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**Work-Family Conflict and Facilitation profiles: A study of the effects on work
engagement**

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Abstract

Work-Family Balance offers an integrative perspective of the relationship between work and family, and has become a big challenge, considering that the relationship between these two dimensions has individual, organizational and social implications. Focusing on the organizational performance and interaction, the concept on engagement has emerging and gaining more visibility over the last few decades. Research has found that engaged employees are often associated with more positive job attitudes, besides better health and well-being.

The objective of this study is to analyze the conflict and facilitation profiles of the relationships between work and family, and the relationships of this profiles with work engagement of the participants. Sample is composed by 654 university professors from different Universities from Portugal. Statistics analyses, such as confirmatory factor analyses (CFA), correlations, cluster analysis and multivariate analysis were executed in order to test the hypotheses.

For each dimension of the Facilitation/Conflict Scale was found a Work-Family Facilitation/Conflict cluster and a Family-Work Facilitation/Conflict cluster. Results indicate relevant relation between work engagement and work-to-family facilitation, being them negatively related, especially in relation to the Vigor and Dedication dimensions.

Keywords: Work-family Conflict/Facilitation, Work Engagement, Professors.

INDEX

I.	Introduction	5
II.	Theoretical framework	7
	Work Family Balance	7
	Work Engagement	12
	The Relation of Work-Family and Work Engagement	14
	The Work-Family Balance among University Professors.....	15
III.	Research Hypothesis	16
IV.	Method	17
	Sample	17
	Materials	19
	Escala Trabalho-Família (T-F) – Work-Family Scale (W-F) (Carvalho, 2009)	19
	UWES - Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003)	19
	Procedure.....	22
	Data Analysis	23
V.	Results	24
	Engagement and profile analysis	25
	Differences in Engagement between W-F profiles.....	26
VI.	Discussion	28
	Conclusions	28
	Limitations future research suggestions	29
	References	31

LIST OF TABLES

Table 1 - Sample's information detailed.....	17
Table 2 - Fit statistics of the two-factor model for Conflict and Facilitation measures	21
Table 3 - Fit statistics of the Engagement Dimensions.....	21
Table 4 - Differences Between the Averages and Standard Errors (in brackets) of the UWES Scale dimensions and the 4 W-F Profiles	24
Table 5 - Clusters Sizes, means, and description of Profiles Clusters. W-F means of each profile and multiple comparisons between profile.....	25
Table 6 - Differences Between the Averages of the UWES Scale dimensions and the 4 W-F Profiles.....	26

LIST OF FIGURES

Figure 1 - Model of study variables, where the arrows denote hypothesized effects.....	16
Figure 2 - CFA for W-F measure (model 1): standardized regression weights and squared multiple correlations	21
Figure 3 - CFA for Engagement measure (model 2): standardized regression weights and squared multiple correlations	22
Figure 4 - Average scores of UWES Scale dimensions and the 4 W-F Profiles	27

I. INTRODUCTION

Many changes over the last few decades have radically altered how workers spend their time, in and outside the workplace. The advance of technology has drastically shifted the work boundaries, making more flexible, and in consequence harder to separate, what can be done in the office and what can be taken home. In consequence, is possible to see an increase in the number of organizations concerned with employee wellbeing (Byrne & Canato, 2017).

Beside the work, there are also many other social roles, that have important functions in an individual's life, such as religion, community, leisure, student and most important, family roles. Which one of them providing meaning and determining structures in people's lives. With many different roles to perform in life, the concern that the imbalance between roles can become a stressor, and how it can affect areas of life and influence the general health and well-being, turns the work-family conflict a major theme in studies about this matter (Frone, 2003; Greenhaus & Powell, 2006).

The importance given to the relation between these two roles has increased the search for balance between these two sides. The positive balance between Work and Family (W-F) has shown a more substantial positive impact on quality of life, becoming an important point of discussion (Greenhaus, Collins, & Shaw, 2003).

The integration between them was initially seen as a relation without conflicts. Later studies complemented the first concept of Work-Family balance being more than a relation with or without conflict, suggesting that apart from these two, there is also other possible variables, as facilitation, presenting that wellbeing and performance at work benefit from positive mood experienced at home, and the other way around (Frone, 2003; Williams & Alliger, 1994). In this way, starting from the perspective that is not possible to dissociate work and family roles,

is evident that personal life has a direct impact on how someone thinks and behaves at work (Edwards & Rothbard, 2000).

Wellbeing and work performance are directly improved by a positive experience at home (Williams & Alliger, 1994) and also from the lack of conflicts between work and family (Frone, 2000). Focusing on the organizational performance and interaction, the concept of engagement has emerged and gained more visibility over the last few decades. Defined by Schaufeli, Salanova, González-Romá and Bakker (2002) as a positive state of mind, engagement is characterized by three different dimensions: Vigor, Dedication and Absorption.

In this model, Vigor is characterized by “high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, and persistence even in the face of difficulties. “Dedication” refers to being strongly involved in one’s work, and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge.”; “Absorption” is characterized by being fully concentrated and happily engrossed in one’s work, where by time passes quickly and one has difficulties with detaching oneself from work (Schaufeli & Bakker, 2003).

In this study, we intend to continue the study started by Alegre, Carvalho, Mónico and Parreira, in 2019, analyzing the variables facilitation and conflict in the work-family relation, using as a reference the four-fold taxonomy of work-family balance presented by Frone (2003): conflict work-to-family versus family-to-work and facilitation work-to-family versus family-to-work. We also seek if there are differences in the level of engagement according to the profiles studied. By doing that we expect to see if different profiles of Work-Family and Family-Work Conflict and Facilitation correspond to different levels of Work Engagement of the participants.

It is pertinent to study the consequences of the work-family relationship, since through its analysis, it's possible to develop appropriate social policies, cultural context of each country, as well as greater organizational awareness in this regard (Carvalho & Chambel, 2016).

Regarding the Portuguese professors, it is important to show their current situation so that positive changes and interventions can be thought. At last, this research intended to help further research, hoping to gradually achieve a better level of family and work balance with prevention and intervention measures.

II. THEORETICAL FRAMEWORK

Work Family Balance

By creating a timeline to analyze the different transformations that have occurred in the form of work and production over the years, it is possible to perceive the changes that have occurred in the relation between man and work. The workplace, the tools, the management style considered in the company; all of these factors directly interfere with how a person sees and relates to their work, increasing the interest to study and understand how people can successfully manage work and family roles (Hirschi, Shockley, & Zacher, 2019).

These transformations were clearly perceived in the last years, especially regarding demography, technology and the organizational level (Allen, Herst, Bruck, & Sutton, 2000). Digital transformation and advanced technology are now the center of the 4.0 industrial revolution. Organizations are facing the need of change in their manufacturing environments, affecting not only employees' jobs, but also how they live their lives (Dhanpat, Buthelezi, Joe, Maphela, & Shongwe, 2020).

Changes occurred in work structures, such as the increase in the number of women in the labor market, occupying more and more strategic positions in organizations; the largest

number of single parents working; the increase in the number of couples in which both members work; and, most recently, due the 4.0 industrial revolution, the necessity of using technological innovations (Allen et al., 2000; Greenhaus, & Powell, 2006; Dhanpat et al, 2020).

Companies are each day more aware of the impact of all those changes in the employee's, especially regarding that life outside work has a direct impact on how one feels and behaves during work time. The search for wellbeing and quality of life is a topic increasingly worked by research, and it is possible to perceive a change of behavior on the part of the big organizations to "sell" a career for the workers, where it is possible to manage, in a healthy way, the time spent with the work and the time dedicated to other tasks (nonwork).

Organizations that are concerned with increasing its competitive face the market must take in account the importance of developing a capacity to attract, motivate and retain flexible and adaptive talents, doing that through specific strategies focused on work-life balance (De Cieri, Holmes, Abbott, & Pettit, 2005).

Rice, Frone, and McFarlin (1992) described the importance in employing organizations and also in the government been be concern with ways in which policies and practices influence how people feel about their lives and considering work plans. For example, the article 59 (n° 1B) of the Portuguese Constitution is clear about the importance of conciliation about professional and personal life, and studies have shown that the roles of work and nonwork aspects of life brings direct consequences for the wellbeing of a person (Carvalho & Chambel, 2014).

The seeking for life quality and wellbeing is associated with the balance between the different roles played by the individual. There is a large number of researches that demonstrate the importance of balance among work and nonwork activities, as well as a noticeable increase

in the number of workers, regardless of marital or family condition, worried about having a healthier and more satisfactory way of balance their responsibilities.

There are several interpretations of what work-family balance represents. Frone (2003) presents that there is, for example, a notion that work and family are integrated, besides that, another one that suggests that work-family balance is a lack of conflict or interference between work and family roles. Work-Family balance (WFB) is also related to reduce stress and to provide a greater life satisfaction (Allen, Herst, Bruck, & Sutton, 2000).

Clark (2000) has a similar definition, presenting that WFB would be satisfaction and good functioning in both aspects, with less conflict. Parkes and Langford (2008) presented that a definition which applies that Work-life balance is defined as an individual's ability to meet both their work and family commitments, and also other nonwork responsibilities and activities.

Greenhaus, Collins and Shaw (2003) proposed three components of work-family balance: *Time balance*: an equal amount of time devoted to work and family roles; *Involvement balance*: an equal level of psychological involvement in work and family roles; *Satisfaction balance*: an equal level of satisfaction with work and family roles.

However, the work-family balance (WFB) concept has not yet been well clarified. Many of the works about work-family relations do not clearly define the concept (Greenhaus et al., 2003). The knowledge and studies about the balance in the interface work family are still being developed, since the concepts so far explored are considered little consistent (Carvalho & Chambel, 2016).

Despite the many benefits known by the balance between work and family, it is also known that the impact of the family on a person's life is mostly associated to a greater quality of life. On the other hand, the imbalance between work and nonwork roles, caused by a major

impact of the work on the person's life, has a negative effect on quality of life, causing increased work-family conflict and stress (Frone et al., 1992; Greenhaus, Collins, & Shaw, 2003).

Through the multiples definitions of work-family balance (WFB), it is clear that the concept of work-family conflict is intrinsically connected to it. One of the definitions of work-family balance, presented by Frone (2003) relates it to the lack of conflict or the interference between work and family.

Defined by Edwards and Rothbard (2000) as one of the six categories of mechanisms connecting work and family, work-family conflict (WFC) is the most analyzed perspective in the literature about this relation (Carvalho & Chambel, 2016).

The work-family conflict (WFC) can also be analyzed bidirectional, where there is not only interference in the sense that work affects the family (WIF), but also a second sense where the relation of the person with the family can interfere in the work, causing the conflict (FIW). Thus, in the first, workers find it difficult to reconcile work with the family in a healthy way, due to the demands of work, while in the second it is the inability of the person to keep working because of family demands (Amstad, Meier, Fasel, Elfering, & Semmer, 2011).

Based on Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964), Greenhaus and Beutell (1985) proposed of work-family conflict as form of inter role conflict where the pressures from the roles incompatible in some aspects. Therefore, the participation in the work (family) role becomes more difficult by virtue of participation in the family (work) role.

The concept of WFC is contested by the existence of a cohesion of work and family (Greenhaus & Powell, 2006). The benefits a person can find in the role accumulation can compensate any stress that might occur (Sieber, 1974). Over the years, researches have begun to pay more attention to the potential of being involved in both the work and the family spheres.

Supportive work–family relations are being studied and compile under terms like “positive spillover”, “enrichment”, “facilitation”, “positive transfer” and “enhancement” (Wiese & Salmela, 2008).

Based on Sieber’s theory (1974) of role accumulation, Greenhaus and Powell (2006) presented the idea of work-family enrichment, where they discussed the extent to which experiences in one role improve the quality of life in the other role (Rastogi & Chaudhary, 2017).

In the spillover theory, for example, it is assumed that emotions and behavior in one sphere can carry over to the other sphere (Staines, 1980). Positive spillover refers to how the participation in one life domain, like work and family, can become more easier because of the skills, experiences, and opportunities gained by their participation in another domain (Grzywacz & Marks, 2005).

Other nonwork activities, such as family, involvement with the community and leisure, are historically related to the decrease in the time spent working, being sometimes treated as a bad thing (Marks & MacDermid, 1996). On contrary of this line of thought, other studies have shown that the existence of different roles in a person’s life had been protecting people from the effects of negative experiences in other roles (Barnett & Hyde, 2001).

Instead of reducing the person’s energy for working and performance, the commitment with other roles in life may provide more satisfaction and energy for work (Ruderman, Ohlott, Panzer, & King, 2002).

Some researches (e.g., Eden, 2001) suggest that periods of rest from work, that is, the time dedicated to other roles, are important for maintaining wellbeing at work. There is an empirical evidence that vacations and other periods of rest and leisure results in a decrease of

job stress and burnout (Etzion, Eden, & Lapidot, 1998; Westman & Etzion, 2001) and an increase in life satisfaction (Lounsbury & Hoopes, 1986). Besides that, the recovery processes that occur during vacations and other breaks from work bring some relief from negative experiences at work (Sonnetag, 2003).

As quoted by Carvalho and Chambel (2016), there are two main theories regarding work-family facilitation (WFF): The theory of Role Accumulation (Sieber, 1974) and “Expansion” Approach (Marks, 1977). The theory of role accumulation presents four types of rewards derived from role accumulation: role-privileges; overall status security; resources for status enhancement and role performance; and enrichment of the personality and ego gratification (Sieber, 1974). The “Expansion” Approach defends that the use of time and energy, as resources, can be expanded and used in different roles of a person’s life (Marks, 1977).

Researches are pointing that work-life balance (WLB) might contribute to employee engagement, which directly contributes to higher productivity and lower organizational turnover (Grawitch, Gottschalk, & Munz, 2006).

Work Engagement

In a highly competitive and complex world, things are changing every minute and has become clear that organizations that wants to stay competitive need to engage their employees (Bakker, 2017). In other words, sustaining high employee work engagement should be a top priority for organizations (Nikolova, Schaufeli, & Notelaers, 2019).

Because of this, engagement has become a major factor of study for both researchers and practitioners around the world, increasing every year the number of studies related to the theme (Bakker & Leiter, 2010).

One of the first studies to bring attention about employee work engagement is from William Kahn (1990), where engagement is referred as “the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances.” (Kahn, 1990, p. 694). Years later, Maslach and Leiter (1997) describe engagement as worker energy, involvement, and efficacy.

Furthermore, the past decade has provided strong evidences for the notion that engagement is a key to organizational outcomes, such as innovation, client satisfaction, goods financial results (Bakker, 2017).

Schaufeli, Salanova, González-Romá and Bakker, (2001) defined engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior.” (Schaufeli, Salanova, González-Romá, & Bakker, 2001, p. 4).

Moreover, Schaufeli and Bakker (2003) also commented that engaged employees have more energy to work, besides more connection with their activities and confidence in being able to deal well with the demands of their jobs. Considering this, it can be seen that there are many resources and positive emotions that are generated as an outcome of work engagement (Culbertson, Mills, & Fullagar, 2012).

Later, in the alternative perspective, both Bakker and Schaufeli (2008) describe work engagement as “a positive, fulfilling, and affective-motivational state of work-related wellbeing that can be seen as the antipode of job burnout.” (Bakker & Schaufeli, 2008, p. 188). They argument about how the level of engagement perceived by the employees, have an impact on how enthusiastic about their work, fully immersed they are in their jobs.

Following a similar argument, Thompson, Lemmon and Walter (2015) explains that there is already strong research to prove that these positive employee attitudes are perceived according to the levels of employee work engagement. “Higher levels of employee engagement lead employees to perform work of higher quality (e.g., fewer errors), to be more committed to the organization, to be more likely to go above-and-beyond for the organization, and leave the organization at a reduced rate.” (Thompson, Lemmon, & Walter, 2015, p. 185).

Through the years and the work done about engagement, there is no doubt about how employee engagement has become a high priority for organizations and the key to an organization’s success, competitiveness, and effectiveness (Saks, 2017). It is proved that engaged employees have an abundance of energy, which they can invest in their work. They are more enthusiastic, immersed and persistent when comes to their work (Bakker, 2017).

The relation of Work-Family and Work Engagement

Most of the employee’s lives are full fielded with balancing multiple roles, such as parent, worker, among others. Many authors explore how the work and family roles might become incompatible in a relation of conflict, but also in the other way around, when the individual’s good experiences in one role can income energy and positive emotions, and by that improve them in other roles. It is possible to see an emerging number of studies that are now exploring work-family balance and how it, or lack of it, might affect an employee engagement (Byrne & Canato, 2017).

In 2008, Parkes and Langford presented a study where the results conferred a small positive correlation between work-life balance and employee engagement. Moreover, they discussed about the possibility of, being work engagement defined mostly by the capacity of an employee to submerge into work, rather than work-life balance promoting, work engagement

can be a factor that might sacrifice work-life balance, as the person dedicates too much energy and time to the job (Parkes & Langford, 2008).

In a different position, other studies suggest that the relationship between work and family should not be considered a source of conflict, but instead a source of enrichment. It was found that a more balanced relationship between work and family creates a more positive attitude in the work environment, which reinforces a higher work engagement. In addition, that more engaged employees are more capable of balancing their work family life (Thompson, Lemmon, & Walter, 2015).

Family can be an important source of support for employee engagement. Employees of companies that provide appropriate support for the worker's family, like childcare, can concentrate on work without being distracted, experiencing less stress and are at a higher level of engagement than those who do not have this support (Byrne & Canato, 2017).

Over the past years, studies analyzing the relationships between work and nonwork domains have brought new questions about engagement, like its relation to recovery during leisure time and its impact on family. Researches on the theme showed that work engagement is often related with higher levels of work - family facilitation (Rodríguez, Vergel, Demerouti, & Bakker, 2013).

Another positive factor is flexible work time. Studies show that organizations that allow employees to choose their work schedule, empower their feeling of autonomy, reduce stress and increase work-family enrichment. Family friendly policies and work engagement reinforce each other, leading to a happier and more productive workforce (Byrne & Canato, 2017).

Work Family Balance among University Professors

According to recent researches, the work conditions of university professors have changed a lot in the past few years. In the last decade, professors have been adding different activities to their work, having to deal with other types of pressures in the work place (Gómez Ortiz, Toro, & Rodríguez, 2015).

Besides that, being a professor is an activity in which working time overlap the activities in the classroom. Preparing classes, correcting assignments, writing articles, carrying out administrative duties, among others, are activities that require a time that may compromise leisure time and family time (Carlotto & Câmara, 2014). All of these factors makes it difficult for them to balance between their work and family commitments (Oduaran & Akanni, 2017).

For this reason, we understand that the university environment can be really enriching place for analyzing how work and family can relate according to the variables analyzed in this study. Moreover, many researches on this labor category shows the importance of work engagement due to the responsibilities and demands assigned to them. Being engagement related, briefly speaking, to a motivational state, we consider important to see how it affects those that are forming future (Araújo & Esteves, 2016).

III. RESEARCH HYPOTHESIS

Given the importance and relevance of studying the relation between Work and Family, known through literature revised and works done related to this matter, this study intends to analyze the four profiles involving the variables Conflict and Facilitation of work/family and family/work.

We also expect to see how each one of the four profiles affect the Engagement level of the participants. Figure 1 presents the main concepts and the hypothesized relationships to be tested in this study. Based on that, we suggest the following hypotheses:

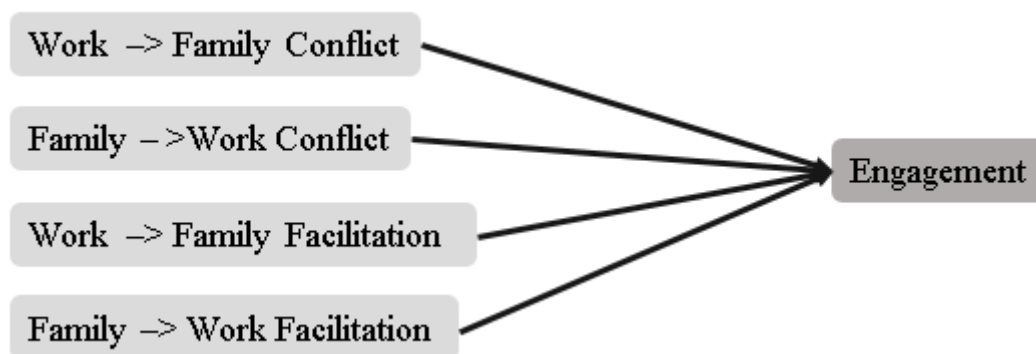


Figure 1: Model of study variables, where the arrows denote hypothesized effects.

Hypothesis 1: Four profiles will be identified depending on the conflict and facilitation work and family contexts:

Hypothesis 1.1: High level of W-F conflict - high level of W-F facilitation;

Hypothesis 1.2: Low level of W-F facilitation - low level of W-F conflict;

Hypothesis 1.3: High level of W-F facilitation - low level of W-F conflict;

Hypothesis 1.4: High level of W-F conflict - low level of W-F facilitation.

Hypothesis 2: Participants with different conflict and facilitation W-F profiles present different levels of work Engagement:

Hypothesis 2.1: High conflict- high facilitation will present higher levels of Work Engagement;

Hypothesis 2.2: Low facilitation- low conflict will present lower levels of Work Engagement;

Hypothesis 2.3: High facilitation - low conflict will present higher level of Work Engagement;

Hypothesis 2.4: High conflict - low facilitation will present lower levels of Work Engagement.

IV. METHOD

Sample:

The sample consisted of 654 university professors from Portugal and Islands, aged between 22 and 90 years old, distributed among several Portuguese universities. Two respondents were

excluded for presenting more than 30% missing values. This way, the sample has now 652 respondents. Table 1 presents the main information organized.

Table 1. *Sample's information detailed.*

	n	%	M	SD
Gender				
Masculine	322	49.2		
Feminine	312	47.7		
Age			42.88	9.674
Marital Status				
Married	385	58.9		
Single	150	22.9		
Divorced	55	8.4		
Separated	15	2.3		
Number of Children			1.22	1.051
Type of university				
Public	503	76.9		
Private	126	19.3		
Seniority in the university (by years)			12.8	8.6
University divided by region				
Algarve	1	0.15		
Aveiro	15	2.29		
Castelo Branco	79	12.08		
Coimbra	227	34.71		
Guarda	36	5.5		
Leiria	5	0.77		
Lisboa	131	20.03		
Madeira	13	1.99		
Minho	8	1.22		
Portalegre	14	2.15		
Porto	17	2.6		
Santarem	49	7.49		
Setubal	21	3.21		
Viseu	35	5.35		
Missing	3	0.46		

Materials

To elaborate the present study, two quantitative measures have been used: A shorten version of the Trabalho-Família scale - developed by Carvalho and her research team (Alegre, Carvalho, Mónico, & Parreira, 2019; Carvalho & Peralta, 2009; Carvalho & Andrade, 2012; Carvalho, Peralta, & Castro, 2012; Carvalho, Mónico, Parreira, Fernandes, Salgueiro-Oliveira, Braga, & Gómez, 2016; Carvalho, Parreira, Mónico, & Ruivo, 2016; Carvalho, Mónico, Pinto, Pinto, Alegre, Oliveira, & Parreira, 2018), being limited the use of the items related to the Conflict and Facilitation - and the UWES – Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003). Both were applied across Portuguese Universities. In addition to the scales, a sociodemographic questionnaire was also answered by the participants.

Trabalho-Família Scale (Carvalho et al., 2009, 2012, 2016, 2018)

The Work-Family (W-F) Scale consists of an overall measure of the relationship between work and family, evaluating the reconciliation between work and family, and also, the tension between work and family, and work-family interference. Although this last dimension is not being used on this work. Because of that, a shorten version of the scale was prepared, considering only the variables analyzed in the studies. The original version of the scale has 92 items. On this study, we used a 25 items scale and a four-point Likert scale (1- Rarely, 2- Sometimes, 3- Often, 4- Most often).

In the shorten version, the items cover two areas: conflict (e.g., I came home from work too tired to do some of the personal / family stuff I wanted to do.), and facilitation (e.g., My work gave me energy to do activities with my family or with other people important to me.). Cronbach Alpha was .70.

This scale measures the Conflict between Work with Family/Family Life (CTF) and Family/Family Life with Work (CFT), as well as Work as a Family Life Facilitator (TFVF), and Family as a Work Facilitator (FFT).

Four dimensions were assessed in this work: Conflict in work with family/personal life relation; Conflict in family/personal life and work relation; Work as a facilitator of family/personal life; Family/personal life as a facilitator of work.

Utrecht Work Engagement Scale - UWES (Schaufeli & Bakker, 2003)

The UWES statements, elaborated by Schaufeli and Bakker (2003), relate to the feelings some people have about their work, measuring the level of Work Engagement, assuming that workers with high levels of engagement have an energetic and affective connection to work and are able to cope with the demands of the work.

The 17 items on a seven-point Likert scale (0- Never, 1- Almost never, 2- Rarely, 3- Sometimes, 4- Often, 5- Very often, 6- Always), is used to measure the three work engagement dimensions: Vigor is assessed by 6 items, aimed at assessing levels of energy and resilience, willingness of investing effort, not being easily fatigued, and endurance in face of difficulties.(e.g., At my work, I feel bursting with energy); Dedication is assessed by 5 items, aimed at assessing the sense of significance given to the work, level of enthusiastic and proud, besides the feeling of being inspired and challenged by the work (e.g., I am enthusiastic about my job); and Absorption is assessed by 6 items, aimed at assessing the capacity of being totally and happily immersed in the work and having difficulties detaching from it (e.g., I feel happy when I am working intensely). Cronbach Alpha was .95.

CFA was performed, using SPSS, in order to test the fit of the factorial solution. For model 1 (see table 2, figure 2), in general showed a good fit. Model 2 (see table 3, figure 3), showed a poor fit, not attending most of the acceptable values for the indices. Standardized regression weights and squared multiple correlations of model 1 and 2 are shown in Figure 2 and 3, respectively.

Table 2. *Fit statistics of the two-factor model for Conflict and Facilitation measures*

χ^2/df	RMSEA	NFI	TLI	CFI	RMSEA 90% CI
3.44* (df = 113)	.061	.895	.913	.923	.057 - .066*

Note. χ^2 = Chi-square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; NFI = Normed fit Index; TLI = Tucker Lewis index, CFI = Comparative Fit Index;

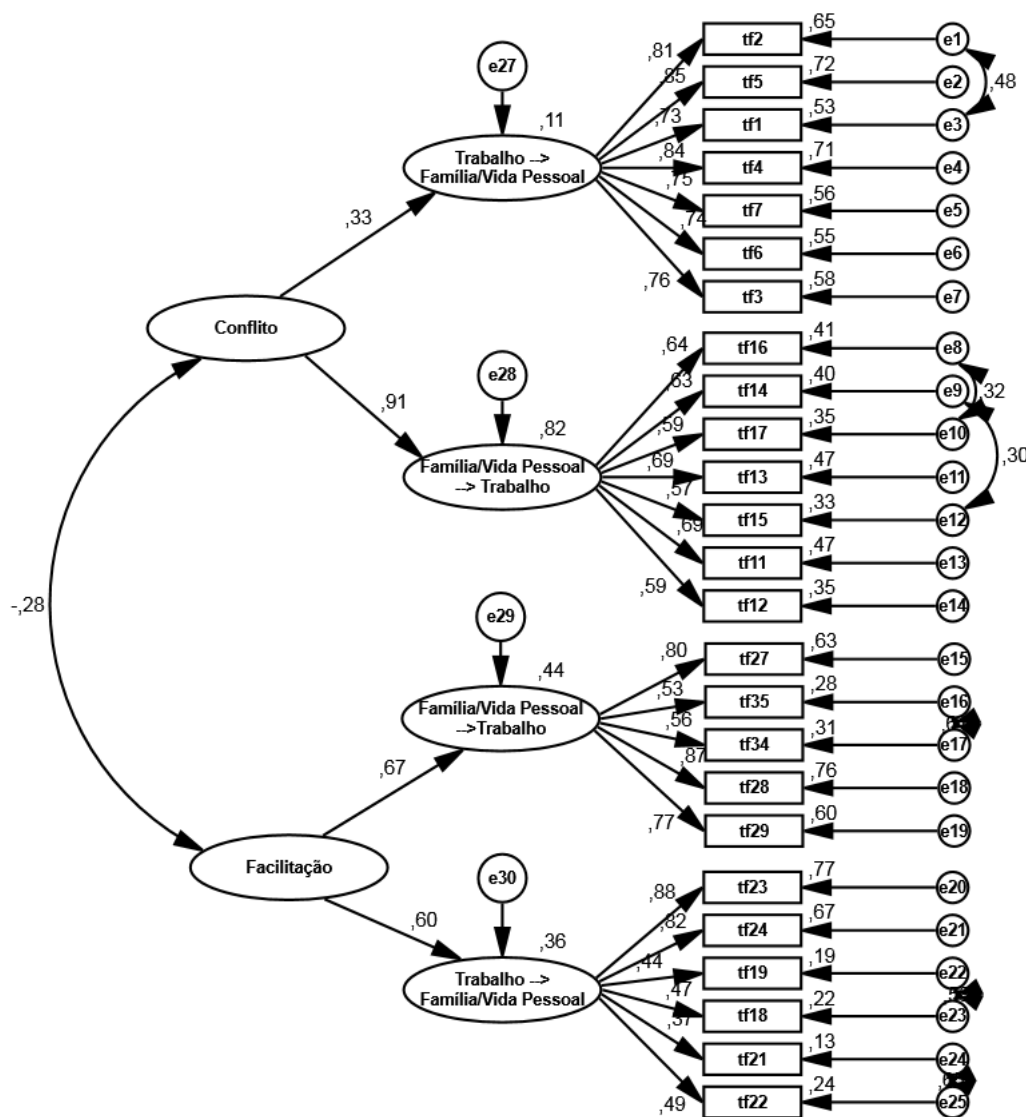


Figure 2. CFA for W-F measure (model 1): standardized regression weights and squared multiple correlations

Table 3. Fit statistics of the Engagement Dimensions

χ^2/df	RMSEA	NFI	TLI	CFI	RMSEA 90% CI
8.11* (df = 109)	.105	.898	.888	.909	.098 - .111*

Note. χ^2 = Chi-square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; NFI = Normed fit Index; TLI = Tucker Lewis index, CFI = Comparative Fit Index;

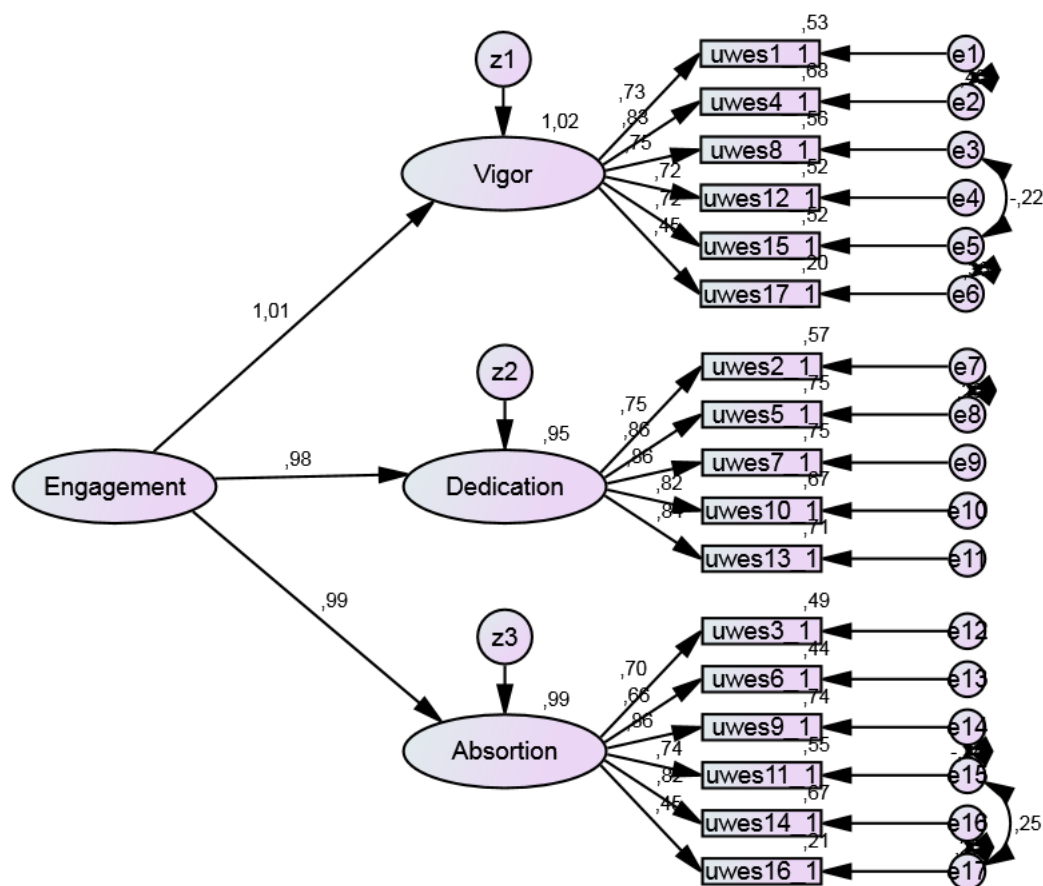


Figure 3. CFA for Engagement measure (model 2): standardized regression weights and squared multiple correlations

Cronbach alphas (see Table 4, between brackets) were all good, since they were above .80 for factors. The descriptive statistics and inter-correlations between the dimensions of the Conflict, Facilitation and Engagement measures are also indicated in Table 4. Mean scores showed higher values for F2- Engagement: Dedication ($M = 4.30$), followed by F3 – Engagement: Absorption ($M = 2.25$), and at last, F1- Engagement: Vigor ($M = 4.24$).

Procedure

The sampling method was used for convenience. The contact was made by written communication (letter or email), telephone contact or personal appearance, in order to clarify the primary objectives of the investigation. The questionnaires were completed using the self-administered questionnaire survey method. We also prepared a one online version of the questionnaires, in order to make the collection more accessible.

This study attained all the ethical requirements and was approved by the Ethics and Deontology Committee of Psychological Research by the Faculty of Psychology and Educational Sciences of the University of Coimbra on November 19th, 2015. Information on the objectives of the study, completion instructions, and the voluntary and anonymous nature of the participation and the guarantee of the confidentiality of the data were included in the instructions.

All the participants were asked to complete the questionnaire according to their evaluation and perception of the items. These and other guidance were included in an introductory page, before the beginning of the questionnaire. In addition, at the beginning of each test, there was an orientation on filling in the items, indicating the respective legend to Likert Scale. The collection of the questionnaires was started in 2012, and completed in 2019.

Data Analysis

We used SPSS version 22.0 (SPSS Inc, Chicago, IL) to carry out tests of confirmatory factor analyses (CFA), scale reliability, descriptive statistics, correlations, cluster analysis, and multivariate analysis (MANOVA).

The Confirmatory factor analysis (CFA) was performed based on the short version of the Trabalho-Família scale - developed by Carvalho et al. (2009, 2012, 2016, 2018) we correlated some error terms in each dimension, as shown in Figure 2. This co-variation shows

non-random measurement errors, which may result from items' similarities (e.g., semantic redundancy), sequential positioning in the scale, as well as the specific characteristics of the respondents (Aish & Jöreskog, 1990).

Reliability was calculated by Cronbach's alpha (Nunnally, 1978). Reliability coefficients higher than .70 were considered acceptable for reliability (Hair, Black, Babin, & Anderson, 2009). The composite reliability and the average variance extracted for each factor were evaluated as described in Fornell and Larcker (1981).

After the descriptive statistics, in order to access whether there were distinct profiles of individuals based on the scores of the Trabalho-Família scale, regarding the four dimensions (high level of w-f conflict - high level of w-f facilitation; low level of w-f facilitation - low level of w-f conflict; high level of w-f facilitation - low level of w-f conflict; high level of w-f conflict - low level of w-f facilitation), we performed a cluster analysis with the K-means procedure.

The data was analyzed through a multivariate analysis of variance (MANOVA, General Linear Model procedure; Hair, Anderson, Tatham, & Black, 2008), fulfilling the required assumptions for the reliable use of this test. Post-hoc Tukey LSD tests for multiple comparisons were performed, since the independent variable has four levels (Alferes, 1997). Effect sizes of correlations (low, medium, or high correlations) were classified according to Cohen (1988).

V. RESULTS

Analysis of the average scores of UWES scale dimensions and the four Conflict-Facilitation profiles reveal meaningful results when it comes to understanding the way these variables behave. Engagement, especially in relation to the Vigor and Dedication dimensions, is negatively related to Family to Work Facilitation.

Table 4. *Differences Between the Averages and Standard Errors (in brackets) of the UWES Scale dimensions and the 4 W-F Profiles*

	<u>M</u>	<u>SD</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
1 Engagement: Vigor	4.24	0,99	(.850)						
2 Engagement: Dedication	4.30	1.14	.837**	(.919)					
3 Engagement: Absorption	4.25	1.04	.846**	.814**	(.861)				
4 Conflict: Work-Family	2.19	0.78	-0.021	-0.050	.033	(.921)			
5 Conflict: Family - Work	1.32	0.39	-0.050	-0.064	-0.019	.279**	(.823)		
6 Facilitation: Work- Family	2.29	0.65	-0.027	-0.015	-0.023	-.506**	-0.049	(.811)	
7 Facilitation: Family - Work	2.9	0.7	-.118**	-.083*	-0.068	-0.065	-.135**	.304**	(.854)

Note. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed)

Engagement and profile analysis

For each dimension of the Conflict Scale, two clusters were suggested by K-means analysis: Work-Family Conflict cluster and Family-Work Conflict cluster. For each dimension of the Facilitation Scale, we found a Work-Family Facilitation cluster and a Family-Work Facilitation cluster. The emerging profiles were: Profile 1 (Low Conflict – High Facilitation; $N = 255$), Profile 2 (Low Conflict – Low Facilitation; $N = 137$), Profile 3 (High Conflict – Low Facilitation; $N = 140$), and Profile 4 (High Conflict – High Facilitation; $N = 116$).

Table 5. *Clusters Sizes, means, and description of Profiles Clusters. W-F means of each profile and multiple comparisons between profiles*

Profile 1	Profile 2	Profile 3	Profile 4	F	Partial Eta Square η^2
<i>Low Conflict – High Facilitation</i>	<i>Low Conflict – Low Facilitation</i>	<i>High Conflict – Low Facilitation</i>	<i>High Conflict – High Facilitation</i>	3,644	
(N = 255)	(N = 137)	(N = 140)	(N = 116)		

<i>UWES</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Vigor	4.13	1.07	4.45	0.98	4.41	0.80	4.03	0.94	6.33*	0.03
Dedication	4.21	1.24	4.56	1.04	4.45	0.94	3.99	1.16	6.56*	0.03
Absorption	4.13	1.12	4.34	0.97	4.52	0.83	4.06	1.10	6.060*	0.03

Note. Unshared subscripts indicate that means are significantly different. * $p \leq .001$

Differences in Engagement between W-F profiles

Due to the existence of multiple dependent variables, we carried a Multivariate Analysis of Variance (MANOVA) in order to analyze them simultaneously and to see the differences between group means. Analysis of the multivariate test indicates that the overall effect turns out to be statistically significant, λ of Wilks = 0.941, $F(4, 370)$, $p < .001$.

By undertaking Tukey HSD multiple comparison tests, we noticed that there were statistically significant differences in the dimensions of the UWES scale between some profiles. The mean differences in Vigor are significant results between profiles 1 and 2; 1 and 3; and 2 and 4. In Dedication they are significant results between profiles 1 and 2; 2 and 4; and 3 and 4. Absorption presented less significant results than the others, having significant results between profiles 1 and 3 and 3 and 4 (see Tables 6). Profiles that presented lower levels of W-F facilitation, are more related to higher levels of Engagement, as show in Figure 4.

Table 6. Differences Between the Averages of the UWES Scale dimensions and the 4 W-F Profiles

Profile 1	Profile 2		Profile 3		Profile 4	
<i>Low Conflict – High Facilitation</i>	<i>Low Conflict – Low Facilitation</i>		<i>High Conflict – Low Facilitation</i>		<i>High Conflict – High Facilitation</i>	
Engagement: Vigor						
	Mean Difference	Std. Error	Mean Difference	Std. Error	Mean Difference	Std. Error
Profile 1	-.3143*	0.10	-.2773*	0.10	.1035	0.11

Profile 2	-	.0370	0.12	.4178*	0.12
Profile 3	-	-		.3808*	0.12
Profile 4	-	-		-	

Engagement: Dedication

	Mean Difference	Std. Error	Mean Difference	Std. Error	Mean Difference	Std. Error
Profile 1	-.3435*	0.12	-.2369	0.12	.2158	0.13
Profile 2	-		.1066	0.13	.5593*	0.14
Profile 3	-		-		-.4527*	0.14
Profile 4	-		-		-	

Engagement: Absorption

	Mean Difference	Std. Error	Mean Difference	Std. Error	Mean Difference	Std. Error
Profile 1	-.2121	0.11	-.3920*	0.11	.0682	0.12
Profile 2	-		-.1799	0.12	.2803	0.13
Profile 3	-		-		-.4601*	0.13
Profile 4	-		-		-	

Note. Unshared subscripts indicate that means are significantly different. * $p \leq .005$

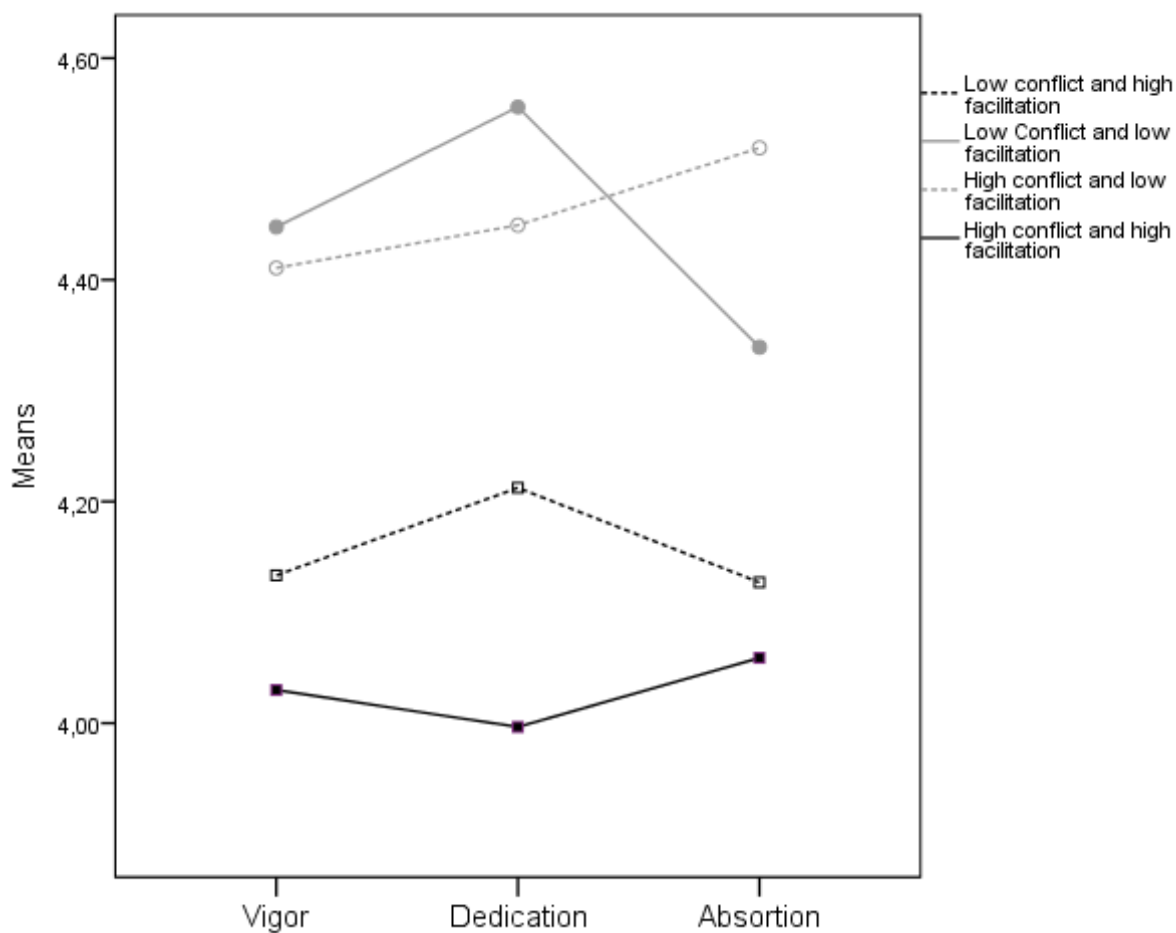


Figure 4. Average scores of UWES Scale dimensions and the 4 W-F Profiles

VI. DISCUSSION

The central aim of the present study was to analyze the possible relation between the four profiles identified on the conflict and facilitation, work and family contexts, and how they affected the level of Engagement among the participants. Through cluster analysis performed based on a sample of 654 Portuguese Higher Education Professors, we were able to identify the four profiles of workers, organized based on the levels of facilitation or conflict between their family and work life. The correlation analysis also identified that among the university professors from Portugal, the level of conflict is higher from work to family, while the facilitation is higher from family to work.

Based on previous literature review that presents we hypothesized that work engagement would have positive relation with higher levels of WF facilitation, since researches on the theme showed that work engagement is related with higher levels of work - family facilitation (Rodríguez, Vergel, Demerouti, & Bakker, 2013).

Analysis of the average scores of UWES scale dimensions and the four Conflict-Facilitation profiles reveal meaningful results when it comes to understanding the way these variables behave. The results of the analyses presented different perspective of what we hypothesized: the profiles that present lower levels of facilitation are more related to higher levels of Engagement. In the correlation analyses, we found that work engagement was negatively related to the relation facilitation from family to work, especially relating to the Vigor and Dedication dimensions.

Conclusions

Most of all the employed people, regardless their marital or parental condition, wants to achieve a healthier and more satisfying balance among their roles and responsibilities (Parkes & Langford, 2008). People all over the world are spending a great deal of their adult lives at

their jobs. With so much time and energy spent on work, researchers have become more interested in the relation between WFB and concept of work engagement (Rodríguez, Vergel, Demerouti, & Bakker, 2013).

According to Schaufeli et al. (2001), engaged employees are likely to have high energy, perseverance; takes pride and enthusiasm in the work, and are immersed on job they are performing. Being work-family balance, in a briefly description, understand as an individual's capability to reach both work and family responsibilities and activities, more engaged employees are spending more time working, has been related to a lower the level of work-life balance (Dex, & Bond, 2005; Parkes & Langford, 2008).

Based on this, our interpretation of these results is that highly engaged employees will sometimes sacrifice work-family balance to achieve professional goals. Professors have been are struggling to deal with different types of functions, what might contribute to less hours of nonwork activities (Johari, Yean Tan, & Tjik Zulkarnain, 2018). The responsibilities that lies upon them, such the important mission of developing other people, and dedication to the chosen profession, are making then work more ours immerse on the academic responsibilities.

Portuguese professors are constantly claiming for more rights, better conditions to the professional category, and most importantly, to more recognition of the importance given to this profession. We can understand that they are willing to sacrifice time and energy that should be spent with nonwork activities, in order to invest then in their work.

Limitations and future research suggestions

Our study was conducted in Portugal, which limits the external validity of our findings. Different social, cultural, and political contexts might affect the perceptions and experiences lived in the work-family roles. Portuguese professors are still suffering the consequences of the financial crisis that started in the begging of the decade. This specific cultural context might have affected our findings, so, in this case, we need to be interpreted with care.

Portuguese professors often seen claiming for changes in their rights to the government, further research could explore differentiating professionals from private and public universities. Being Engagement related to pride in the work, the fact of being working in a public organization might affect the employee level of engagement.

Another matter to take in consideration, especially because of it's affects all over the world is the Covid- 19 crisis. Since the end of 2019, the world has been facing a virus that already killed thousands in many different countries, changing people's life (Gudi & Tiwari, 2020; Villanueva & Brewer, 2020).

Companies are now facing the challenge of remote working environments and professionals are struggling to keep working towards these unexpected scenario. Schools and colleges moved from classroom-based to online-based courses in order to respect social-distancing and the recommendations to prevent the wide-spread of the virus (Gudi & Tiwari, 2020; Villanueva & Brewer, 2020).

Future research should consider how these changes brought by the virus are impacting people's life balance, now that classes are being given on line, how are professors dealing if work engagement and which practical implementation could be design and implemented in organizations, considering the results discussed in this paper and the new way of living Corona is forcing us to take.

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