied to middle and high school teachers in Portugal https://www.c19profsurvey.com/en/ (Demo, English version) and https://www.c19profsurvey.com/ (Original, Portuguese version) . Information from different periods and moments is collected: before pandemic; first school closure in 2020; second school closure in 2021; and at the time of the survey. The data collected (N=693) includes information about characteristics and changes that occurred regarding: teachers and their households; job satisfaction and life satisfaction; stress and burnout; working time and teaching roles; work-life conflict and balance; teachings goals, methods, and outcomes; work stressors; working conditions for telework; expectations about their job and teaching methods for the year 2021/2022. The methodology of analysis includes descriptive statistics and qualitative analysis of the open questions.

The results show that teachers' job satisfaction decreased during the pandemic. The performance and outcomes of students and the increasing teachers' workload seem to be the main drivers of that decrease. Teachers' level of stress and burnout were also associated with the pandemic and had a negative impact on satisfaction in work. Contrary to general telework literature, the research results did not demonstrate that unvoluntary remote teaching decreased the work-life conflict. There was no evidence that technostress corresponds to a source of the decrease in job satisfaction.

Keywords: Online teaching and learning, Job Satisfaction, Work-Life Conflict and Balance, Covid-19, Portugal.

Resumo

O objetivo desta tese é analisar o impacto da pandemia na satisfação com o trabalho dos professores. São estudadas quatro hipóteses como tendo impacto na satisfação no trabalho: i) os níveis de *technostress* e de adaptação ao ensino remoto de emergência; ii) o conflito trabalho-vida associado a mudanças na alocação de tempo, sobrecarga de trabalho e deslocamento do local de trabalho; iii) a diminuição do bem-estar e saúde mentais; iv) a motivação e sensação de sucesso associados ao envolvimento e resultados dos estudantes e à comunicação aluno-professor. A investigação empírica baseia-se num inquérito online original aplicado aos professores do ensino médio e secundário em Portugal <https://www.c19profsurvey.com/> e <https://www.c19profsurvey.com/en/> (versão de demonstração em inglês). São recolhidas informações referentes a diferentes períodos e momentos: antes da pandemia e depois da pandemia; durante o primeiro e segundo encerramento das escolas (em 2020 e 2021) e no momento do inquérito. Os dados recolhidos (N=693) incluem informação sobre características e mudanças relativamente a: professores e agregados familiares; satisfação profissional e com a vida; stress e *burnout*; tempo de trabalho e funções docentes; relação trabalho-vida; objetivos, métodos e resultados do ensino; *stress* no trabalho; condições de trabalho para o teletrabalho; expectativas sobre o trabalho e métodos futuros de ensino. A metodologia de análise inclui estatística descritiva e análise qualitativa.

Os resultados mostram que a satisfação profissional dos professores diminuiu com a pandemia. O desempenho dos estudantes e o aumento da carga de trabalho dos professores aparentam ser os principais responsáveis por essa redução. Os níveis de stress e *burnout* dos professores também tiveram impacto negativo. Ao contrário da literatura geral sobre teletrabalho, os resultados da investigação não evidenciam que o ensino remoto não voluntário tenha diminuído o conflito trabalho-vida. Não ficou demonstrado que o *technostress* tivesse contribuído para a diminuição da satisfação no trabalho.

Palavras-chave: Ensino e aprendizagem on-line, Satisfação no trabalho, Conflito e equilíbrio entre trabalho e vida pessoal, Covid-19, Portugal.

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Finally, I would like to thank my partner, for always being there to support me throughout the most troubling and stressful parts of this process.

List of Abbreviations and Acronyms

CNE	*Conselho Nacional de Educação*
Covid-19	Coronavirus disease 2019 (the same as SARS-Cov-2)
DGEEC	*Direção-Geral de Estatísticas da Educação e Ciência*
EACEA	European Education and Culture Executive Agency
Eurofound	European Foundation for the Improvement of Living and Working Conditions
ESS	European Social Survey
EU	European Union
ILO	International Labour Organization
JDI	Job Descriptive Index
JS	Job Satisfaction
JSS	Job Satisfaction Scale
LS	Life Satisfaction
MBI-HSS	Maslach Burnout Inventory
MOAQ-JSS	Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale
MSQ	Minnesota Satisfaction Questionnaire
OECD	Organisation for Economic Co-operation and Development
PTSD	Post-Traumatic Stress Disorder
SARS-Cov-2	Severe acute respiratory syndrome coronavirus 2
TALIS	Teaching and Learning International Survey
TIMSS	Trends in International Mathematics and Science Study
WFH	Work from home

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Chapter I

Introduction

We find ourselves in what seems to be a different world from the one we lived in before the Covid-19 pandemic. In most countries, lockdowns were put into place, so that we could avoid an extreme pressure on health systems and, as a corollary, save as many lives as possible (Acemoglu et al. 2020; Brodeur et al., 2021; Vindegaard & Benros, 2020). This pandemic has had clear detrimental effects on job satisfaction and has contributed to peoples' exposure to extreme stress and consequently to the development of mental illnesses (Clemente-Suárez et al. ,2020; Hamermesh, 2020) that are job-related such as the burnout syndrome (Galea, Merchant & Lurie, 2020). In many cases, working from home has been the newfound solution to battle against the fast-spreading virus.

During the Covid-19 pandemic, with the school closures and the emergency remote online teaching was a challenge for schools, teachers, students, and parents (OECD, 2020 and 2021a; Schleicher, 2020), and directly influenced some facets of Job Satisfaction (JS). Job satisfaction is the enjoyment and a positive attitude towards one's job (Locke, 1976). It is therefore, extremely related to an individual's success in his/her work (Eichinger et al, 1991). The impact was felt on teacher's JS, enlarging, and changing the content and scale of the antecedents, correlates and consequences of teachers' JS compared with the situation before pandemic (Klassen & Chiu (2010). Teachers, for some labelled as "the forgotten frontline workers of Covid-19" (Beames et al. 2021), had substantial and sudden changes in job content and social and organizational supports. The school closures and the consequent urgency remote teaching imposed by pandemic, had tested the teachers' ability to adapt to the new work forms (Aujayeb & Wakefield 2020), contributing to job dissatisfaction (Ozgür, 2020).

The COVID-19 pandemic, in its multiple impacts, exacerbated pre-existing inequalities in several domains: in income and employment, in education, in the family and in health. Inequalities (e.g., economic, and social, educational, age, gender. occupations and geographic) have worsened in the short term and are likely to persist in the future (Blundell et al., 2020; Galasso et al. 2020). There is abundant literature showing that Covid-19 pandemic has not affected everyone equally, increasing disparities and inequalities around the world (Acemoglu et al. 2020; Alon et al., 2020; Aucejo et al., 2020; Connor et al., 2020; Kraft & Simon, 2020; Galasso et al., 2020; Violant-Holz et al., 2020).

The main aim of this research is to examine the pandemic's effect on job satisfaction (JS) amongst teachers. Based on the literature, and to examine the pandemic's effect, four explanatory hypotheses will be presented, empirically tested, and discussed in relation to teachers' JS: (i) The possible emergence of technostress with

the emergency remote teaching, and due to the lack of preparedness and training for the sudden changes in methods, equipment, and software (Beames et. al., 2021; Carrillo & Flores, 2020; Ziebell et al., 2020); (ii) the worsening of the work-life conflict due to the increase of work overload and the constant availability technology brought (Bonacini, L., Gallo, G. & Scicchitano, S., 2020; OECD, 2020 & 2021b; Schleicher 2020; Suh & Lee, 2017), (iii) the increase in stress and burnout levels for teachers due to an increasing workload and more difficulties when it came to reorganizing life and their work routines (Eurydice Report, 2021; Kraft et al., 2020; (iv) and, finally, the decrease in the motivation and the feeling of success regarding students' performance (Baert et al., 2020a; Kraft, Simon & Lyon, 2020; Jelińska & Paradowski, 2020; Pokhrel & Chetri, 2021y). These four hypotheses will be empirically tested using data collected by an original online survey applied to Portuguese teachers: Questionnaire about the effects of the pandemic on teaching activity [*Questionário sobre os Efeitos da Pandemia na Atividade Docente*]. The results of the survey shed some light on the knowledge and understanding of the impact of the Covid-19 pandemic on teaching activity.

The JS's antecedents to be studied include demographics, experiences in schools and classes before and after the pandemic as well as during the first and the second school closures, new job skills demand and teaching content, changes of teaching and learning environment, self-evaluation and self-efficacy, work-life conflict and other stressors, social and organizational support (Bowling & Hammond, 2008; Klassen & Chiu, 2010). The JS's correlates comprise strains like emotional exhaustion, job tension, depression, stress, burnout, and life satisfaction (Bowling & Hammond, 2008; Enzmann, D. et al., 1998; Klassen & Chiu, 2010; Panagioti, et al., 2018; Serrão et al., 2021).

After this brief Introduction the dissertation is divided into four chapters. In *Chapter II*, the main theoretical foundations and literature review associated to JS, technostress, work-life conflict, stress and burnout and teacher's sense of success and motivation are presented. It therefore also presents the four hypotheses elaborated for the purpose of the study. *Chapter III* presents the research design and the survey's composition. The methodological strategies of analysis, the characterisation of the survey and its questions and of the sample are made as well.

In *Chapter IV*, the results of the study are presented and discussed using quantitative and qualitative perspectives. The last chapter, *Chapter V*, presents the main conclusions and some limitations and proposals for future research.

Chapter II

Literature Review

2.1. Job Satisfaction

2.1.1. Concept and measures

Concepts, individual factors, and gender

Job Satisfaction (JS) can be defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976, p. 1304). Job Satisfaction is a multidimensional concept (Li, Deng & Huang, 2019). Job Satisfaction related to an individual's success in his/her work (Eichinger, Heifetz & Ingraham, 1991). Life Satisfaction (LS) is strongly associated to Job Satisfaction, since it stands for the overall happiness of an individual with their lives in general and that an individual's job plays a big role in ones' life (Judge et al., 2001; Judge & Watanabe, 1993).

There are different facets of JS (e.g., work content itself, wages, career opportunities, management, colleagues) and scales to measure it (Bowling & Hammond, 2008; Milbourn & Dunn, 1976). Job Satisfaction can also be linked to the way an organization performs, absenteeism, turnover (Bowling et al., 2018; Bowling & Hammond, 2008) and with the ability of work-life balance (Bruck, Allen & Spector, 2002). Stress is also directly associated to JS and productivity, although it being a negative correlation (Atmaca, Ç., et al., 2020; Eichinger, Heifetz & Ingraham, 1991; Tarafdar, Pullins & Ragu-Nathan, 2015).

Hoppock (1936) was one of the first scholars to pinpoint employees' both physical and psychological antecedents as crucial for JS. Later, Schaffer (1953) also believes that a higher JS is strongly linked to individual factors. Some of the antecedents or causes of JS can be individual's values, perceptions, expectations or even characteristics (Hackman & Oldham, 1975). Bowling and Hammond (2008) indicate job characteristics as an important explanatory factor ('antecedent') of JS since these allow the worker to establish the expectations and thoughts on his or her task. Working time and work travel time was also noted as a direct influence on JS (Glass & Fujimoto, 1994).

In what concern the differences of JS by gender, most studies show that women having professional activities, in general, have a lower level of stress and burnout, more satisfaction in work, and sense of self-realisation overall, when they have no small kids (Eichinger, Heifetz & Ingraham, 1991; Nomaguchi & Bianchi, 2004). Role overload and work-life conflict may also be two important factors when it comes to stress, depression,

and burnout syndrome amongst women (Glass & Fujimoto, 1994; Kristensen et al., 2005). As the Equity Theory states (Schafer & Keith, 1980), when people find themselves in an unequal situation, at work or simply at a personal level, they tend to get frustrated and have higher levels of stress and dissatisfaction (Falcão Casaca, 2002).

Measures and scales

Most scales and measurement tools for JS consist in numerous questions that aim to conclude whether the respondent felt that his or her JS was influenced and if so, by what. Spector's (1985) Job Satisfaction Scale tackled nine facets of job satisfaction: Communication; Supervision; Fringe Benefits; Contingent Rewards; Operating Procedures; Nature of Work; Pay; Promotion and Co-workers with four items each. Beehr et al.'s (2006) Facet Satisfaction Scale measured satisfaction through a questionnaire that focused on five satisfaction facets; work itself; supervision; co-workers; pay; and career opportunities.

However, since this study's objective was extremely broad, it was decided that JS would be measured through a single self-evaluating question: "*I felt satisfied with my teaching work [Before pandemic]/ I feel satisfied with my teaching work [at the moment of the Survey]*". There is also a question (Question 4 of the survey, see Annex V) dedicated to Life Satisfaction (LS) that allows the study about how LS interrelates with JS.

There are some examples of scales that similarly choose to measure JS with a single question, like for instance the European Social Survey (ESS, n.d.), and LS as well, like the US Bureau of Labour Statistics/US Census (2020a, b). Nevertheless, more detailed, and extensive scales were consulted to elaborate the original Survey presented in Chapter III. The Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale (MOAQ-JSS), which differs from for example the Job Descriptive Index (JDI) due to it's more general approach to JS, also supported questions on original survey created for this research (e.g. "*All in all, I am satisfied with my job*" ''*In general, I don't like my job*."). Similarly, the Minnesota Satisfaction Questionnaire MSQ (Weiss et al., 1967) suggests the work conditions as an important question to add, which was also sustained by Kraft et al.'s (2020) study that concluded that good and supportive working conditions influenced teachers' sense of success.

2.1.2. Teachers Job Satisfaction: A special case

Teachers' JS has much to do with the level in which students are engaged in classes, in other words, their success in teaching. The concept of success, however, can have a different meaning depending on each person (Hoppock, 1937). According to the Social Exchange Theory (Blau, 1964), the relationship between teachers

and students is unbalanced. This theory argues that whilst analysing peoples' relationships, one must take into consideration the investments and the results pertaining that very relationship dynamic.

Teachers' JS is different from other occupations because it depends on teachers' individual characteristics (e.g., gender, age), teachers' experience in school (e.g., tenure, grade levels taught), teachers' stress (workload stress), and teachers' self-efficacy (Ainley & Carstens, 2018; Klassen & Chiu 2010). According to Bandura's (1986) Social Cognitive Theory, self-efficacy is the role of self-reflective and cognitive processes in behavioural adaptation, which is influenced by environmental, behavioural, and personal aspects (Wood & Bandura, 1989). Teacher self-efficacy is related to educational strategies and class management and strongly associated to student engagement. Perera and John (2020) conclude with their study, for instance, that teachers' self-efficacy is directly and indirectly associated to the students' engagement and classroom interaction, students' results, and job satisfaction. The way students behave has, therefore, a big influence in how teachers react to their jobs and find themselves to be successful. Misbehaviour can be loud noises, aggression, cheating and use of mobile devices, which in term can have negative effects on teachers' success and consequently on their job satisfaction. The environment to which the teachers belong to also matters, since having a bad school climate will lead to frustrations and dissatisfaction. (Kengatharan, N., 2019). They do not only have to have extreme knowledge on the subject they teach, but they also must have empathy and have certain psychological skills which allow them to deal with young students (Mahmoodi-Shahrebabaki, 2020).

2.2. Impact of Covid-19 on Teachers' Job Satisfaction

The Covid-19 pandemic and associated school closures with emergency remote online teaching was a challenge for schools, teachers, students, and parents (OECD, 2020 and 2021; Schleicher, 2020), and directly influenced some facets of JS. The impact was felt on teacher's JS and many aspects of their lives. Figure 1 is adapted from Klassen and Chiu (2010, p.743) and Bowling & Hammond (2008, p. 65) to the Covid-19 pandemic, which illustrates the different factors that can influence directly or indirectly Teacher's JS and JS overall: demographics of schools, teachers, and households; teacher experience in school and in remote online teaching during school closures ('antecedents'); teacher stressors namely technostress; and teacher self-efficacy ('correlates').

Regarding the individual factor of gender, some literature points out a gender gap when analysing the several facets within JS (Feng & Savani, 2020). This gap is expected due to women being normally perceived as the main caregiver (Connor et al., 2020), which is sustained by the Gender Role theory (Eichinger, Heifetz & Ingraham, 1991), and the tendency for them to have more household responsibilities than men (Carli, 2020; Goldin, 2014). Therefore, it is expected that during the pandemic due to school closures, as well as childcare and home services closing (Carli, 2020; Connor et al., 2020; Del Boca et al., 2020; Shek, 2021), may resulted

in a overburdening for women (Carli, 2020). There is much evidence that supports the gender gap claims: differences in wages (Eurofound, 2021; Warr, 1987); fewer career options and less representation in top management (Judge et al., 2001). There are, however, some studies that argue that there is no gender gap in JS (Aryee et al., 2005; Feng & Savani, 2020; Redmond & McGuinness, 2019), which would suggest that women could have still managed to be satisfied with their own job, despite having lower wages and less career opportunities as well as additional nonpaid work at home (e.g., care of children and elderly, domestic chores) (Borah-Hazarika & Das, 2021).

This literature review is organised in accordance with 4 main hypotheses explaining teacher JS impacted by pandemic (see Table A.I.1). Different strands of literature are relevant to this research: management and organization of human resources; psychology; sciences of education; gender studies and the growing strand of the impact of pandemic in general.
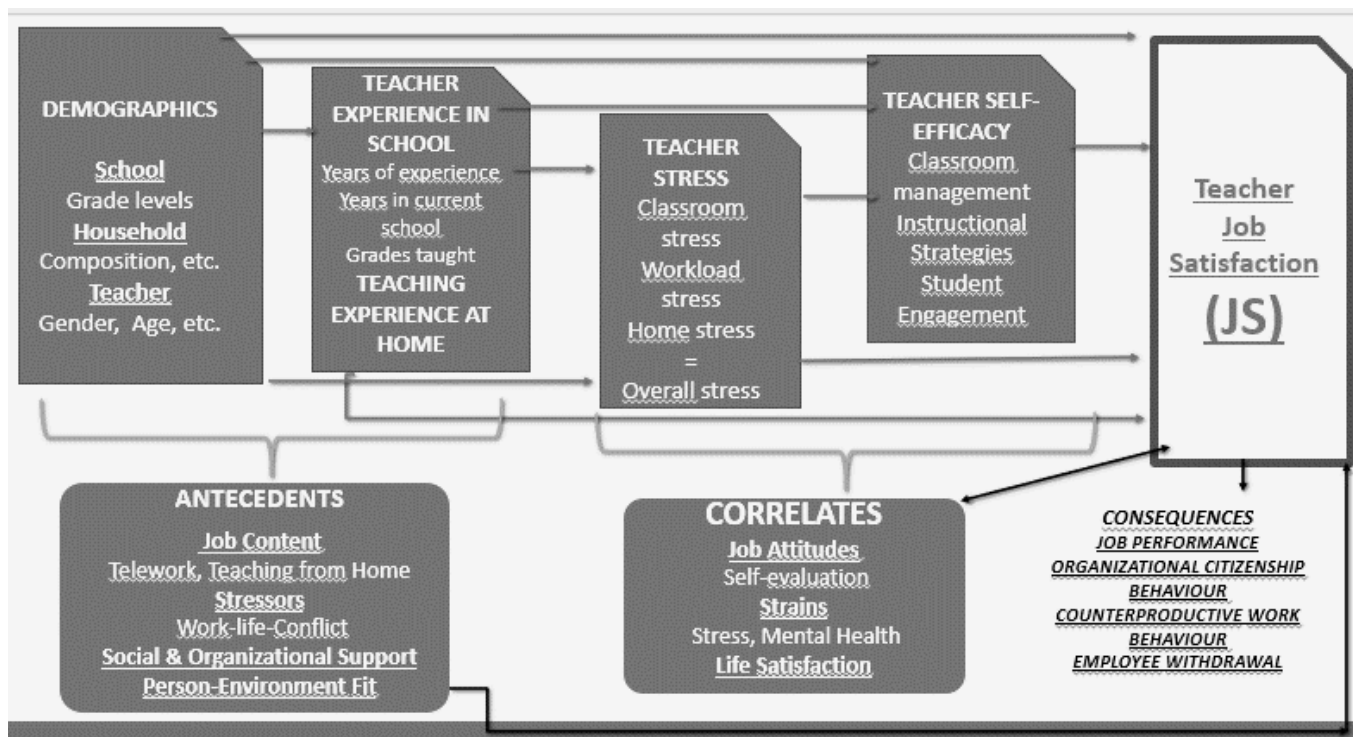
Figure 1-Teacher Job Satisfaction. Antecedents Correlates and Consequences

Source: Author's construction adapted from Bowling & Hammond (2008) p. 65 and Klassen & Chiu (2010), p. 743.

2.2.1. Emergency online classes, sudden changes, and technostress

In Portugal, the first school closure associated with the pandemic was announced on the 16th of March 2020 and was imposed until the 16th of September 2020 March, while the second one was imposed on the 15th of January until the 5th of April. In a matter of days, teaching and learning moved from being in-person to a remote format according to OECD (2021b) when we exclude all of the bank days and school vacations from

the first to the second lockdown, schools were closed during a total of 69 days for pre-primary schools (44 days in the first lockdown and 25 on the second one), primary schools were closed 87 days, the 2nd and 3rd cycle were closed 97 days and finally the high-school were closed 92 day.

As in Portugal, across the world, most schools had little time to prepare for teaching online, which overloaded and overburdened teachers, 'the forgotten frontline' (Beames et. al., 2021) and parents, creating stress and frustration, since the implementation of online teaching requires training and demands a positive attitude regarding the changes in the learning process (Blasko, 2020; Boelens et al. ,2017; Carrillo & Flores, 2020; Ziebell et al., 2020). Portugal had very low percentages of telework pre-Covid (Boavida & Brandão Moniz, 2020a ,b). This drastic change proved necessary so that teachers can reach out to students (Dong et al., 2019). During the first school closures there was a lack of preparedness of the different participants in remote teaching and learning (e.g., low level of digital skills) and a shortage of infrastructures and resources (e.g., equipment, software, fast Internet connection) in schools and at teachers' and students' homes.

The lack of support within the organization and the shortcomings of teachers' abilities can easily predict the emergence of technostress (Dong et al., 2019). Technostress can be defined by a type of stress related to the intense use of technology and the inability for one to adapt to the constant changes in technology. The exponential growth of dependency in technologies in all aspects of life leads to negative psychological impacts (Al-Fudail, M. & Mellar, H., 2007; Tarafdar, M., Pullins, E.B. & Ragu-Nathan, T.S., 2015). According to Kersh (2018), this type of stress affects family and personal time due to inability to unplug and it contributes to excessive working hours, which in turn can lead to a decline in productivity on the long term (Greenglass, Burke & Konarski 1998). Having an unsupportive environment when it comes to adapting to new technologies can add to the difficulty of adapting (Dong et al., 2019).

Depending on personal characteristics, teachers adopt different coping strategies to deal with their stress, frustration, and other mental illnesses (Al-Fudail & Mellar, 2007; Dong et al., 2019; Kyriacou & Sutcliffe, 1978). Age is one of those characteristics. Being older can contribute to a higher amount of technostress since it is more difficulty to keep up with new technologies (Ozgür, 2020). since older workers can have more difficulty in being able to adapt to the constant change and evolution of technology (Özgür, 2020). Raišiene et al´s. (2020) suggestion, regarding Working from Home (WFH), is that older generations tend to normally have less interest and overall liking for telework. Some scholars also associate WFH to higher technostress levels amongst older individuals (Ozgür, 2020).

Based on the literature the following hypothesis is formulated

Hypothesis 1: *The Covid-19 pandemic greatly influenced teacher's level of technostress, due to the abrupt changes that resulted from emergency remote teaching.*

2.2.2. Work-Life Conflict and Balance during the Pandemic

The work-life conflict is possibly one of the most intricate problems that an individual must face. As a concept, it can be explained as the lack of balance and boundaries between work and personal and familiar life, and it is highly associated to poor physical health, as well as stress, anxiety, depression, and a higher tendency for burnout (Ahuja et al., 2007; Schieman et al., 2021). Work-Life balance is therefore the contrary, namely, it is when the individual can equally balance both the work sphere and the life sphere (French et al., 2020). When it comes to working from home it is frequenty seen as a viable solution for a good work-life balance, since it allows the worker to divide their work and their household responsibilities more easily and effectively (Angelici & Profeta, 2020; Blaskó, 2020; Hayes et al., 2020; Nomaguchi & Bianchi, 2004). However, it can also contribute to a work-life conflict (Suh & Lee, 2017), since technology allows workers to be constantly available (Bonacini,, Gallo. & Scicchitano, S., 2020; Molino et al., 2020), which can lead to a work-overload (Moscardó et al., 2020; Suh & Lee, 2017). With Covid-19 and during the lockdowns and with the general closure of schools, parents experienced more issues when it came to combining their own work at home with childcare. The potential beneficial aspects of telework will easily disappear if childcare services and schools remain closed. Plus, the division of household chores amongst women and men grows unequal, which can be a dangerous factor for a gender gap in mental health consequences and work overload (Arntz, Yahmed & Berlingieri, 2020; Blaskó, 2020; Feng & Savani, 2020).

The pandemic is not gender neutral affecting more women than men because women tend to have more household responsibilities. The EU reports mention a worsening of the preconceived gender biased stereotypes, which means, the idea that women and men are assigned different roles in society, which in turn can limit their lives (Sevilla, 2020). This influences the way women are perceived at work and are influenced by the pandemic itself, since women's jobs were strongly and negatively impacted, due to the overrepresentation on lower paid jobs, which most could not be done remotely. As a direct consequence, the social exclusion and danger to fall into poverty increased for women (Blasko et al., 2020). Their experience with remote work will be different from the men's experience (Blasko et al., 2020; Carli, 2020; European Comission, 2021b; Profeta et al., 2020; Shek, 2021), therefore, the consequences of Covid-19 on women will also be different and will challenge gender equality (Eurofound, 2021; European Commission 2021a, 2021c). Regarding the work-life conflict and balance, the EU's report concluded that 29% of women with smaller children found it difficult to concentrate while working and in balancing their domestic chores and personal lives with work and about 16% of the men in the same situation reported the same difficulties. Families with children especially have suffered through major changes on their day to day lives, mostly due to school closures, as well as childcare and home services closing, which called for parents to be able to help their children at home and resulted in a bigger burden for working parents, in particular working mothers and

working individuals in general (Borah-Hazarika & Das, 2021; Carli, 2020; Connor et al., 2020; Del Boca et al., 2020 a,2020 b; Shek, 2021).

Raišienė et al. (2020), for example, used a short online survey to understand the negative and positive factors that influenced telework, concluding that it exists a difference by gender. Women, for instance, appear to see telework as an advantage due to the possibility to work on their own terms and improved their time management skills and communication.

Based on the literature the following hypothesis is formulated

Hypothesis 2: Covid-19 pandemic with mandatory lockdown and emergency remote teaching worsened the teacher's work-life conflict and consequently negatively affected the work-life balance.

2.2.3. Pandemic's impact on teachers' stress and burnout levels

Mental well-being and health have been extremely affected by the pandemic (Passos et al., 2020; Restauri & Sheridan, 2020). It is without a doubt, an example of a traumatic event, which can eventually lead to symptoms of Post-Traumatic Stress Disorder (PTSD), acute stress (Galea, Merchant & Lurie, 2020; Restauri & Sheridan, 2020; Soklaridis et al., 2020), increases in domestic violence, substance abuse, depression, anxiety, suicide tendencies and overall mental health problems (Galea, Merchant & Lurie, 2020).

Stress can have extreme physical or/and mental consequences on people, even more in working individuals. The characteristics of the job itself and the individual's characteristics can directly influence the levels of stress an individual has (Restauri & Sheridan, 2020). Burnout, on the other hand, is, according to the Oxford dictionary, defined by "the state of being extremely tired or ill, either physically or mentally, because you have worked too hard" (Oxford Dictionay). It is multidimensional syndrome (Maslach, 1993) that stems from too much work-related stress, or occupational stress (Marôco, J., et al., 2016; Maslach & Jackson, 1986; Maslach et al., 1986). According to Restauri and Sheridan (2020), burnout may occur due to lack of control at work, excess of working hours, prolonged stress, and a lack of balance between the job´s demand and the worker´s skills. Human service professionals and professions, such as teaching, have a higher risk for occupational stress and burnout syndrome (Carlotto et al., 2014). For the teacher's profession, all the above-mentioned mental health problems are an issue (García-Carmona et al., 2019). Teachers assimilate several important roles in their students' lives, hence their importance and the high level of responsibility relied upon them (Carlotto et al., 2014). Whenever a teacher feels like his or her method of teaching is failing, and that feeling persists, it results on high irritability, anxiety, tension, and stress (Carlotto, 2011; Correia, Gomes &

Moreira, 2010). If there is a feeling of inequality between the effort put into teaching and its outcomes, there is a good chance of that said teacher feeling distressed (Van Horn, Schaufeli & Enzmann, 1999).

According to Van Horn et al. (1999), teachers' burnout begins with the feeling of lack of reciprocity from students and less involvement and commitment from their part. The teachers in these situations still invest time and effort but in turn obtain weak results, therefore, three dimensions are influenced: the teacher's satisfaction, the student's learning, and the overall school environment.

As stated previously (see 2.2.1), during the Covid-19 pandemic, teachers were subjected to new ways of stress, such as technostress. The sense of frustration and lack of success was exacerbated during the pandemic, and whenever a teacher feels like his or her method of teaching is failing, and that feeling persists, it can result on high irritability, anxiety, tension, and stress (Carlotto, 2011; Carlotto et al., 2014; Correia, Gomes & Moreira, 2010; Kengatharan, 2019).

Much like the results of lack of reciprocity, the lack of ability to adapt to new difficulties can lead to higher levels of anxiety, fatigue and even inefficacy (Arnetz & Wiholm, 1997; Seidman & Zager, 1991), which in the long-term can result in those teachers' feeling disconnected from their job. For instance, Lazarus and Folkman's (1984) Transactional Theory put forward the idea that stress will always present itself if the environmental demands surrounding the worker surpass his or her ability to respond. Teachers are not only pressured by their schools to correctly deliver, but also by their own colleagues (Voet & De Wever, 2017).

Among these mental health disorders there are pathologies with similar consequences but the reason why they come to be different. For example, depression is different from burnout, even though both illnesses share some similar consequences, such as exhaustion, emotional distancing, and irritability (Belcastro, 1982; Warr, 1987). Depression is less circumstantial than burnout. While depression is more associated with individual and personal factors, burnout is exclusively linked to work and occupational stress (Greenglass, Burke & Konarski, 1998; Marôco et al., 2016; Maslach et al., 1986; Serrão et al., 2021;). Most people who suffer from burnout can still be happy and balanced in other aspects of life. For instance, Perlman and Hartman (1981) found that burnout is not identical to job dissatisfaction, however, age and workload seem to be key influence factors for both.

The increase of working hours due to the inability to adapt to the new technologies and difficulty in unplugging from work leads to more pressure when it comes to time management and paperwork (Correia, Gomes & Moreira, 2010; Tarafdar et al., 2015). Burnout in teachers begins with this feeling of lack of reciprocity from students, which leads to wanting to be less involved and committed (Van Horn, Schaufeli, & Enzmann, 1999). When it comes to gender differences, some argue that the Covid-19 pandemic may have also aggravated the number of cases of burnout syndrome (Galea, Merchant & Lurie, 2020; Hayes et al., 2020; Xiong et al., 2020). Kessler & McRae (1982) reason that there can be an association between high levels of stress and women

especially women with children. It is certain that the age of these children also influences the amount of stress women go through. As a result, countless mental health issues may arise in the short and long run due to the increase of parental stress (Allen, 2020). Evidence exists that the pandemic also increased men's non-paid work at home, but women are still the main responsible for it. For this reason, women may have been a target of higher stress levels and eventually mental health issues (Violant-Holz et al., 2020).

In addition to the usual and normal work-related stress factors, the fear of being infected and having to distance themselves from their own families added to the issue (Alon et al., 2020; Del Boca et al., 2020; Restauri & Sheridan, 2020).

Based on the literature the following hypothesis is formulated

Hypothesis 3: *Covid-19 pandemic contributed to the increase on teachers' levels of stress and burnout. Strains (job tension), job attitudes and life satisfaction are negatively impacted.*

2.2.4. Communication and Students' Performance

As referred in point 2.1.2., teacher self-efficacy is strongly associated to student engagement and can be measured through the individual's perception regarding the achievement of their goals, their performance and effectiveness (Bandura, 1986; Wood & Bandura, 1989). This measurement, however, is not made in the survey elaborated, but instead, three questions on student performance and behaviour are conducted, that help to understand JS due to nature of a teachers work and motivation Teachers consider that they perform important roles in students' lives and no normal balance exists in teacher-student social exchange. Consequently, when there is no reciprocity, teachers may feel emotional frustration, stress, mental illness, and burnout (Farber, 1991; Hoppock, R., 1937; Kengatharan, 2020; Van Horn et. al., 1999). If the teacher feels as if his or her work is having a good outcome, he or she is satisfied. The way students behave has, therefore, a great influence in how teachers react to their jobs and find themselves to be successful. Misbehaviour can be perceived as loud noises, aggression, cheating and use of mobile devices, which in turn can have negative effects on teachers' success and consequently on their JS. The environment to which the teachers belong to also matters, since having a bad school climate will lead to frustrations and dissatisfaction (Kengatharan, 2020).

There is a multitude of issues, however, when it comes to online schooling, since some students may not have access to the technology needed, which results in a digital divide (Bacher-Hicks, Goodman & Mulhern, 2021). The changes made in the assessment methods require new skills from students and teachers (Orlov et al., 2020) and since most schools had little time to prepare to teach and learn online, teachers, parents and students were overloaded and overburdened. Solutions had to be found so that every student could participate in the

online lessons and teachers had to now adapt all their classes to an online platform. The changes made in the assessment were also extremely complicated, since these students were being evaluated on different things than previous years (Orlov et al., 2020) Many students during the lockdown experienced a lack of productivity and therefore got more frustration and stressed. Teaching became more impersonal, since there ceased to be personal and direct contact amongst students and teachers, which in turn decreased the student's engagement and teacher's sense of self-efficacy and coping abilities (Jelińska & Paradowski, 2020; PytlikZillig et al., 2011).

Based on the literature the following hypothesis is formulated

Hypothesis 4: Covid-19 pandemic negatively affected teachers' motivation and sense of success levels and these are strongly associated to student engagement, student-teacher communication, and related environment. Consequently, there is a sense of frustration for teachers and their JS decreases.

Chapter III

Data Collection and Methodology of Analysis

3.1. "The effects of the pandemic on teaching activity": Survey Description

An original online survey "The Effects of the pandemic on teaching activity" [*Os efeitos da pandemia na atividade docente*] was targeted to teachers who teach students at middle and upper secondary level of education (International Standard Classification of Education levels ISCED 2 and ISCED 3). Students age for the two ISCED levels is approximately between 12-18 years old. The survey was distributed by email amongst Portuguese public high-school teachers through an Internet domain, created specifically for that aim. The survey was previously tested, and accordingly amended. The online survey was strictly anonymous and was completely voluntary. The data is used for research purposes only. After answering, some teachers asked by email for access to results after the survey was completed.

A Portuguese and an English version were created (Pato & Fontainha, 2021a and 2021b). The Portuguese version (Appendix III and on link https://www.c19profsurvey.com) was the only one to be distributed. Data was collected between June and July 2021. The English demo version is available in https://www.c19profsurvey.com/en/ (Pato & Fontainha, 2021b). The main objective, as stated before, was to

collect data to study how the pandemic changed facets of teachers' jobs and influenced their way of teaching, as well as their overall satisfaction in teaching.

Four moments in time were taken into consideration whilst conducting and elaborating the survey: the period before the Covid-19 pandemic; the 1st school closure in 2020 (16th Mar - 4th Apr); the 2nd school closure in 2021 (8th Feb - 19th Apr); and the time when the survey is answered (June-July 2021). A five-point Likert scale (1= 'Completely disagree'; 2='Disagree'; 3= 'Neither agree nor disagree'; 4='Agree'; 5='Strongly Agree') and a three-point Likert scale (1=Frequent; 2=Seldom; 3= Never) are the main scales used to respond to the survey.

The survey includes five blocks of questions corresponding to different kind of information:

- *Profile of the respondent and her/his household*. Teacher and teacher household characteristics and changes in these with pandemic.

- *Changes associated with the first and second school closure*. Teacher's opinion on emergency remote teaching in relation to two periods when mandatory online classes took place, the first period (16 March 2020 to 4 April 2020) and the second (8th of February 2021 to the 19th of April 2021) and the Changes it brought regarding JS, LS, methods, and equipment, work-life conflict and balance, Stress and burnout and teachers' motivation and sense of success (H4)

- *Activity changes with pandemic*. Teacher's time allocation and activity organization in relation to several aspects about the pre-pandemic situation (before March 2020) and what changed (or not) after the pandemic.

- *Advantages and disadvantages* of emergency remote online teaching (closed and open questions).

- *Teachers' Perspective on the Future:* Their perspective on the consequences of the pandemic on the profession and opinions about the future

The questions in the survey are based on previous studies and reports general or specific for teachers, the main ones were:

- *Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale (MOAQ-JSS)* (Bowling & Hammond, 2008, p.64):
    - "All in all, I am satisfied with my job"
    - ''In general, I don't like my job."
    - 'In general, I like working here.".
- *The Copenhagen Burnout Inventory* (Kristensen, et al., 2007, p.200)

- o "Do you have enough energy for family and friends during leisure time?"
- o "How often are you emotionally exhausted"
- *Maslach Burnout Inventory – Human Services Survey (MBI-HSS)* (Maslach et al., 1996):
  - o " My work leaves me emotionally drained"
- *European Social Survey* (ESS6, 2012):
  - o "How satisfied are you with the balance between the time you spend on your paid work and the time you spend on other aspects of your life?"
  - o "All things considered, how satisfied are you with your present job? All things considered, how satisfied are you with your present job?"
  - o "Using this card, please tell me how much of the time during the past week you enjoyed life?"
  - o "All things considered, how satisfied are you with your life as a whole nowadays?"
  - o "How satisfied are you with how your life has turned out so far/ with your present standard of living?"
  - o "Please tell me how much of the time during the past week you were absorbed in what you were doing"
- *European Social Survey* (ESS, n.d.):
  - o "Find that your family responsibilities prevent you from giving the time you should to your job?
  - o "Too tired after work to enjoy the things you would like to do at home; keep worrying about work problems when you are not working?"
- *U.S. Bureau of Labor Statistics (2015):*
  - o "Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. If the top step is 10 and the bottom step is 0, on which step of the ladder do you feel you personally stand at the present time?" (Alternative answers: 1….10)
- *Remote Teaching Survey* (Kraft et al., 2020)
  - o "I am comfortable using the technological tools required for remote teaching during this distance learning period."
  - o Student's Performance: "What percent of your students are regularly engaging in learning activities during this distance learning period?"
  - o Work-Life Conflict/ Balance: "I have been able to balance my work with my other responsibilities at home during this distance learning period." "Caretaking responsibilities for

children and/or dependent adults have made it difficult to do my job during this distance learning period."

- *Australian Education Survey* (Ziebell et al., 2020; note: the survey questions were not published):
  - Students Preparedness
  - Work hours
  - Communication

Two questions were posed regarding teachers' JS and LS, before and after the pandemic, at the time of the survey (Appendix III):

- I felt satisfied with my teaching work / I feel satisfied with my teaching work
- I felt satisfied with life in general / I feel satisfied with life in general

Table I-Survey Questions and Hypotheses

Hypotheses	Survey Questions
Technostress and adaptation The Covid-19 pandemic greatly influenced teacher's level of technostress, due to the abrupt changes that resulted from emergency remote teaching.	I easily adapted to distance learning (two periods: 1st and 2nd school closure)- 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed (two periods: 1st and 2nd school closure) - 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree) Overall, the working environment and conditions were/are good (two periods: 1st and 2nd school closure) - 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	In general, my school colleagues adapted easily to distance learning (two periods: 1st and 2nd school closure) - 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	I had access to the essential resources for teaching at home (computers, internet connection, physical space) (two periods: 1st and 2nd school closure) - 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)

Table I (cont.) -Survey Questions and Hypotheses

Hypotheses	Survey Questions
Work-Life Conflict and Balance Covid-19 pandemic with mandatory lockdown and emergency remote teaching worsened the teacher's work-life conflict and consequently negatively affected the work-life balance.	Distance learning has enabled me to reconcile work with family and personal life at home (two periods: 1st and 2nd school closure) - 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	Possibility of balancing work time and personal and / or family time (two periods: 1st and 2nd school closure) - 3 points Likert scale (Frequent; Seldom; Never)
	Family responsibilities prevent you from dedicating the time you should to your work (two periods: 1st and 2nd school closure) - 3 points Likert scale (Frequent; Seldom; Never) Work during the weekend (two periods: 1st and 2nd school closure) - 3 points Likert scale (Frequent; Seldom; Never) Work during nights (two periods: 1st and 2nd school closure) - 3 Likert scale (Frequent; Seldom; Never) Effective teaching time per week (two periods: 1st and 2nd school closure) – 5 options (<35h; =35h; 36h-40h; 41h-45h; >45h) Frequency with which household chores are shared in a balanced way between the adults in your household (two periods: 1st and 2nd school closure) - 3 points Likert scale (Frequent; Seldom; Never)
Mental well-being Covid-19 pandemic contributed to the increase on teachers' levels of stress and burnout. Strains (job tension), job attitudes and life satisfaction are negatively impacted.	I had / I have enough energy for family and friends when in moments of leisure (two periods: 1st and 2nd school closure) – 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	I was / am too tired after work to do things I liked when at home (two periods: 1st and 2nd school closure) – 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	Work left me / leaves me emotionally drained (two periods: 1st and 2nd school closure) – 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
Motivation, Communication and Students' Performance Covid-19 pandemic negatively affected teachers' motivation and sense of success levels and these are strongly associated to student engagement, student-teacher communication, and related environment. Consequently, there is a sense of frustration for teachers and their JS decreases.	Compared to face-to-face teaching, distance learning has made communication between teachers and students more difficult– 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	With remote teaching the preparation of the students for the assessment tests (school and national examinations) was adequate– 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)
	Compared to face-to-face teaching, distance learning has enabled students to perform equally– 5 points Likert scale (1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree)

Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en (Pato & Fontainha, 2021a and 2021b).

3.2. Methodology of Analysis

Both quantitative and qualitative research methods were used. After presenting the survey and the characteristics of the sample, the results about JS before and after pandemic show a clear decrease of JS as well as in Life Satisfaction (LS). Moreover, phenomena associated to the four hypotheses formulated before, are described to test the possible association with JS. As stated previously, the main goal is to conclude whether teachers felt a decrease in JS and in their overall satisfaction during the pandemic, and whether there were any differences when comparing both lockdowns and other individual characteristics. For the open questions (e.g., about advantages and disadvantages of remote teaching), a coding of the responses was conducted. Finally, based on the comments received in the open questions a qualitative analysis of content is presented.

3.3. Main sample characteristics

The sample characteristics is presented in Table II. Overall, 693 valid questionnaires were collected. Most of the respondents are women (75%), reflecting a dominance of females in the teaching profession in Portugal, similarly to most of the countries (Conselho Nacional de Educação 2021, Alves, Lopes & Precioso, 2021; Dong et al., 2019; Ozgür, 2020). Regarding the age groups of the sample, most of the sample is composed of teachers aged between 45 and 64 years old. The age group with 45 years or more makes up for 85% of all the sample, which goes along with the evidence from the teachers in Europe (European Commission/EACEA/Eurydice 2021a and 2021b) and, for the Portuguese case in specific, the "Perfil do Docente" (Direcção Geral de Estatísticas da Educação e Ciência/ DGEEC, 2021) and Conselho Nacional de Educação (Conselho Nacional de Educação, 2021). According to Eurydice (2021) 40 % to 50 % of all teachers in Portugal will be retired in 15 years. The most relevant group when it came to the number of years the teachers taught was the "20 or more years" group (82%). When it comes to the Household size the mean is 2.98 members.

Concerning the contact each teacher had with Covid-19, 37% had contact through students or colleagues of their school and only 7% of the respondents pointed out they themselves were infected[1].

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[1] The data not presented. Available on request.

Table II-Sample composition (N=693)

		Total	Men	Women
Gender (%)	Man	5.2		
	Woman	74.8		
Age Group (%)	20-24 years	0.3	0.6	0.4
	25-34 years	1.0	2.4	0.6
	35-44 years	13.7	13.5	14.1
	45-54 years	42.1	42.4	41.9
	55-64 years	39.2	37.6	40.3
	65 years and over	3.2	3.5	2.8
Teaching Experience (%)	5 years or less	2.5	4.7	1.6
	6-10 years	2.0	1.8	2.2
	11-19 years	13.3	12.4	12.9
	20 years and over	82.3	81.2	83.3
Household Size (mean)		2.98	3.04	2.96

Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en (Pato & Fontainha, 2021a and 2021b).

Regarding the subjects taught in both 2019/2020 and 2020/2021 (Table A.II.1), the most predominant group were the Language Teachers (24%; 27%), followed by the Sciences (20%; 21%), Social Sciences (19%; 12%) and Mathematics (10%; 11%). This converges with the national distribution by teaching domains reported in Conselho Nacional de Educação NE (2021).

Chapter IV

Results and Discussion

We will present an overview of teachers' opinions, perceptions and behaviour concerning important aspects that may have negatively impacted teachers during the pandemic and that can explain and contribute to the hypothesises of this study associated to JS. We start with the results for JS and Life Satisfaction (LS) before and after (at the time of the survey) the Covid-19 pandemic.

4.1.1. Job Satisfaction

Most teachers noted that they 'agreed' and 'strongly agree' to being satisfied with their work before the pandemic, with 44% and 32% responses respectively. After the pandemic, at the time of the survey this large majority remained, with 39% people agreeing and 23% strongly agreeing to it, despite there being more people to respond" completely disagree" or "Disagree" (see Figure 2 and Figure A.II.1). Regarding life satisfaction in general, most teachers answered that they agreed and strongly agreed to being satisfied before the pandemic, with 45% and 33% respectively. At the time of the survey, there was a rise to people disagreeing and completely disagreeing with being satisfied (from 5% to 12%), however most still 'agreed' and 'strongly agreed' to being satisfied with their lives, 39% and 23% respectively (see Figure A.II.2).). These results can be directly compared to the one's Alves et al. (2021), which concluded with their study on Portuguese teachers that, despite teachers' level of satisfaction with the education system being reasonably good before the pandemic, this perception decreased after Covid-19. This goes against what studies such as the one conducted by Baert et al.'s (2020a) concludes, which is that overall job satisfaction increases with telework.
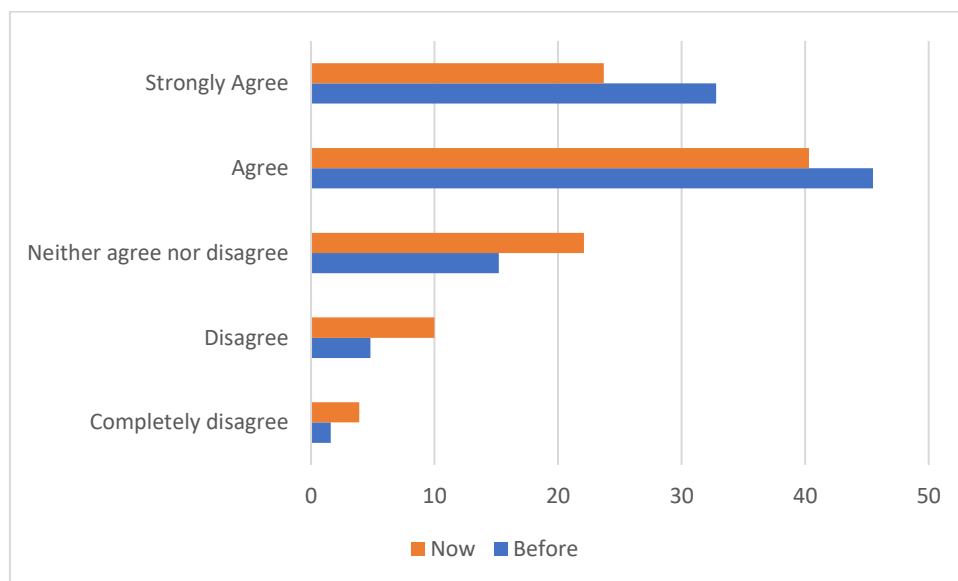

Figure 2-Job Satisfaction (JS) before of pandemic and at the time of the survey (unidades %)
Question: I felt satisfied with my teaching work / I feel satisfied with my teaching work (5 point-Likert Scale)
Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en
(Pato & Fontainha, 2021a and 2021b). See Appendix III.

When looking at teachers' responses regarding their job satisfaction and life satisfaction before the pandemic started and at the time of the survey is evident the sharp decrease of JS and LS for women and men (Figure 3).
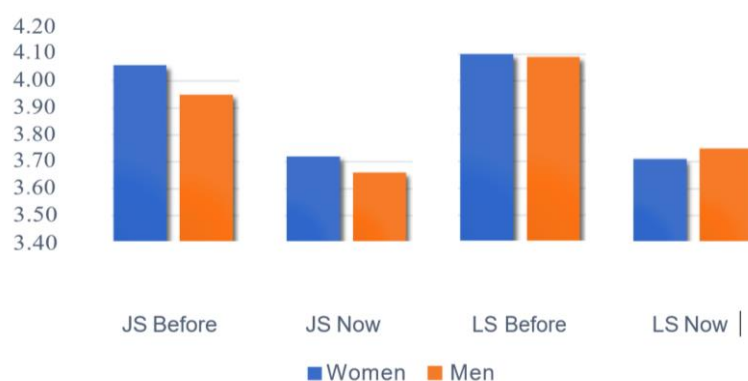
According to the statistics, there was no significant gender gap that negatively affected women found in neither job satisfaction, nor their life satisfaction. This goes directly against what Feng & Savani (2020) concluded in their study, namely, that the Covid-19 pandemic created a gender gap in perceived work productivity and created a gender gap in job satisfaction due to telework and that it emerges more easily when dual-career parents are working from home and do not have access to childcare services, which was also not confirmed by this research.

4.1.2. Adapting to the pandemic and the technostress and Hyp.1

There was a difference when it came to teachers' adaptation to telework and the lockdowns in 2020 and in 2021. This can be because of the lack of preparedness for the sudden school closures and the consequent influence in teacher's self-efficacy, as suggested by Gonçalves, Sousa & Pereira (2020) and Dong et al. (2020). In the first lockdown in 2020 about 53% of the teachers that answered, agreed and strongly agreed that they were able to easily adapt to telework and 16% expressed that they disagreed or completely disagreed, whilst in 2021, 82% of the teachers that answered, agreed and strongly agreed that they were able to easily adapt to telework and 2.6% expressed that they disagreed or completely disagreed (see Figure A.II.3)

Comparably, 31% of the teachers pointed out that in 2020 they agreed and strongly agreed that their colleagues adapted to the lockdown, whilst in 2021 that percentage increased to 65% respectively.(see Figure A.II.4)Both in 2020 and 2021, most of the teachers confirmed that the teaching techniques, methods, learning and

assessment have been profoundly changed, with 82% and 83% positive responses (agree and strongly agree) for 2020 and 2021 respectively (see Figure A.II.5).

The mean of the answers (5-point Likert scale) regarding the question *"I easily adapted to distance learning"* increased from 3.14 in the first lockdown to 4.23 in the second one. Teachers' self-evaluation shows a larger increase compared to the evaluation of their peers in the question *"In general, my school colleagues easily adapted to distance learning"*, which moves from 3.56 to 3.77 (Table III). There is an overall agreement regarding the profound change imposed by the remote teaching and learning (Gadermann et al., 2021). The question *"With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed"* had a mean around 4.30 for both lockdowns and a standard deviation of 0.76 and 0.74. These results go against the findings from Ozgür (2020) and Kraft, Simon & Lyon (2020) regarding technostress and adapting to online schooling, in which they concluded that technostress would be expected to be present especially amongst older teachers due to telework and the lack of knowledge regarding new technologies. However, taking into consideration that most teachers who responded to this survey were 45 years of age and above, this was not corroborated.

Table III-Coping with changes; first and second school closure

Questions in the Survey [*]	Mean	Median	SD
"I easily adapted to distance learning" 1st closure 2nd closure	3.14 4.23	3.00 4.00	0.87 0.77
"In general, my school colleagues easily adapted to distance learning" 1st closure 2nd closure	3.56 3.77	4.00 4.00	1.34 0.73
"With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed" 1st closure 2nd closure	4.28 4.26	4.00 4.00	0.76 0.74
"I had access to the essential resources to teach at home (computers, internet connection, physical space)" 1st closure 2nd closure	3.56 3.89	4.00 4.00	1.34 1.21

(*) Answers in a 5 points Likert scale: 1= 'Completely disagree'; 5='Strongly Agree'
Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en (Pato & Fontainha, 2021a and 2021b). See Appendix III.

We can conclude that Hypothesis 1 was not completely corroborated because, in the second school closure teachers in general easily adapted to the new technologies and methods imposed by urgency remote teaching.

4.1.3. Work Life Conflict and Balance and Hyp. 2

Regarding questions of time management during lockdown and telework, most teachers point out that it was more difficult to balance their time and lives. When confronted by the question "*Distance learning has enabled me to reconcile work with family and personal life at home*" answers were divided for most people. About 31% of the teachers in total answered that it was easier to balance their personal and work lives whilst in lockdown and telework in 2020 (4= *Agree*; 5=*Strongly Agree*), and in total about 37% of the answers in total showed this to be worsened by telework (1=*Completely disagree*; 2=*Disagree*). In 2021 36% of teachers had a positive impression of this issue (4= *Agree*; 5=*Strongly Agree*), whilst 33% still disagreed to it being a positive influence on work-life balance (1=*Completely disagree*; 2=*Disagree*). (see Figure A.II.6)

This was corroborated by a second question regarding the balance between personal and work life, namely "*Possibility of balancing work time and personal and / or family time*", where before the pandemic opinions are divided between frequently and seldom, with 48% and 46% responses respectively. However, after the pandemic, the correspondent percentages changed to 34% and 56%, with a decrease of 14pp of those who frequently are able to balance work and lifetime. The increase of the work-life conflict amongst teachers, however, goes along with the more general findings of Kraft, Simon and Lyon (2020). The large share of responses regarding the question "*Family responsibilities prevent you from dedicating the time you should to your work*" were never and seldom, both before and after the pandemic. However, the frequent occurrence increases about 4 pp with the pandemic (Table IV).

Analysing the class preparation time in 2020 and 2021, one can conclude that, most of the teachers declared that it increased substantially in both lockdowns, 84% and 81% responses respectively (4=I agree; 5=Strongly Agree) (see Figure A.II.7). When it comes to the external support services for household chores or child/old people services, most teachers never had these services before the pandemic and this maintained itself after the pandemic, with a percentage of 71% before the pandemic and 72% after (see Figure A.II.8).

After Covid-19 pandemic the work organization of teachers has a significant change. After pandemic, the work during weekends is frequent for 86% teachers and compared with the situation before pandemic corresponds to an increase of 19 p.p.. When it comes to working at night, most teachers answered that this practice was frequent, both before and after the pandemic. However, the work at night is frequent after pandemic for 79% which corresponds to an increase of 17 p.p. (Table IV).

Teachers also confirmed this increase in workload. The difficulty in reconciling working hours is better understood when analysing weekly time spent before and after the pandemic (Figure 2). The biggest increase occurred was in the group of those who work more than 45 hours a week, with women went from 22% before pandemic to 41% after pandemic. It should be noted that the teachers' working week is contractually

established and is equal to 35 hours (Figure 4) (Pato & Fontainha, 2021c). (see Figure 4).-Before the pandemic, most teachers noted that they agreed and completely agreed and strongly agreed, that they were 'too tired after work to do things they liked' when at home (38% and 17% respectively). This feeling increased even more after the pandemic, with 34% teachers agreeing with the affirmation and 33% strongly agreeing (see Figure A.II.9).
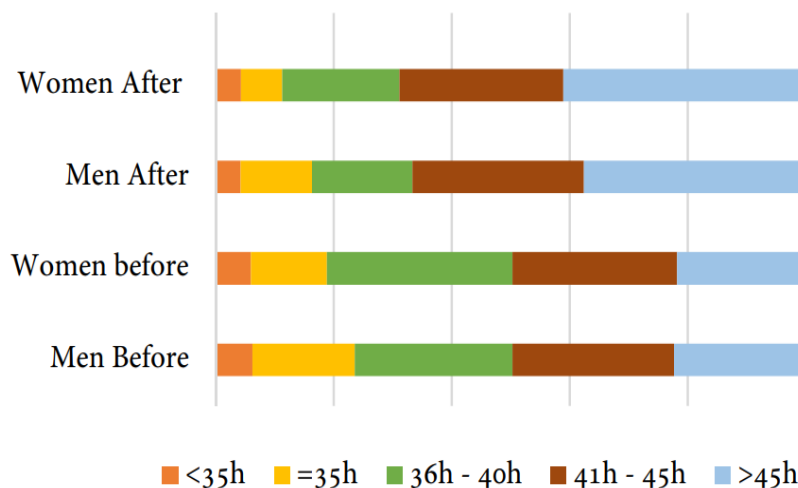

Figure 4- Distribution of weekly hours allocated to teaching activities before and after the pandemic, by gender (unit: %)

Table IV-Teachers' work organization before and after pandemic.

	Before Pandemic [1]	After Pandemic [2]	Change (p.p.) [3]=[2]-[1]
"Work during the weekend"			
Fequent (%)	67.0	85.5	18.5
Seldom (%)	28.8	11.5	-17.3
Never (%)	4.2	3.0	-1.2
"Work at night"			
Fequent (%)	62.2	79.1	16.9
Seldom (%)	32.6	17.1	-15.5
Never (%)	5.2	3.8	-1.4
"Possibility of balancing work time and personal and family time"			
Fequent (%)	47.9	34.0	-13.9
Seldom (%)	46.4	56.2	9.8
Never (%)	5.8	9.7	3.9
"Family responsibilities prevent teacher from dedicating the time he/she should work"			
Fequent (%)	12.7	16.2	3.5
Seldom (%)	56.6	56.4	-0.2
Never (%)	30.7	27.4	-3.3

Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en (Pato & Fontainha, 2021a and 2021b). See Appendix III.

When it comes to the division of household chores teachers pointed out that before the pandemic the chores were frequently divided (55% of the responses), and after the pandemic, the group for "frequent" maintained its majority with 57% (see Figure A.II.10). Regarding the division of children or elderly care, most responses before the pandemic were "frequent" and "seldom", with 35% and 20% respectively, and this majority also maintained itself after the pandemic (see Figure A.II.11). These findings about household work sharing among members, go against the literature that concludes that women have more difficulty in balancing work and life, especially the ones who must take care of smaller children (Del Boca et al., 2020; Kraft & Simon, 2020; Kraft, Simon & Lyon, 2020).

We can conclude that Hypothesis 2 was corroborated because there is evidence that with mandatory lockdown and emergency remote teaching worsened the teacher's work-life conflict.

4.1.4. Stress and burnout and Hyp. 3

Trying to evaluate the consequences of the changes occurred after pandemic on the stress levels and on the overall mental health and well-being of teachers, the question regarding "Work left me / leaves me emotionally drained" was asked. Before the pandemic, 49% of the answers agree. After the pandemic, at the moment of the survey, this divide is maintained, however, we can see an increase to 60% of agreement (see Figure A.II.12). Still regarding this question, the mean from 2020 and 2021 went from 3.32 to 3.68 which also suggests an increase of the teachers that agreed with the affirmation. (see Table V).

The environment in with the teacher teaches also greatly affects mental health as mentioned in the literature review. Considering the situation before pandemic, most teachers responded to the questions "Overall, the environment and working conditions were good" in a positive manner, 77% of the totally of the valid answers (4=Agree, 5=Strongly Agree). Only 4 % of the teachers answered that the work conditions were not good (1=Completely Disagree; 2=Disagree). Considering the moment of the survey (June/July 2021), most teachers still mentioned that they agreed and strongly agreed with having good environment and working conditions (68%). The number of neutral answers increased from 3% to 8%. (see Figure A.II.13). However, it is still important to note that there are some teachers who also noted that they did not have the access to resources in 2020 and 2021, 22% and 14% respectively, since it is still a high number (1=Completely disagree; 2= Disagree) (see Figure A.II.14). Regarding the work environment still, from one period to the other, the mean decreased from 4,02 to 3,83 as well, supporting the previous presented percentages. (see Table V).

Before the pandemic, most teachers agreed and strongly agreed to have enough energy for family and friends when in moments of leisure (70% of the responses in total). At the time of the survey, there was a clear rise in the teachers that neither agreed and disagreed and the ones who disagreed, who went from 23% before the pandemic to 40% after the pandemic (see Figure A.II.15). This is a very significant rise, and it goes along with the information in the Eurydice Report (European Commission/EACEA/Eurydice, 2021a and 2021b) where it was stated that almost one third of the working time of the teachers is to plan and in assessment, which in turn creates a work overload which contributes to stress and influences mental health. There was also a worsening when it came to the question "I was / am too tired after work to do things I liked when at home." from the 1st to the 2nd closure, which can be noted by a slight increase in the mean from 3,50 to 3,84 (see Table V)

All these results are well sustained by studies such as Kraft, Simon and Lyon (2020), that conclude that teacher's mental health was affected by their perception regarding their sense of success having decreased with the pandemic. Despite having most students attend online classes, the lack of in-person contacts and communication, and difficulties in being able to give feedback and support students, influenced their stress levels and mental well-being. Mahmoodi-Shahrebabaki (2020) also found high levels of anxiety, low job satisfaction, occupational stress, depression, and other mental problems amongst teachers. His study can therefore serve as a possible prediction for the teachers who noted this decrease in their work-life balance and that felt emotionally exhausted. Baert et al., (2020a and 2020b) conclusions, that telework helps to minimise both work-related stress and the chance of burnout, can therefore not be confirmed in the case of involuntary telework.

Table V-Questions associated to mental health (mean, median and SD), Before Pandemic and at the time of the survey ('Now')

	Mean	Median	SD
"Overall, the environment and working conditions were / are good"			
Before Pandemic	4.02	4.00	0.799
Now	3.83	4.00	0.924
"I was / am too tired after work to do things I liked when at home."			
Before Pandemic	3.50	4.00	1.086
Now	3.84	4.00	1.143
"Work left me / leaves me emotionally drained"			
Before Pandemic	3.32	3.00	1.171
Now	3.68	4.00	1.200

5 points Likert scale: 1= 'Completely disagree'; 5='Strongly Agree'
Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en
(Pato & Fontainha, 2021a and 2021b). See Appendix III.

We can conclude that Hypothesis 3 was corroborated because the results clearly suggest a decrease in mental well-being and health.

4.1.5. Teacher/Student communication and student performance and Hyp. 4

Regarding the adequate preparation of students for assessment, more than one third of the teachers responded, "I neither agree or disagree", 37% and 36 % of the responses in 2020 and 2021 respectively. About 32% in 2020 pointed out that the assessment was not the adequate (1=Completely disagree; 2=Disagree) and in 2021 26% pointed out the same (see Figure A.II.16). These results converge with Orlov et al., (2020) and Pokhrel and Chetri (2021). Communication is, as we know, a very important part of a teachers' job, that can influence the way a teacher does her or his job and it can contribute to self-isolation (Baert et al., 2020a). Most teachers in this research pointed out that their ability to communicate with students decreased substantially during distance learning, with about 68% and 64% of the responses in favour of this difficulty in both lockdowns (2020 and 2021) respectively it seems to have been a small increase in the ability to communicate from one lockdown to the other. (see Figure A.II.17).

This newly found difficulty in being able to engage their students was also proved to be an issue in Kraft, Simon & Lyon's (2021) research. The way students perform does directly influence teachers' satisfaction, as mentioned before in the literature review, and can consequently influence their stress levels. Based on the results for students and time allocation and workload, is not surprising that job and life satisfaction worsened with pandemic, and consequently increased stress and burnout. Regarding the question *"Compared to face-to-face teaching, distance learning has enabled students to perform equally"*, most teachers responded that their students' performance was not the same during distance learning. For the first school closure (2020), 54% mentioned it not to have been the same (1=Completely Disagree; 2=Disagree) and for the second school closure (2021), the percentage decreased to 48% of answers (see Figure A.II.18). The mean increased from the first to the second closure (2.30 to 2.56) (see Table VI).

Kengatharan (2019) found similar evidence and concluded that misbehaving students and the environment in which teachers perform can have negative effects on teachers' success, and, consequently on their job satisfaction.

Table VI-Effect of urgency remote teaching on students learning and performance (first and second school closure)

	Mean	Median	SD
"*Compared to face-to-face teaching, distance learning has hampered communication between teachers and students*"			
1st closure	3.92	4	1.10
2nd closure	3.79	4	1.11
"*Compared to face-to-face teaching, distance learning has enabled students to perform equally*"			
1st closure	2.30	2	1.02
2nd closure	2.56	2	1.04
"*With distance learning, the preparation of students for the assessment (national and local exams) was adequate*"			
1st closure	2.85	3	0.97
2nd closure	3.00	3	0.97

5 points Likert scale: 1= 'Completely disagree'; 5='Strongly Agree'
Source: Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en
(Pato & Fontainha, 2021a and 2021b). See Appendix III.

We can conclude that Hypothesis 4 was corroborated because teachers' motivation and sense of success worsened after pandemic, in association with students' behavior and outcomes.

4.1.6. In their own words: What teachers say about teaching during the pandemic

Regarding the open questions about advantages and disadvantages of teaching online based on the personal experience of each respondent (Questions 6 and 7 in Appendix III), most of the answers are related to the previously presented literature and the previously elaborated hypotheses associated to JS. The advantages and disadvantages from telework must be reconsidered once teachers were unexpectedly and urgently forced to it due to the pandemic. Firstly, when it comes to the advantages of teleworking, part of the men and women did not respond, which can sustain the theory that telework could be not as advantageous as though before. The teachers who responded, in general, pointed out more disadvantages than advantages. Most respondents either did not respond, nor could point out advantages (women, 47% and men, 42% (see Figure A.II.19). When it came to the disadvantages, there was also most teachers, who did not respond and pointed out no disadvantages (women, 25% and men, 23% respectively) (see Figure A. II.20).

There were more women who pointed out disadvantages than there were men, 25% and 23% respectively (see Figure A.II.20), whilst when it comes to the advantages 47% were from men and 42% were pointed out by women (see Figure A.II.19).

Advantages

One of the biggest advantages that both men (29%) and women (17%) see alike (see Figure A.II.19, , namely "Adopting new technologies and tools and training and new skills. Best equipment at home most of the time") is that their own and their students' knowledge about technology improved substantially due to the imposed distance learning (Raišiene et al., 2020), however, teachers do also note that this improvement was not prepared accordingly and that most had to commit even more to their job to learn. Despite it being noted as an advantage, most teachers mentioned the fact of it being "forced".

> *"The possibility of exploring technological resources that don't even exist in schools because computers are obsolete. It is unfortunate, however, that this exploitation has to be done at the expense of students' and teachers' personal equipment" (Male, 35-44 years old, 11-19 years of teaching experience, Arts teacher)*

The other most frequently referred advantage for both men and women (in similar percentage, 8%) (see Figure A.II.19) are the fact that their students were able to improve their autonomy, productivity, and concentration, which in turn made teaching them easier. However, most teachers answered that the autonomy only rose with the already good students.

> *"For some, very few students, the remote teaching process works, especially for the best students, with work autonomy, because they can manage their learning times and direct them in their favour" (Female, 55-64 years old, 20 years or more of teaching experience, Arts Teacher)*

It is also important to note that there were a considerable number of teachers that pointed out the bettering of their student's indiscipline as one of the biggest advantages of the distance learning. Despite not being frequently mentioned advantage, and therefore not being in Figure A.II.19, it gathered 4% from women and 5% from the men who responded .

> *"Through remote teaching there are no problems of indiscipline on the part of the students. This, for me, is the biggest advantage. The online classes run smoothly and therefore do not exhaust me, nor do they affect me negatively from a psychological point of view. In fact, if I had my choice, I would ask to teach half the time from home. Another advantage is the fact that we don't waste time traveling to school. I should also point out that this type of class forced me to research more teaching resources, such as short films, videos, and virtual games, to motivate the students more and captivate their*

attention. In other words, it turned out to be a facilitating aspect in the sense of making the classes more appealing." (Female, 55-64 years old, 20 years or more of teaching experience, Science Teacher)

Disadvantages

The disadvantages, on the other hand, show us a different and a more interesting story. Despite there being many teachers who did not respond (25% for women and 24% for men), the ones who did, were very coherent when it came to listing the disadvantages of distance learning (see Figure A.II.20).

Most of them were very focused on the students themselves, which supports Blau's social exchange theory for teachers, which advocates the importance of the student's wellbeing and learning for the teacher's job satisfaction (Blau, 1964). If the students are not able to perform and have the same environment and resources, teachers will feel a sense of frustration and a dissatisfaction with their own work, since they cannot help all students in the same way (IAVE, 2021). This disadvantage in being having "Difficulty in the use of new tools (students and/or teachers), in teaching and student learning" was pointed out by both women and men, with 12% and 14% respectively (see Figure A.II.20). These results converge with those obtained by Lim and Tan (2020).

> *"The big disadvantage is that we don't know if the students are following the lessons or not. They may have the camera on, but they may be watching other things on their cell phones, messaging on social networks, listening to music, ... In my opinion, distance learning works only with students who have sufficient maturity and responsibility, as well as autonomy" (Female, 55-64 years old, 20 years or more of teaching experience, Science Teacher)*

The lack of social interaction with the students was one of the most mentioned disadvantages, which certainly is very connected to the disadvantage mentioned above, the difficulty in learning about new tools and forms of work, and the lack of the students' motivation and concentration. About 16% of the women and men mentioned this lack of personal interaction, in-person contact, and personalization as one of the most frequent disadvantaged which added in turn to the difficulty in communication. Consequently, students lacked 'concentration, motivation, and autonomy', according to both women and men (about 11%) (see Figure A.II.20). This disadvantage was stressed also by Gadermann et al., (2021) and Feng and Savani (2020).

> *"The lack of direct and personal communication and relationship between the actors involved in the process, especially the students and the teachers, as well as the students among themselves, during*

and in the class context (=classroom)" (Male, 55-64 years old, 20 years or more of teaching experience, Physical Education Teacher)

One of the disadvantages also mentioned can arguably be the fact that teachers felt that there were inequalities amongst their students regarding the access to equipment and other resources (11% of the women and 7% of the men mentioning this disadvantage (see Figure A.II.20). Bacher-Hicks, Goodman and Mulhern, 2021). Ziebell et al.'s (2020) also corroborates these findings, since they concluded, for the Australian case, that just above half percent of the teachers in their study reported that all their students had access to technology to be present in the online classes.

"The disadvantages are numerous. The main one, for me, is the constraints associated with the accentuation of inequalities. I'm not just talking about socio-economic inequalities, I'm talking about inequalities related to the difficulties of the students, because, for many, distance learning has proven to be a setback in their learning process and relationship with their peers and with society in general" (Female, 44-55 years old, 20 years or more of teaching experience, Science Teacher)

These inequalities go along with the results obtained by Conselho Nacional de Educação (2021) report for Portugal, where 21% of the teachers answered that more than 30% of their students were affected by the inexistence of digital devices at home. They also showed in the report that when it came to the teacher's perception of their students' resources, 15% said it was hard to have access to a computer, 13% considered it hard for their students to be able to have internet, 19% considered that their students did not have access to essential learning resources, and finally 13% found that their students had difficulty in having access to digital devices overall. The Conselho Nacional de Educação report (2021) also concluded that most of the teachers pointed out the significant increase of social inequalities amongst students (66%) and, consequently, and increased risk of school abandonment and dropout (51%).

This also goes along with what Gadermann et al.'s (2021) study for Canada (British Columbia) concluded, in which most of the teacher's responses also hinted to moderate or almost no inclusiveness for more vulnerable students, with 38% and 31% respectively.

The "lack of reliability and more difficulty in evaluations and assignments" was also one of the mentioned disadvantages in general, despite it being with a lower frequency than the ones before, with 6% of women and 8% of men mentioning it (see Figure A.II.20) (corroborated by Seabra et al.'s (2021).

Chapter V

Conclusions

The pandemic imposed unexpected changes in the field of education and in the social and economic behaviours and routines of schools, teachers, students, and families alike. Before pandemic, being a teacher was already considered one of the most stressful and demanding jobs. It comes, therefore, as no surprise, that the pandemic worsened teachers' lives and influenced their job satisfaction. Working from home was a good short time solution for the urgent need that surfaced due to the pandemic, but as most of the studies stated, this type of work can be easily negatively influence by external factors.

The findings in this study shed some light on the reality of high school teachers and will contribute to prepare solutions to the short-term and long-term problems in education related to the pandemic.

Empirical evidence based on data collected by an original survey applied in Portugal in 2021, suggests that:

After pandemic teachers' **job and life satisfaction** decreased for both women and men.

Conclusions about the four drivers of job satisfaction studied were:

Closed questions, using a Likert scale did not show relevant evidence regarding the occurrence of **techno stress and difficulty to adapt** to remote urgency teaching. However, open questions reveal some contradictory results. It is clear in some of the open responses that some teachers felt that there was a lack of preparedness and training especially in the first school closure (2020) regarding the methods and technologies that had to be used while remote teaching. This led to teacher being more frustrated and feel less in control. Training is required to implement changes, (Carrillo & Flores, 2020; Ziebell et al., 2020).

Contrary to telework literature in general, it was not empirically confirmed that telework (unvoluntary) during the pandemic contributed to reduce the **work-life conflict** and to increase a work-life balance. Household structure and routines changed substantially. However, results cannot be generalized since the online teaching was sudden and unvoluntary.

The amount of work increased considerably during both lockdowns. Teachers noted a significant **workload increase**, which contributed to the lack of personal and family time, with even one of the respondents going as far as to say that she "had no time to be a mother". Being constantly available due to telework (Bonacini, Gallo & Scicchitano, 2020) increases the work-overload and has a negative impact on the work-life conflict and balance (OECD, 2020 and 2021; Schleicher, 2020; Suh & Lee, 2017). The **work-life conflict** increased with the closure of kindergarten, schools, and home support services, and **working women** have an extra burden of unpaid work and parental supervision that arises from their still predominant traditional role. Telework negatively impacts those who must share their work environment with other household members

and simultaneously supervise their own children (Sevilla & Smith, 2020). It was not confirmed whether the **gender unbalanced participation** within the household was exacerbated with pandemic (Connor et al., 2020; Borah-Hazarika & Das, 2021; Lim & Tan, 2020; Raišienė et al., 2020).

The empirical results suggest strong **negative effect on mental well-being and mental health** of teachers. There was an increase in the feeling of being too tired from work to be able to have personal or family time, as well as in the feeling of being emotionally drained with their work. The workload increase, and less personal time seems to directly influences teachers' **stress and burnout** levels. Teacher's sense of success decreased due to lack of student engagement, and their stress and burnout levels were affected (Kraft et al., 2020). Because the workload increase, and less personal time directly influences teachers' stress levels. (Eurydice Report, 2021). The increasing difficulty in unplugging led to more stress (Correia, Gomes & Moreira, 2010; Tarafdar et al., 2015). In 2020, the literature, did not confirm that the Covid-19 pandemic may have aggravated the number of cases of burnout syndrome among women (Galea, Merchant & Lurie, 2020; Hayes et al., 2020; Xiong et al., 2020). However, the 'long Covid-19' is currently object of research.

With the pandemic there was a decrease in **teachers' sense of success** due to a lack of communication amongst teachers and students. Student's performance worsened in general which led to their preparation for assessments not being the most accurate one. Increase in dissatisfaction due to teachers feeling that there was a lack of connection and in-person contact with their students, especially when it came to dealing with students who had more difficulties (Baert et al., 2020a; Pokhrel & Chetri, 2021). **Student's behaviour and performance** influenced teacher's sense of success and decreased their satisfaction; Being able to engage students in their classes directly influences the sense of success (Kraft, Simon & Lyon, 2020). Many students during the lockdown experienced a lack of productivity due to lack of personal and direct contact with their teachers (Jelińska & Paradowski, 2020).

Difficulty in assessing students and giving feedback influenced **teacher's motivation** (Orlov et al., 2020) and the existing **digital divide amongst students** created additional problems (Bacher-Hicks, Goodman & Mulhern, 2021).

The fact that **no gender gap** was clearly identified in this empirical analysis can be because of, not only the composition of the sample (75% are women), but also because of the different ways each gender perceives difficulties and hardships. In the open questions, for example, women in general appointed a higher percentage of disadvantages than men, which can point to a difference in dealing with emergency remote teaching and learning.

The results point to the necessity of conducting studies, on a national level and at large scale, to be able to design specific and general policies and actions to deal with the challenges related to the pandemic and to the one's on the long run (e.g., gender equality policies; working organization; improving telecommuting

practices; teacher roles and methods). Training both teachers and students, having a consistent supportive environment and creating new methods to reform the education system can take advantage of the experience of emergency remote teaching and prevent a lot of stress and frustrations.

Limitations and Future Research Avenues

This study as several limitations and opened in parallel several research avenues.

One of the limitations is that the sample was not a random sample. The size of the sample, as well as the time the survey was conducted, can be seen as a limitation, since questions about the "before the pandemic" had the need for teachers to recall the reality and to be able to compare it to the present. One of the most evident limitations was the use of a retrospective report, which may have led to inconsistencies and incongruities. The results, due to time constraints, were not explored in its totality and the methods of analysis were not the more complex. The references of the effects of the pandemic on teachers just now started to be more detailed and carefully conducted. Due to time constrains, it wasn't possible do both do a literature review and explore completely the data collected. Some further research is already done (Pato & Fontainha, 2022).

Future research needs to further examine the long-term consequences on mental health and mental well-being amongst teachers, possibly with longitudinal research. These results can be extremely helpful on the long run, since as we mentioned before, most mental health issues take time to develop. It would be, therefore, extremely interesting to repeat this survey in 1 and in 2 years, since for example some of the consequences for burnout only come to fruition after at least 1 year of exposure (e.g. semi-directive interviews). It would also be proposed that the Job Satisfaction amongst teachers would be furthered studied, since the results of this pandemic could take some time to truly influence it in a more negative way. The results obtained through the open questions also suggest that the theme still has a lot to be discovered about when it comes to teachers's job satisfaction and the associated drivers and consequences.

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Appendices

Appendix I- Literature Summary

Table A.I.1- Literature Review Synthesis of most important conclusions (confirmed/not confirmed) (see Chapter V for Conclusions)

Work-life Conflict		
Bonacini, L., Gallo, G. & Scicchitano, S. (2020)	**Constantly available**	Confirmed
OECD (2020 & 2021); Schleicher (2020); Suh & Lee (2017)	Telework **increases work-overload** and has a **negative impact on the work-life conflict**	Confirmed
Sevilla & Smith (2020)	Telework negatively impacts those who must share their work environment with other household members and simultaneously supervise their own children	Not confirmed
Marôco et al.'s (2016)	Telework improves work-life balance	Not confirmed
Del Boca et al. (2020)	Distribution of extra work penalizes women. Worse due to pandemic	Not confirmed
Connor et al. (2020); Borah Hazarika & Das (2021); Lim & Tan (2020); Raišienė et al. (2020)	**Gender unbalanced participation** within household is exacerbated	Not confirmed
Results of this thesis		
The possibility of balancing work time and personal and family time was concluded to be negatively affected by the pandemic.		
Adapting to Telework and Technostress		
Beames et. al., 2021; Dong et al., 2019	**Having time to prepare** predicts technostress	Not confirmed nor denied
Carrillo & Flores, 2020; Ziebell et al., 2020	**Training** is required to implement changes	Confirmed
Kraft, Simon & Lyon, 2020; Özgür, 2020; Raišiene et al., 2020	**Age** can influence the way teachers responded to the pandemic	Not confirmed nor denied

Ozgür (2020)	Difference between teachers' genders and technostress levels was not statistically significant, age is an important variable	Not confirmed nor denied
Results of this thesis		
The results in this do **not suggest sources of technostress**.		
Stress and Burnout		
Eurydice Report (2021)	Teachers spent **more time** preparing their work which resulted in **higher levels of stress**	Confirmed
Kraft et al. (2020);	Teacher's sense of success decreased, and mental health was affected	Confirmed
Marôco et al. (2016)	Telework improves their work-life balance and helps minimize both work-related stress and the chance of burnout	Not confirmed
Correia, Gomes & Moreira (2010); Tarafdar et al. (2015).	The **increase of working hours and difficulty in unplugging** leads to more stress	Confirmed
Kraft, Simon & Lyon (2020)	Teacher's mental health was affected by their perception regarding their sense of success having decreased	Confirmed
Mahmoodi-Shahrebabaki (2020)	High levels of anxiety, low job satisfaction, occupational stress, depression and other mental problems amongst teachers	Confirmed
Baert et al., 2020	Telework helps to minimize both work-related stress and the chance of burnout	Not confirmed
Teles et al's (2020)	Significant difference when it came to women and men's mental health	Not confirmed
Galea, Merchant & Lurie (2020); Hayes et al. (2020); Xiong et al., (2020).	The Covid-19 pandemic may have aggravated the number of cases of **burnout syndrome**, especially **by gender**	Not confirmed
Results of this thesis		
Teacher's mental health was negatively influenced by the pandemic, especially due to increase in workload**.**		
Motivation and Sense of Success		
Orlov et al., 2020	**Difficulty in assessing students and giving feedback** influenced self-efficacy	Confirmed
Kraft, Simon & Lyon (2020)	Being able to **engage students** in their classes directly influences the sense of self-efficacy	Confirmed
Baert et al., 2020a; Pokhrel & Chetri (2021)	Lack of communication results in isolation for teachers	Confirmed

Jelińska & Paradowski (2020)	Many students during the lockdown experienced a **lack of productivity due to lack of personal and direct contact** with their teachers	Confirmed
Bacher-Hicks, Goodman & Mulhern (2021)	The **digital divide** amongst students created an added difficulty	Confirmed
Results of this thesis		
Teacher's sense of success decreased with the pandemic, influencing teacher's job satisfaction and stress levels.		

Appendix II- Figures and Tables

Table A.I.1- Subjects taught 2019/2020 and 2020/2021

	Subjects taught 2019/2020	*Subjects taught 2020/2021*
Sciences	149	138
Maths	76	75
Languages	174	179
Social Sciences	140	78
Technology	21	16
Economy	9	9
Professional courses	31	36
Arts	32	31
Physical Education	54	52
Musical Education	6	8
1st cycle	15	16
Special ED	14	16
Did not give classes	7	10
Pre-school	3	3
Headmaster	2	2
Total	733	669

Source: Open questions (coded) in Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en (Pato & Fontainha, 2021a and 2021b). See Appendix III.

Figure A.II.1- Distribution of answers for Questions "I felt satisfied with my teaching work / I feel satisfied with my teaching work" Before the Pandemic and Now
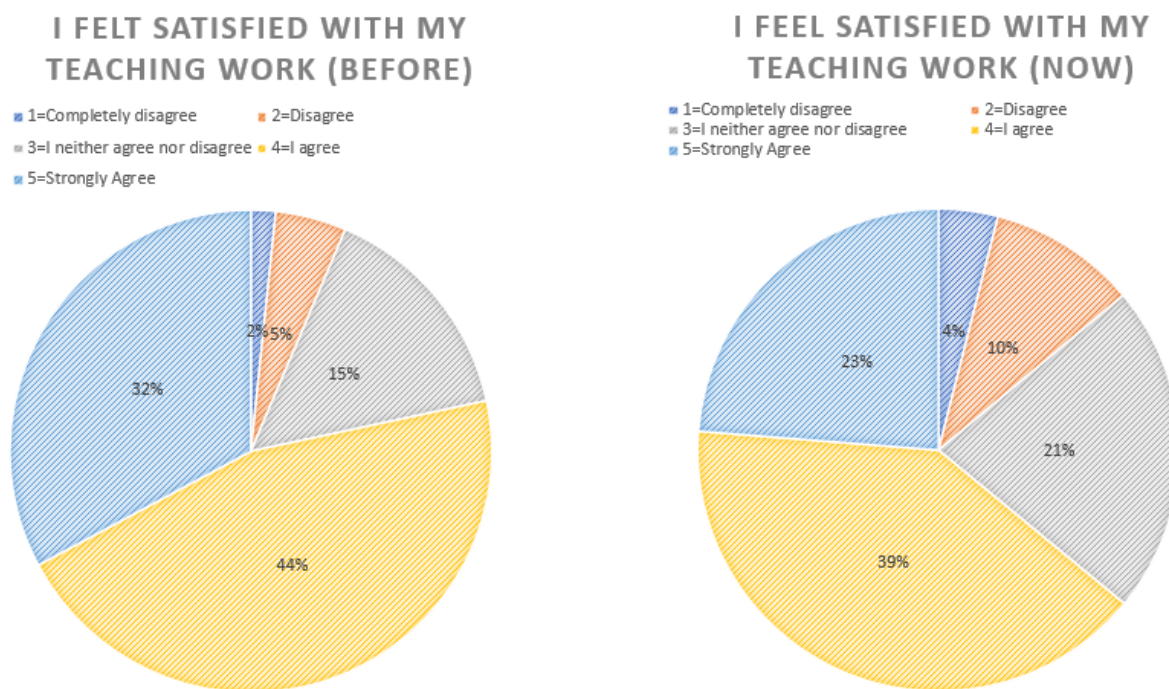
Figure A.II.2- Distribution of answers for Questions "I felt satisfied with life in general / I feel satisfied with life in general" Before the Pandemic and Now
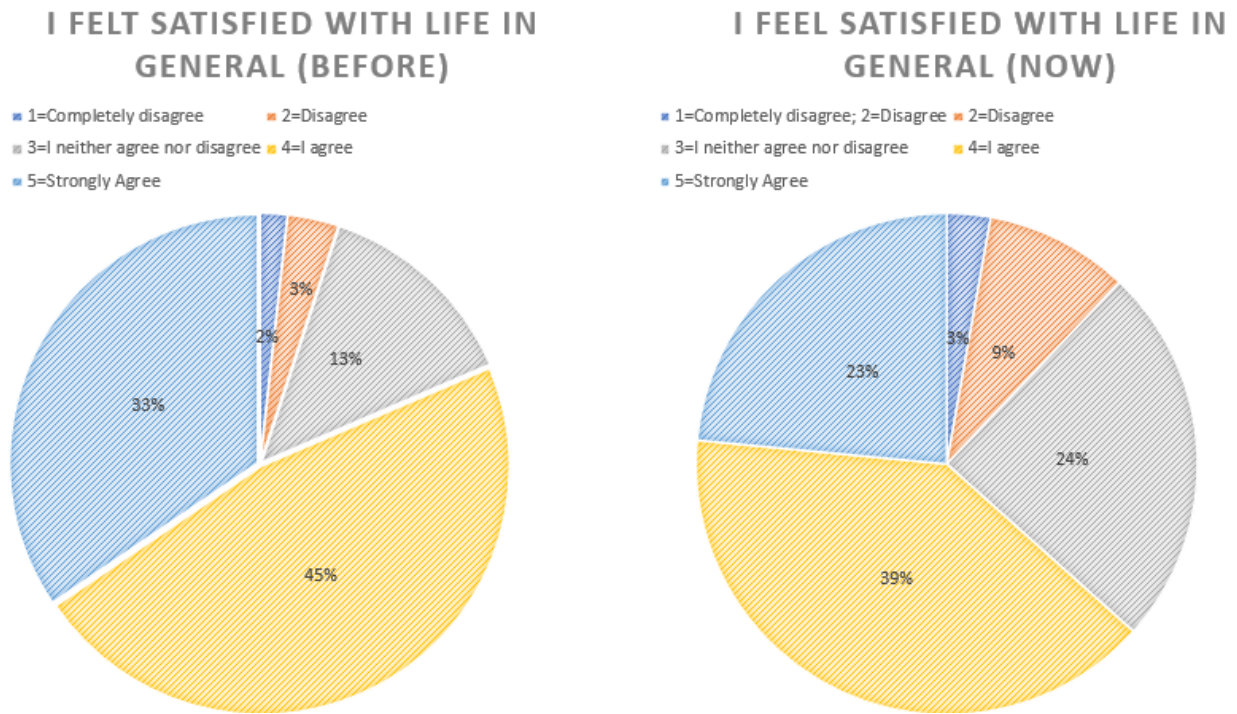
Figure A.II.3- Distribution of answers for Question "I easily adapted to distance learning" for 2020 and 2021
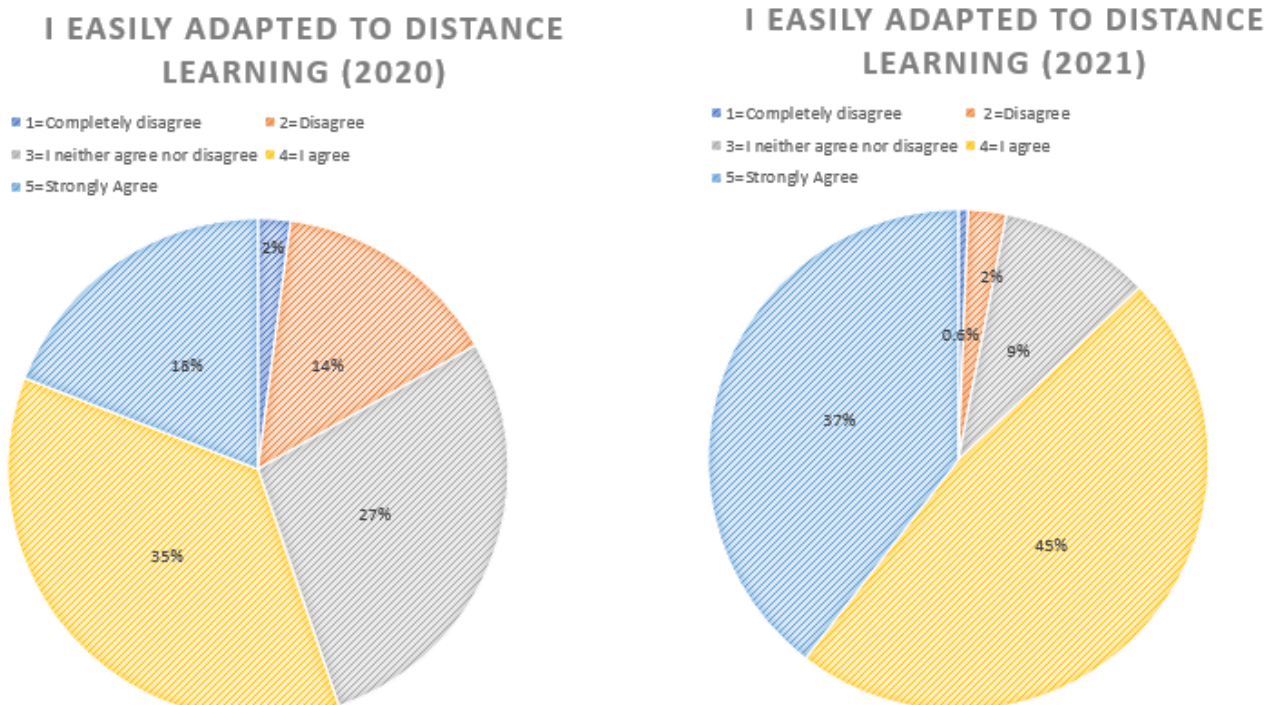
Figure A.II.4- Distribution of answers for Question "In general, my school colleagues easily adapted to distance learning" for 2020 and 2021

IN GENERAL, MY SCHOOL COLLEAGUES EASILY ADAPTED TO DISTANCE LEARNING (2020)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree
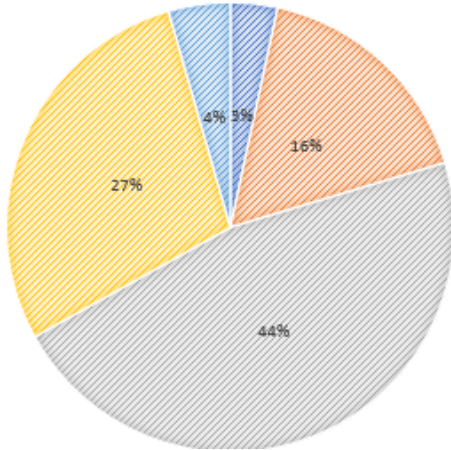
IN GENERAL, MY SCHOOL COLLEAGUES EASILY ADAPTED TO DISTANCE LEARNING (2021)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree
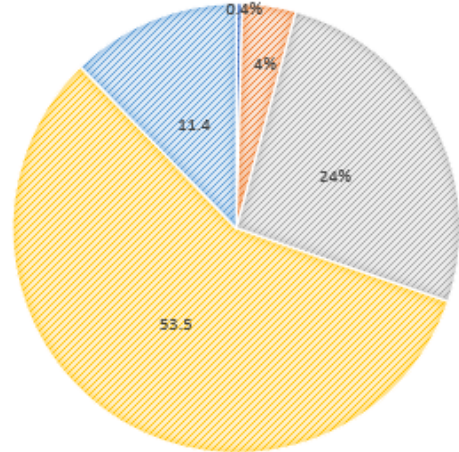
Figure A.II.5- Distribution of answers for Question "With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed" for 2020 and 2021

WITH DISTANCE LEARNING THE TEACHING TECHNIQUES, METHODS, LEARNING AND ASSESSMENT HAVE BEEN PROFOUNDLY CHANGED (2020)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree
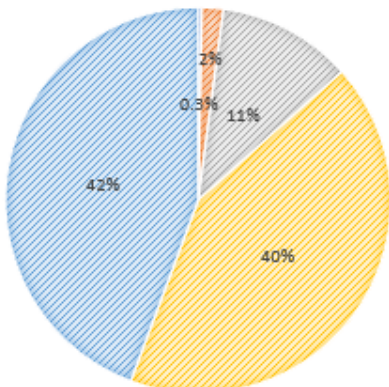
WITH DISTANCE LEARNING THE TEACHING TECHNIQUES, METHODS, LEARNING AND ASSESSMENT HAVE BEEN PROFOUNDLY CHANGED (2021)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree
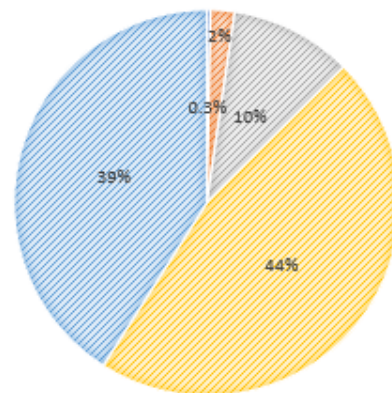
Figure A.II.6- Distribution of answers for Question "Distance learning has enabled me to reconcile work with family and personal life at home" for 2020 and 2021

DISTANCE LEARNING HAS ENABLED ME TO RECONCILE WORK WITH FAMILY AND PERSONAL LIFE AT HOME (2020)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

10% 13%
21%
26% 24%
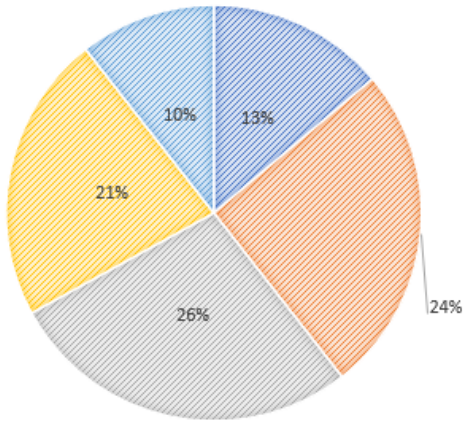
DISTANCE LEARNING HAS ENABLED ME TO RECONCILE WORK WITH FAMILY AND PERSONAL LIFE AT HOME (2021)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

11% 11%
25%
25% 22%
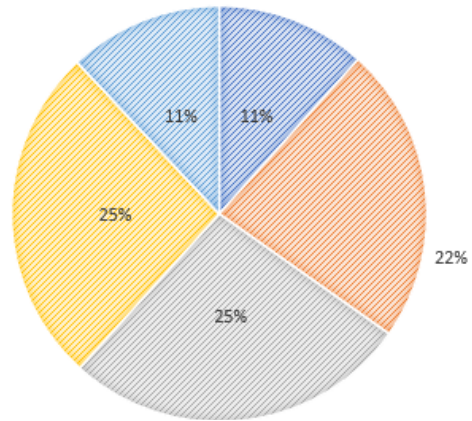
Figure A.II.7- Distribution of answers for Question "Class preparation time has increased substantially due to distance learning" for 2020 and 2021

CLASS PREPARATION TIME HAS INCREASED SUBSTANTIALLY DUE TO DISTANCE LEARNING (2020)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

2% 3%
5.3%
25%
59%

CLASS PREPARATION TIME HAS INCREASED SUBSTANTIALLY DUE TO DISTANCE LEARNING (2021)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

4%
2% 8.4%
50% 31%
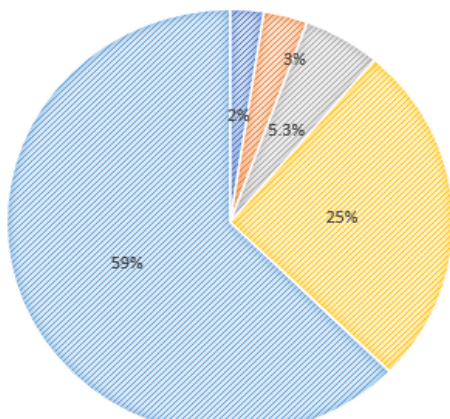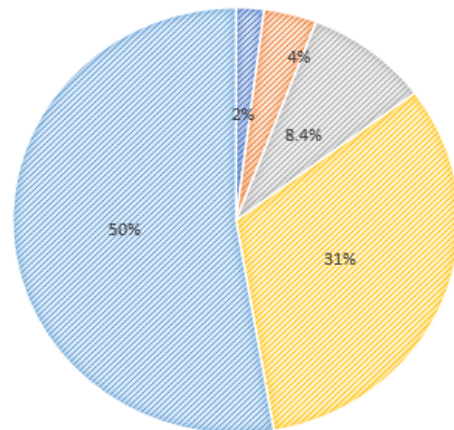
Figure A.II.8- Distribution of answers for Question "Frequency with which your household uses external support services for the caring of the elderly or minors", Before and After the Pandemic

FREQUENCY WITH WHICH YOUR HOUSEHOLD USES EXTERNAL SUPPORT SERVICES FOR THE CARING OF THE ELDERLY OR MINORS (BEFORE)

■ Frequent ■ Seldom ■ Never

12%
12%
71%
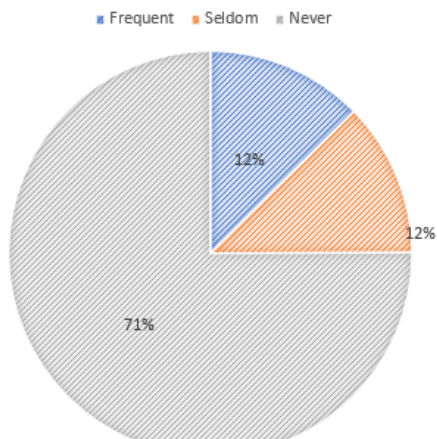
FREQUENCY WITH WHICH YOUR HOUSEHOLD USES EXTERNAL SUPPORT SERVICES FOR THE CARING OF THE ELDERLY OR MINORS (AFTER)

■ Frequent ■ Seldom ■ Never

10%
13%
72%
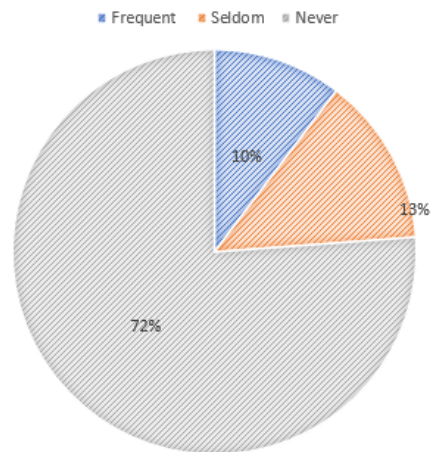
Figure A.II.9- Distribution of answers for Question "I was / am too tired after work to do things I liked when at home.", Before the Pandemic and Now

I WAS TOO TIRED AFTER WORK TO DO THINGS I LIKED WHEN AT HOME (BEFORE)

■ 1=Completely disagree ■ 2=Disagree
■ 3=I neither agree nor disagree ■ 4=I agree
■ 5=Strongly Agree

5%
14%
17%
24%
38%

I AM TOO TIRED AFTER WORK TO DO THINGS I LIKED WHEN AT HOME (NOW)

■ 1=Completely disagree ■ 2=Disagree
■ 3=I neither agree nor disagree ■ 4=I agree
■ 5=Strongly Agree

5%
9%
33%
15%
34%
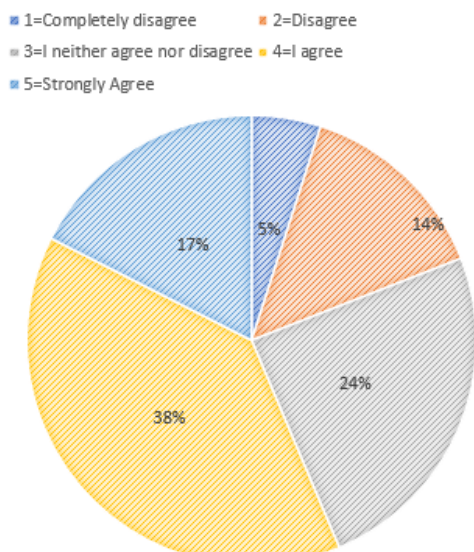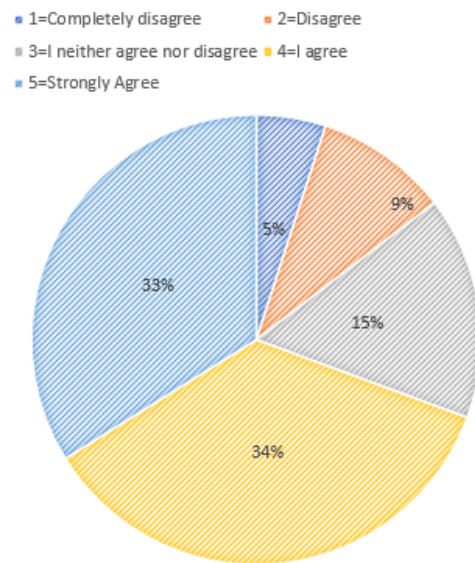
Figure A.II.10- Distribution of answers for Question "Frequency with which household chores are shared in a balanced way amongst the adults who make up your household.", Before the Pandemic and Now
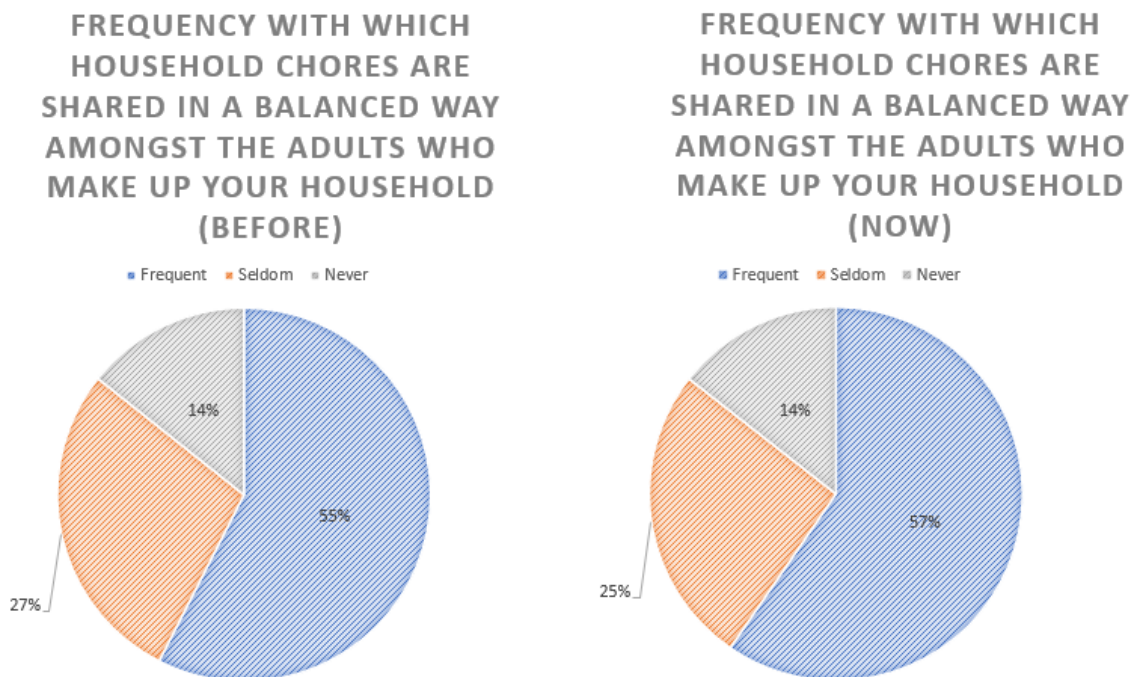
Figure A.II.11- Distribution of answers for Question "Frequency with which the care for children and / or the elderly is shared in a balanced way amongst the adults who make up your household.", Before the Pandemic and Now
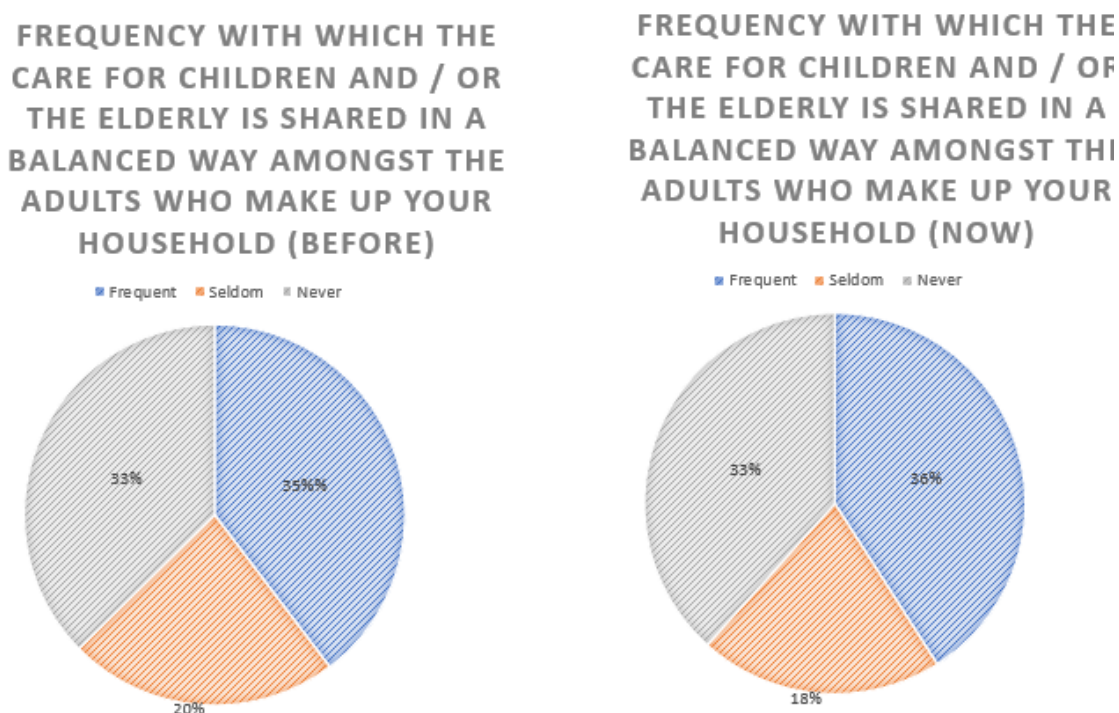
Figure A.II.12- Distribution of answers for Question "Work left/leaves me emotionally drained.",
Before and Now
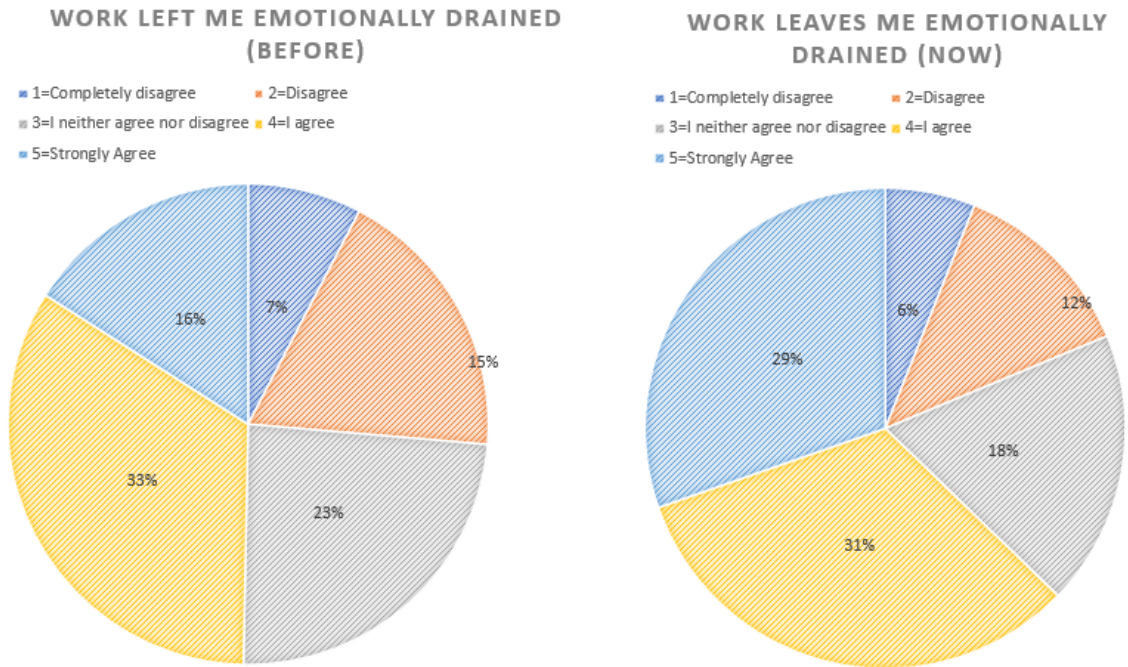
Figure A.II.13- Distribution of answers for Question "Overall, the environment and working
conditions were good.", Before the Pandemic and Now
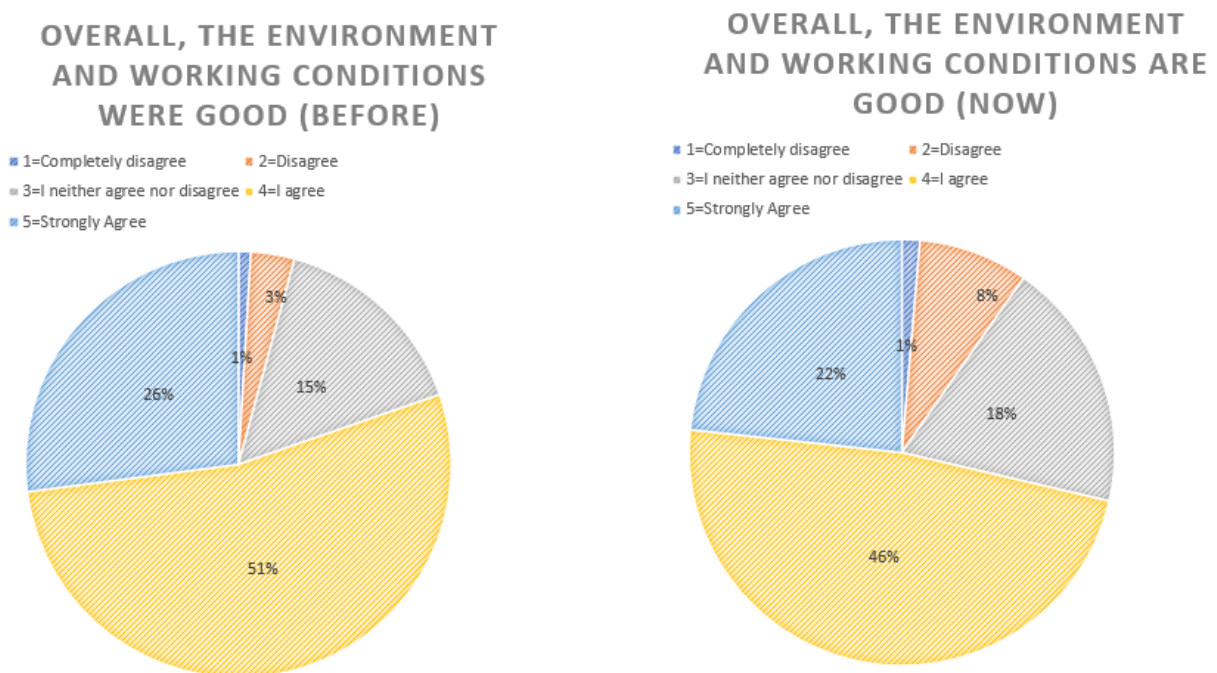
Figure A.II.14- Distribution of answers for Question "I had access to the essential resources to teach at home.", in 2020 (1st school closure) and 2021 (second school closure)
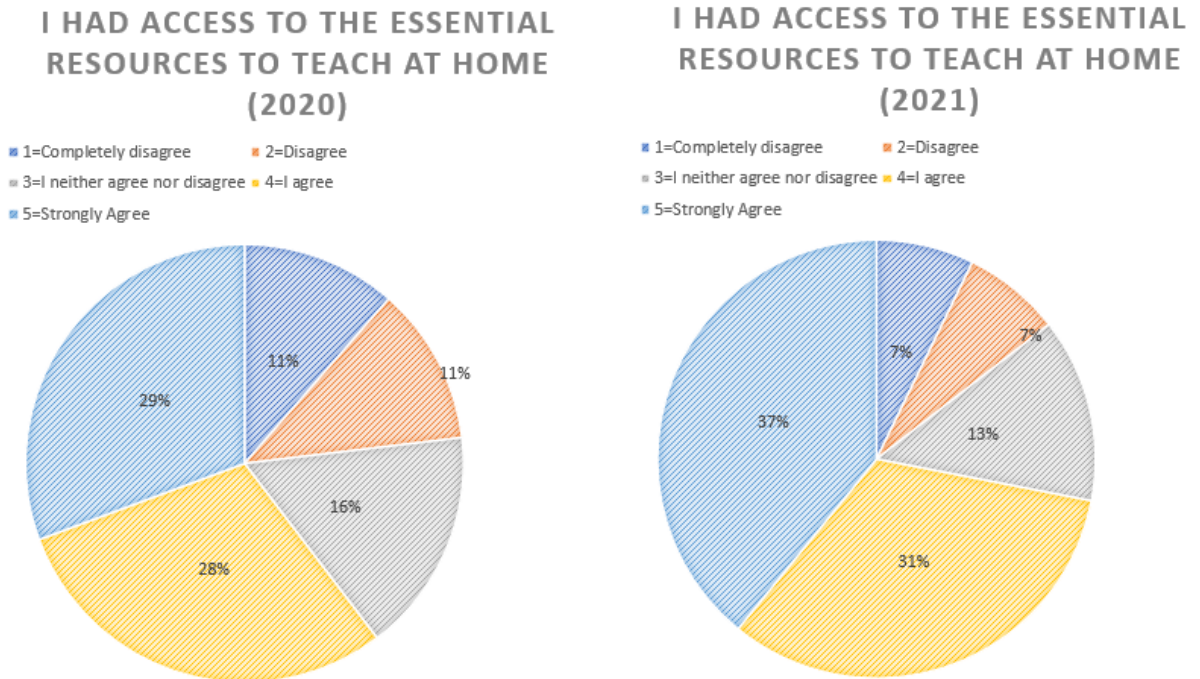
Figure A.II.15- Distribution of answers for Question "I had / I have enough energy for family and friends when in moments of leisure.", Before the Pandemic and Now
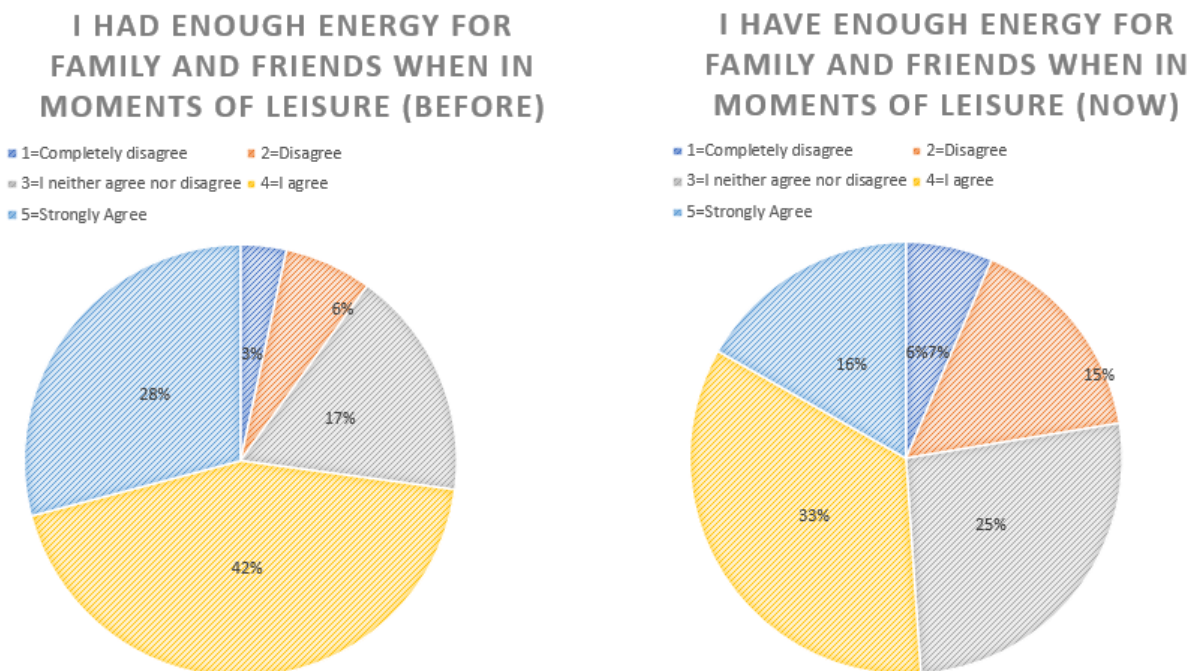
Figure A.II.16- Distribution of answers for Question "With distance learning, the preparation of students for the assessment was adequate.", 2020 and 2021

WITH DISTANCE LEARNING, THE PREPARATION OF STUDENTS FOR THE ASSESSMENT WAS ADEQUATE (2020)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

3% 8%
20%
37%
24%

WITH DISTANCE LEARNING, THE PREPARATION OF STUDENTS FOR THE ASSESSMENT WAS ADEQUATE (2021)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

4% 6%
24%
36%
20%

Figure A.II.17- Distribution of answers for Question "Compared to face-to-face teaching, distance learning has hampered communication between teachers and students.", 2020 and 2021

COMPARED TO FACE-TO-FACE TEACHING, DISTANCE LEARNING HAS HAMPERED COMMUNICATION BETWEEN TEACHERS AND STUDENTS (2020)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

10%
3%
14%
35%
33%

COMPARED TO FACE-TO-FACE TEACHING, DISTANCE LEARNING HAS HAMPERED COMMUNICATION BETWEEN TEACHERS AND STUDENTS (2021)

- 1=Completely disagree
- 2=Disagree
- 3=I neither agree nor disagree
- 4=I agree
- 5=Strongly Agree

10%
4%
17%
29%
35%

Figure A.II.18- Distribution of answers for Question "Compared to face-to-face teaching, distance learning has enabled students to perform equally" 2020 and 2021
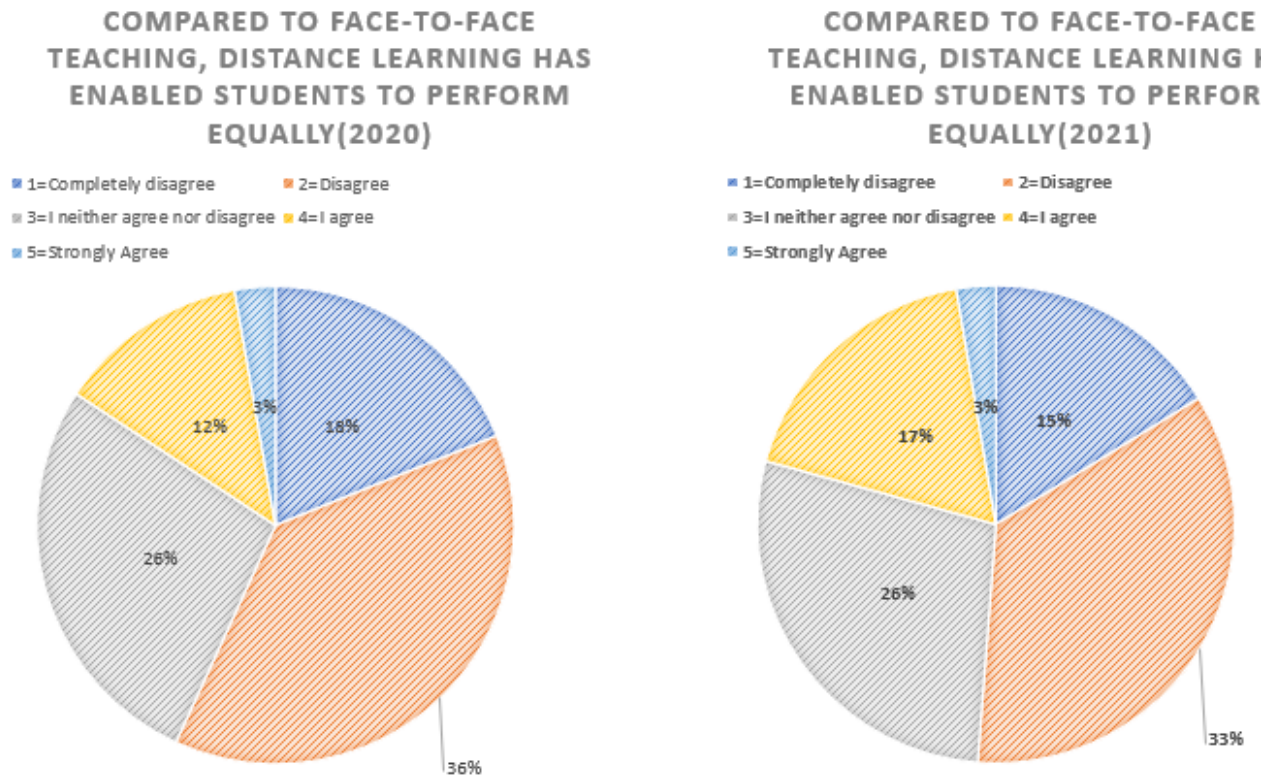
Figure A.II.19- Urgency Remote Teaching: Most Frequent Advantages by Gender
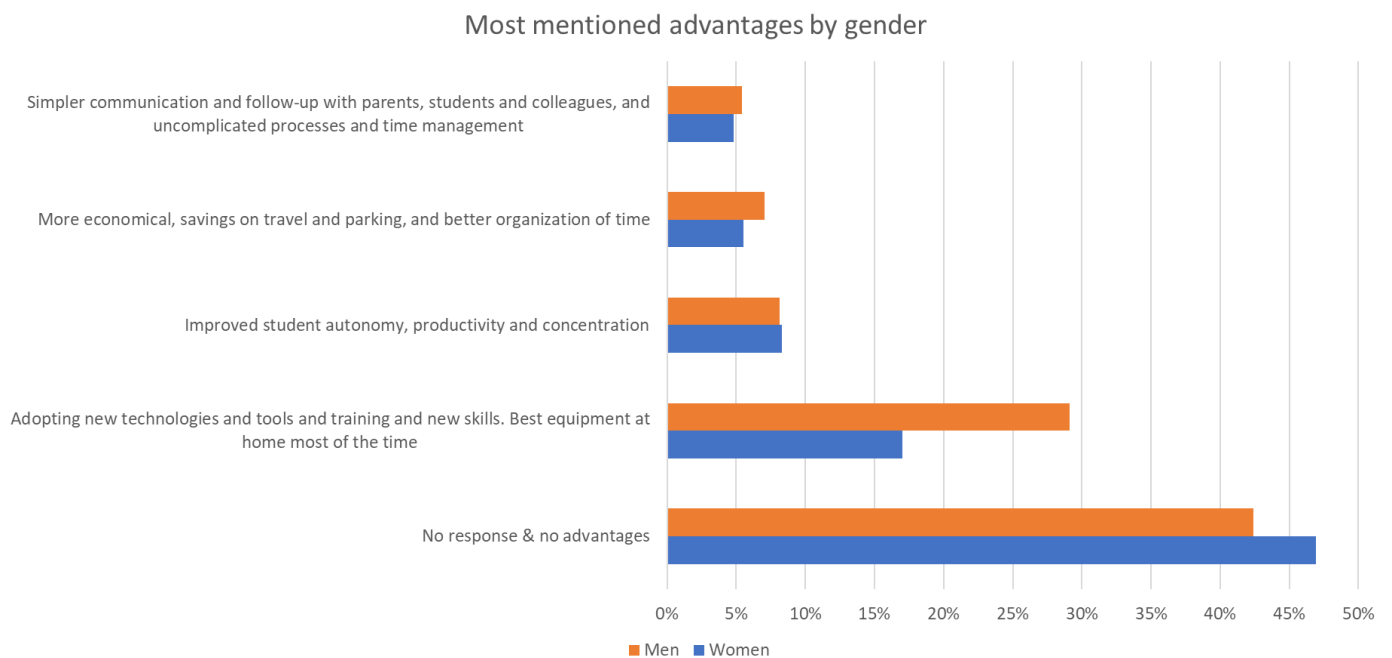
Figure A.II.20- Urgency Remote Teaching: Most Frequent Disadvantages by Gender
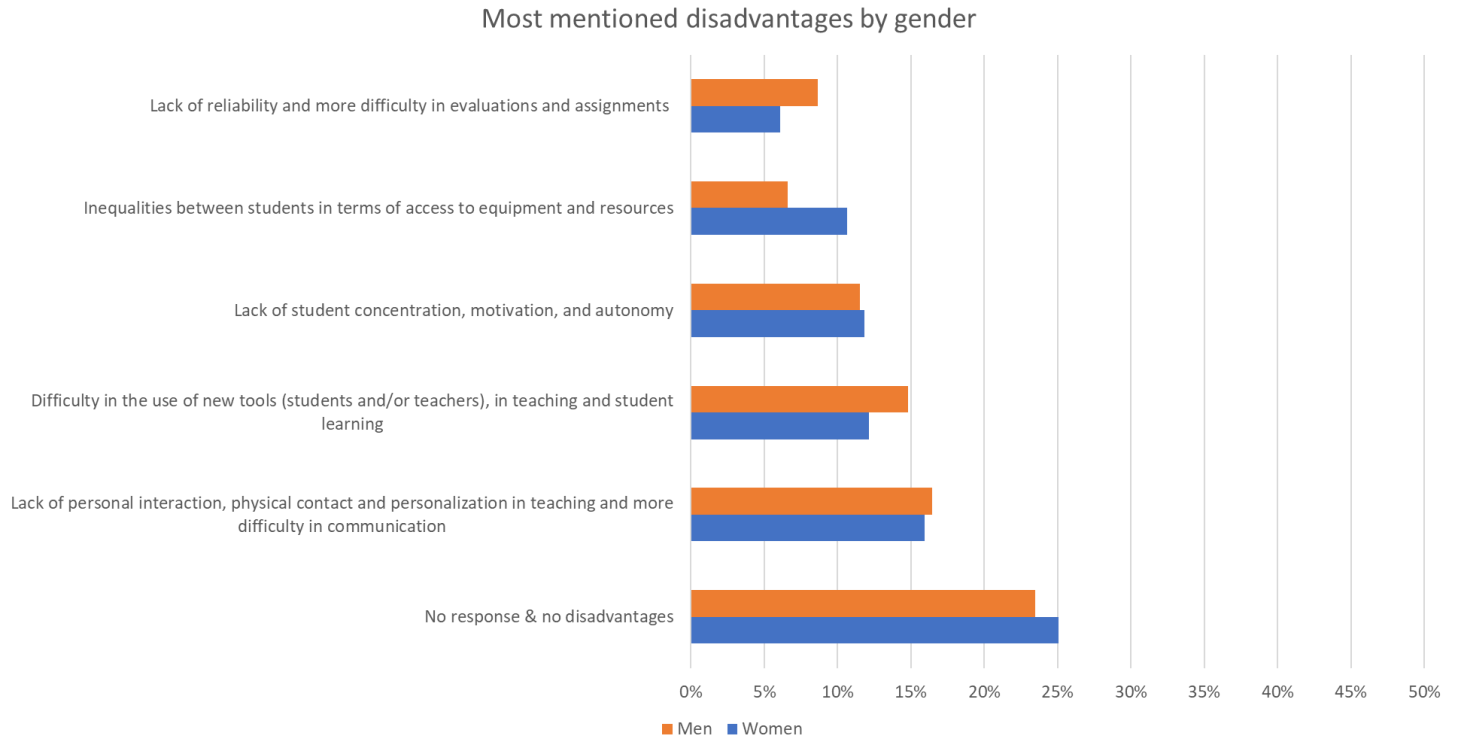
Most mentioned disadvantages by gender

Source: Open questions (coded) in Questionnaire about the effects of the pandemic on teaching activity. Accessed on: https://www.c19profsurvey.com/en (Pato & Fontainha, 2021a and 2021b). See Appendix III.

Appendix III- Questionnaire about the effects of the pandemic on teaching activity

Questionnaire about the effects of the pandemic on teaching activity

We would like to invite you to participate in this questionnaire, where the objective is to know the effects of the pandemic on teaching activities. The survey will take about 10 to 15 minutes to complete and consists of 4 screens.

Your participation in this study is strictly voluntary, with all your responses being anonymous and confidential. You can withdraw, at any time from completing the survey. We appreciate your cooperation and availability. By fully participating, you are agreeing to the following statement: *"I have read the information described above, with which I agree, and I am aware that my participation is voluntary and that I can interrupt it at any time, simply by closing the page."*

This questionnaire is carried out as part of a dissertation for a Master's degree in Human Resources Management (Instituto Superior de Economia e Gestão/ Lisbon School of Economics & Management (https://www.iseg.ulisboa.pt/about/), Universidade de Lisboa (https://www.ulisboa.pt/))

If you wish to have any further clarifications on the questionnaire you can contact:

Elsa Fontainha (https://www.iseg.ulisboa.pt/pt/faculty/elsa-fontainha):
elmano@iseg.ulisboa.pt
Sara Pato:
l53068@aln.iseg.ulisboa.pt

START

Personal and household information

At the date of the answer to the survey: june/july 2021

| Age | ○ 20-24 | ○ 25-34 | ○ 35-44 | ○ 45-54 | ○ 55-64 | ○ More than 65 years |

| Gender | ○ Female | ○ Male |

Current household dimension/size (number of members)   Number of members

Since the beginning of the pandemic, the size of your household...   ○ Didn't change   ○ Grew   ○ Got smaller

Are you in charge of older people? (how many?)   18-35 years: 0   36-65 years: 0   More than 65 years: 0

Are you in charge of children? (how many?)   From 0-3 years: 0   From 4-6 years: 0   From 7-14 years: 0   From 15-17 years: 0

You had close contact with Covid-19 because, (check the alternative (s) that apply):   ☐ Contracted the virus   ☐ Family member contracted the virus   ☐ Collegue or student contracted the virus   ☐ Didn't have any contact

For how many years have you taught?   ○ 5 or less   ○ 6-10   ○ 11-19   ○ 20 or more

What subject (s) did you teach last year (academic year 2019/2020)?   Write here, separated by commas

What subject (s) do you currently teach (academic year 2020/2021)?   Write here, separated by commas

Are face-to-face classes indispensable for the development of the foreseen essential learning for any of the subjects you teach or have taught in the past year?   ○ Yes ○ No

Question 1: Taught (2020/2021) or teach (2019/2020) classes from:

	Past academic year (2019/2020)	Current Academic Year (2020/2021)
First cycle	☐	☐
Second cycle	☐	☐
From the 7th, 8th or 9th Grades	☐	☐
From the 10th or 11th Grades	☐	☐
From the 12th Grade	☐	☐
Didn't/ Don't teach	☐	☐

PREVIOUS PAGE   NEXT PAGE

66

Question 2: The following table collects your opinion on distance learning in relation to two periods when online classes took place, the first lockdown (16 March 2020 - 4 April 2020) and the second lockdown (8 February 2021-19 April 2021)
The response alternatives, from 1 to 5, correspond to:

1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree

	PAST (16th of March- 4th of April 2020)	PRESENT (Since the 8th of February 2021)
I easily adapted to distance learning	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
In general, my school colleagues easily adapted to distance learning	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
I had access to the essential resources to teach at home (computers, internet connection, physical space)	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
Class preparation time has increased substantially due to distance learning	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
Compared to face-to-face teaching, distance learning has hampered communication between teachers and students	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
With distance learning, the preparation of students for the assessment was adequate	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
Compared to face-to-face teaching, distance learning has enabled students to perform equally	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
Distance learning has enabled me to reconcile work with family and personal life at home	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○

PREVIOUS PAGE   NEXT PAGE

Question 3: In the following table, you are asked to evaluate it in relation to several aspects about the pre-pandemic situation (before March 2020) and what changed (or not) after the pandemic (after March 2020)

	Before the Pandemic (before the 1st of March)			After the Pandemic (depois de Março 2020)		
Work on the weekend	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Work at night, after school	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Classes and other teaching activities were carried out from your home	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Possibility of balancing work time and personal and / or family time	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Family responsibilities prevent you from dedicating the time you should to your work	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
How often does your household use external support services for household chores (examples: cleaning the house and clothes, ironing)	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
How often does your household receive support for household chores from family members (not your household) and friends	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Frequency with which your household uses external support services for the caring of the elderly or minors (examples: day-care or nursing, After School Programs, caregivers for the elderly, Day Care Centres for the Elderly)	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
How often does your household receive support for the care of the elderly or minors from family members (not your household) and from friends	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Frequency with which household chores are shared in a balanced way amongst the adults who make up your household	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Frequency with which the care for children and / or the elderly is shared in a balanced way amongst the adults who make up your household	Frequent ○	Seldom ○	Never ○	Frequent ○	Seldom ○	Never ○
Effective teaching time per week	<35h ○ =35h ○ 36h - 40h ○ 41h - 45h ○ >45h ○			<35h ○ =35h ○ 36h - 40h ○ 41h - 45h ○ >45h ○		

PREVIOUS PAGE   NEXT PAGE

Question 4: In the following table, you are asked to evaluate it in relation to several aspects before the pandemic (before March 2020) and now (June 2021)
The response alternatives, from 1 to 5, correspond to:

1=Completely disagree; 2=Disagree; 3=I neither agree nor disagree; 4=I agree; 5=Strongly Agree

	Before the pandemic	Now (June 2021)
Overall, the environment and working conditions were / are good.	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
I felt / I feel satisfied with my teaching work	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
I felt / I feel satisfied with life in general	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
I had / I have enough energy for family and friends when in moments of leisure.	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
I was / am too tired after work to do things I liked when at home.	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○
Work left me / leaves me emotionally drained	1○ 2○ 3○ 4○ 5○	1○ 2○ 3○ 4○ 5○

Question 5: In general, what are the most complex aspects of distance learning during the closure of secondary schools in Portugal (you can point out more than one alternative):

☐ Communication with colleagues
☐ Management of technology and communication tools
☐ Teaching time management
☐ The balance between teaching time and personal and family time
☐ Communication with students
☐ Communication with the school management / coordinators
☐ The students' learning process
☐ Administrative and management work
☐ Preparation of classes
☐ Other

Question 6: Considering your experience in the last year, what are the advantages of distance learning / classes? If applicable, highlight the main advantage.

Write here

Question 7: Considering your experience in the last year, what are the disadvantages of distance teaching / classes? If applicable, highlight the main disadvantage.

Write here

Question 8: What are your expectations regarding teaching for the next academic year (2021/2022):

☐ Give face-to-face classes
☐ Give distance classes
☐ Combining distance learning with face-to-face teaching
☐ Do not teach classes due to retirement / retirement
☐ Do not teach classes due to other reasons

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