



IUL School of Social Sciences

Department of Political Economy

**The Pace of the Leader: pacing patterns, time management behaviors and
temporal leadership**

Vera Alexandra Ramalho Camilo

Dissertation submitted as partial requirement for the conferral of
Master in Human Resources Development Policies

Supervisor:

Dr. Nelson Ramalho, PhD, Assistant Professor

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RESUMO

O presente estudo propõe um novo modelo de análise que relaciona os conceitos de comportamentos de gestão do tempo (Macan, 1994, 1996), ritmo de distribuição do esforço (Gevers et al., 2015), liderança temporal (Mohammed and Nadkarni, 2011), tempo disponível e autonomia no trabalho (Hornsby et al., 1999) com o objetivo de analisar as relações existentes entre si. A partir da análise de 176 respostas de chefias de equipas a um questionário, os resultados indicam a importância de comportamentos ligados ao estabelecimento de objetivos seguidos pelos comportamentos relacionados com a preferência pela organização no contexto dos comportamentos de gestão do tempo, demonstrando como ambos promovem um estilo constante de distribuição do esforço na execução de tarefas dentro de prazos pré-estabelecidos. Por sua vez verificou-se uma associação positiva entre este estilo de distribuição de esforço e a liderança temporal.

Em relação à percepção subjetiva de falta de tempo não foi encontrada nenhuma associação significativa com os estilos de distribuição de esforço (*steady e deadline pacing style*) o que sugere que essa sensação não está relacionada com a forma como distribuímos o nosso esforço na execução das tarefas mas, com comportamentos de gestão de tempo deficientes.

Palavras-chave: comportamentos de gestão de tempo, ritmo de distribuição do esforço face a um prazo, liderança temporal e tempo disponível.

Classificações JEL: L84, M12

ABSTRACT

This study suggests a new model of analysis that relates the concepts of time management behaviors (Macan, 1994, 1996), pacing style (Gevers et al., 2015), team temporal leadership (Mohammed and Nadkarni, 2011), time availability and work discretion (Hornsby et al., 1999) in order to analyze the interplay between them. Departing from 176 team leaders responses to a survey, results show the importance of behaviors linked to the establishment of goals followed by behaviors related to the preference for organization in the context of time management behavior, demonstrating how both promote a steady pacing style of effort distribution in performing tasks within the deadlines. In turn there was a positive association between the effort distribution and the temporal leadership.

Regarding the subjective lack of time perception there was no significant association with the distribution of effort (steady and deadline pacing style) which suggests that this perception is not related to how we distribute our efforts in performing the tasks but with poor time management behaviors.

Keywords: time management behaviors, pacing style, temporal leadership, time availability.

JEL classifications: L84, M12

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1. INTRODUCTION

Time is a transversal dimension of all human life with a regulating function on work rhythms, task sequencing and coordination. Consequently, time is at the core of organizational life and referred as the most elusive resource of organizations. However, time is more than a resource because it is unreplaceable, transient, and admits no commodification. What is in reach of organizational managers is not time *per se* but the way activities are developed across time. This has been popularized as time management.

Playing a role in management, time emerged as a tacitly critical variable in organizational theory because organizations strive for maximizing effectiveness, be it production-related or time-to-market related. However the critical role of time in organizations has not been matched by its centrality in organizational research (Sonnentag, 2012).

Classically, temporal dimension played a role in organizational change and team development models with seminal contributes such as Greiner (1973) or Tuckman (1965). However, much of temporal dimension has passed unnoticed until recently. The emergence of process focused studies (Langley et al., 2013) as well as complex time-lagged research designs (e.g. Kozlowski & Klein, 2000) gave time a central role in upgrading organizational research. Whenever studying the evolution of systems, such as Zaheer and Soda (2009) did in explaining the genesis of networks phenomena, time is an omnipresent concept without which no explanation is sustainable. In leadership studies, for example, the call by Ancona et al. (2001) to focus on time issues paved way to the concept of temporal leadership as expressing the extent to which leaders focus teams on time-goals. This has been gaining interest from researchers (e.g. Morgeson & DeRue, 2010; Mohammed & Nadkarni, 2011; Maruping et al., 2015) which now take far more complex views on leadership-time view to integrate theory (Dihn et al., 2014) as well as team processes and outcomes (Standifer et al., 2015). Even the apparently over researched field of organizational change found its renewal (e.g. Klarner & Raisch, 2013).

Literature has increasingly comprehended such temporal dimensions of organizational life but is still lacking in pulling concepts together. Such is the case for

time management behaviors (e.g. Macan, 1994, 1996), pacing style (Gevers et al., 2015) and team temporal leadership (e.g. Mohamed and Nadkarni's, 2011). Accepting this literature is progressing towards integration, we endeavor in adding to extant knowledge by calling into the equation several variables that we reason must interplay in understanding some temporal issues. Therefore, we opted to bring together Macan's (1994, 1996) model with Mohamed and Nadkarni's (2011) concept of temporal leadership as well as pacing style (Gevers et al., 2015) and work discretion and time availability (Hornsby et al., 1999).

2. LITERATURE REVIEW

This section will explore three main concepts: time management behaviors (Macan, 1994, 1996), pacing style (Gevers et al., 2015), and temporal leadership (Mohamed and Nadkarni, 2011) complemented with work discretion and available time (Hornsby et al., 1999). We believe there is enough literature to integrate these into a new explanative model.

2.1. Time Management Behaviors

The notion of time management was first introduced in the 1950s by Mackenzie (1954) and McCay (1959), and later reintroduced to organizational context by Drucker (1966). Ever since, four main approaches to interpret the concept of time management emerged: a) the effective use of time (Hanel, Martin & Koop, 1991; Kotter, 1982; Orpen, 1993; Woolfolk & Woolfolk, 1986), b) the techniques used for managing time (Forsyth & Chen, 2006; Macan, 1994, 1996), c) time structure defined by the extent to which individuals perceive their use of time to be structured and purposive (Bond & Feather, 1988; Feather & Volkmer, 1988; Strongman & Burt, 2000), and d) a more modern approach that suggest that the concept refers to behaviors that aim at achieving an effective use of time while performing certain goal directed activities (Claessens, Van Erde & Rutte, 2004). Other interpretations of time management refer to the concept as a self-regulation process (Eilam & Aharon, 2003; Griffiths, 2003) and a coping behavior (King et al., 1996, cited in Claessens, Van Eerde & Rutte, 2004).

Our study focus on the time management model proposed by Macan (1994, 1996) specifically on time management behaviors since this model is one of the most influential in the literature. The author stated that time management training leads to time management behaviors, proposing three behavioral variables identified through factor analysis of self-report questionnaire data designed to measure time related behaviors (Macan, 1994, 1996). The three variables are the setting of goals and priorities, the mechanics of time management, and the preference for organization.

According with this author such behaviors lead to a greater perception of control over time and that sense of control over time is directly linked to job-induced tensions, somatic tensions, job satisfaction and job performance. Therefore, time management behaviors do not directly lead to an increase in performance and well-being outcome variables. This notion was contrary to the assertion held at the time (Schuler, 1979, cited in Macan, 1994, 1996).

Although Macan's model was not fully supported, the structure of the model in terms of antecedents, mediators and outcome variables was supported. The most influential key finding to the development of time management theory was that perceived control over time was significantly related to job-induced tensions, somatic tensions and job satisfaction.

2.2. Pacing style

Connie Gersick (1988, 1989) introduced the concept of pacing through a study with unexpected findings. The author found that the teams observed did not accomplish their work by progressing gradually through a universal series on stages, as traditional group development models would predict. Instead, teams progressed in a pattern of *punctuated equilibrium* through alternating inertia and revolution in the behaviors and subjects through which they approached their work. *Punctuated equilibrium* is a concept from the field of natural history through which the author interpreted the findings that suggested that the groups' progress was triggered more by members' awareness of time and deadlines than by completion of an absolute amount of work in a specific developmental stage. Originally, the Punctuated Equilibrium Model referred to patterns of relative stability and sudden radical change in evolution (Eldredge and Gould, 1972).

Seers and Woodruff (1997) showed that these patterns also reflected task-pacing behaviors at the individual level. Results indicate that the temporal pattern postulated in the *punctuated equilibrium* model reflects task pacing under a deadline, rather than the process of group development. This pattern was found both in group and individual projects (Chang et al., 2003; Gevers et al., 2006; König and

Kleinmann, 2005; Lim and Murnighan, 1994; Nandhakumar and Jones, 2001; Seers and Woodruff, 1997; Waller et al., 2002).

For example Nandhakumar and Jones (2001) found that the team members' work was marked by significant changes (relative inactivity vs intensive efforts) in pace towards deadlines instead of a steady flow of time. Research on student procrastination revealed a similar pattern (Dewitte and Schouwenburg, 2002). Although procrastination may be seen as a general problem of self-regulation that is applicable to everyone (Van Eerde, 2000) not everyone is likely to procrastinate. Intended delay or strategic delay (Klingsieck, 2013) may occur as an indication of agency or temporal autonomy, within the framework of time work (Flaherty, 2011).

The pacing style concept originated from the assumption that people have explicit expectations and preferences regarding the progression of events and activities over time (Blount & Janicik 2002 cit. in Gevers, 2006). The notion of pacing preferences was introduced by Blount and Janicik (2002) and refers to the anticipated momentum and flow regarding how events will unfold over time. The two elements proposed to comprise a person's pacing preference are the amount of time perceived as available to complete a task, and how an activity is spaced out over that time.

Whereas Blount and Janicik introduced the pacing preferences, Gevers et al. (2006) noted that what is preferred may not match what is done and created the concept of pacing style to capture how time is actually allocated in task execution. Pacing style expresses the patterns that indicate the allocation of time and efforts for the execution of tasks in relation to the deadline (Gevers et al., 2006).

Empirically, patterns were studied by developing graphic scales to assess people's pacing styles. Gevers (2009) graphic scale was built on earlier work from Lim and Mumighan (1994) and Blount and Janicik (2002). The purpose was to inquiry into the preferred distribution of effort over the time interval towards a deadline.

Several patterns have been proposed (Claessens, 2004; Gevers et al., 2006). Being confronted with a deadline, some people take action immediately to finish the task as soon as possible, while others wait for the deadline to draw near before they start working on the task. Still others prefer a steady work pace and spread out task activities evenly over time (Gevers, 2009). Globally four main pacing styles were

found (Gevers et al., 2006, 2015; Mohammed and Nadkarni, 2011; Shipp et al., 2009): 1) early starters: they start early and are less active towards the deadline; 2) steady pacers, who have a constant pace towards a deadline; 3) deadline workers (most likely also procrastinators) who are relatively inactive at the beginning, but enormously active at the last minute when the deadline approaches; and 4) a combination of early and deadline workers, with a relatively inactive phase during the midpoint of a project, a U-shaped curve.

Conceptualization of pacing style was improved by Gevers et al. (2015) presenting a new nine-item scale called Pacing Action Categories of Effort Distribution (PACED). This scale consisted on deadline (complete work in a short time period just before the due date), steady (spread task activities evenly over time), and U-shaped (invest most of the effort at the start and finish of a task, with a break in between) action styles (Gevers et al. 2015).

According with Gevers (2015) a key premise underlying multilevel conceptualizations of temporality is that individuals perceive time in different ways (e.g. Bluedorn & Jaussi, 2007; Mohammed, Hamilton, & Lim, 2009). Indeed, temporal characteristics such as time urgency (feeling chronically hurried), polychronicity (preference to engage in more than one task concurrently), and time perspective (past, present, or future temporal bias) have been acknowledged as fundamental parameters of individual differences (Bluedorn & Denhardt, 1988). However, these constructs do not capture how individuals pace themselves before a deadline.

According with Gevers (2015) the literature on temporal individual differences has tended to ignore pacing behavior before a deadline, meaning the research on dynamic goal directed behavior has de-emphasised individual differences other than procrastination. Planning research (e.g. Claessens, Van Eerde, Rutte, & Roe, 2004; Macan, 1994, 1996; Schriber & Gutek, 1987; Tripoli, 1998) has also fallen short in addressing task pacing, as it tends to focus on the extent to which people plan their work, not on when the work is actually done (i.e. early, late, both, or steady). Given the identified gap in the literature, we focus on the relation between time management behaviors and pacing style.

The way individuals pace their time in meeting deadlines is central to their daily experience as it can significantly affect lifestyle decisions and may seriously impact a variety of work-related behavior and outcomes (Gevers et al. 2015). According with Claessens, Van Eerde, Rutte, and Roe, (2004) pacing style has been shown to influence employees' behavior (e.g. planning), feelings (e.g. control of time, occupational self-efficacy), and outcomes at work (e.g. job performance, working overtime). Also the study developed by Gevers et al. (2015) demonstrate that goal setting and preference for organization dimensions of time management were negatively related to the deadline action style ($r = -.33, p < .01$ and $r = -.26, p < .01$, respectively), but positively related to the steady ($r = .37, p < .01$ and $r = .24, p < .01$, respectively). Hence steady pacing style correlate positively with variables that tap into organization and planning, such as time management behavior (Claessens, Van Eerde, Rutte, & Roe, 2010; Macan, 1994, 1996) and, in contrast, were expected to be negatively correlated with the deadline action pacing style.

According with these findings it is reasonable to infer that behaviors such as setting goals and priorities, mechanics of time management, and a preference for organization (Macan, 1994, 1996) can influence how time is allocated in task execution (pacing style) since if we can set goals and organize our work we will avoid start working close to the deadline adopting an earlier/steady pacing style. Therefore we hypothesize (H1) that setting goals and priorities, mechanics of time management, and a preference for organization (Macan, 1994, 1996) will be positively related with the steady pacing style (H1a) and negatively related with deadline pacing style (Gevers et al., 2015) (H1b).

2.3. Temporal leadership

Emerging literature on executives' subjective views of time suggests that a leader's interpretation of time serves as a temporal filter that molds expectations and evaluations of decision situations and forms the basis for strategic behaviors (Ancona et al., 2001; Das, 2004; Crossan et al., 2005). Therefore, temporal variables have an important role in the field of leadership research with some authors emphasizing the importance of time in the leadership process.

Ancona et al. (2001) were the first to call for the move of time into the foreground of leadership research which ultimately translated into the establishment of “Temporal Leadership” a decade after (Mohammed and Nadkarni, 2011). Also Halbesleben et al. (2003) suggest that awareness of temporal complexity dimensions has a significant impact on the leader competency set that is critical to lead people effectively in innovation-focused projects. Bluedorn and Jaussi (2008) literature review also considered the use of temporal variables in leadership research has been scarce and that temporal theory has not made its mark on many examinations of the leadership process. The authors note that the role of time in leadership is not completely explored.

There are other studies regarding leadership and time such as Kane, Zaccaro, Tremble and Masuda (2002) that considered team leadership as the focal point of an empirical examination of leadership and time, taking a functional view of team leadership and including a dimension coined “monitoring time” as one of their measures of leader behaviors. Another example is Morgeson and DeRue (2010) that refer to planning and structuring behaviors involving determining how work will be accomplished, who will do which aspects of the work, and when the work will be done (e.g., timing, scheduling, work flow).

The concept of temporal leadership emerged from the need to combine temporal activities and team leadership, due to the increasingly temporal challenges leaders face, such as managing multiple time frames, deciding how fast the team should act, synchronizing team members’ actions, and matching the pace of the team with the environment in which it operates (Ancona et al., 2001; Halbesleben et al., 2003; Mohammed and Nadkarni, 2011).

Team temporal leadership was conceptualized by expanding the notion of temporal leadership to the team context and conceptually and operationally examining the intersection of time, leadership, and teams. Building on this conceptual foundation, the authors defined team temporal leadership as leader behaviors that aid in structuring, coordinating, and managing the pacing of task accomplishment in a team (Mohammed & Nadkarni, 2011). Therefore, team temporal leadership refers to behaviors like reminding team members of important deadlines, prioritizing tasks and

allocating time to each task, and urging team members to finish subtasks on time (Santos et al., 2016).

The importance of Mohammed and Nadkarni's (2011) team temporal leadership concept lies very much on its positive effects on team performance by amplifying the benefits and reducing the problems associated with temporally diverse teams, whereas weak team temporal leadership hinders team performance by failing to leverage the positive and reduce the negative influences of temporally diverse teams. This extended Kerns and Ko (2010) previous findings relating flexibility in leader's time-perspectives with higher team performance.

The reason for the positive relation between team temporal leadership and higher outcomes lie in pushing teams to view time pressure as a motivator and eliciting a problem-solving style of coping (LePine et al. (2005) cit. in Maruping et al., 2015). When team temporal leadership is weak, teams lack the confidence and ability to manage temporal challenges (Maruping et al., 2015). Mohammed and Nadkarni (2011) also found that the influence of time urgency and pacing style diversity on team performance was more positive under conditions of stronger team temporal leadership than weaker team temporal leadership.

This concept can arguably be challenged by stating its redundancy with task-oriented leaders behaviors. However, task-oriented leaders only focus on the tasks that need to be accomplished to achieve clearly defined goals and performance standards (Burke et al., 2006). Conversely, temporal leaders urge members to finish subtasks on time and verify whether they are doing what they are supposed to and whether they are meeting their deadlines (Mohammed & Nadkarni, 2011).

As a multidimensional construct, temporal leadership encompasses both task and relationship dimensions (Myer & Mohammed, 2012). The task dimension describes leader behaviors that aid in structuring, coordinating, and managing the pacing of task accomplishment in a collective, including reminding members of deadlines, building in time for contingencies and problems, and synchronizing the team so that work is completed on time (Mohammed & Nadkarni, 2011) and relationship dimensions (Myer & Mohammed, 2012). Notwithstanding this conceptual distinction, one can always argue that temporal leadership is not a necessary condition

for effective time management in teams if members share the same time cognitions concerning tasks (Gevers et al. 2006; Santos et al., 2016).

According with Maruping et al. (2015) the pacing of task accomplishment is facilitated through the scheduling of key milestones ahead of task deadlines, synchronizing team members' inputs and outputs, and allocating temporal resources to ensure that there is adequate time to accomplish team goals. Taken together, these behaviors motivate teams to attend to the temporal aspects of their work, enabling them to effectively mobilize their resources within given time constraints.

Another issue related with temporal leadership connects pacing style with temporal leadership. Recently Chen and Nadkarni (2016) studied how CEOs think and feel about time and found that the deadline-action style inhibits CEOs' temporal leadership, but the steady-action and early-action styles have similar effects on their temporal leadership. Also one of our hypotheses (H4) considers that team temporal leadership is favored by a steady pacing style. Hence, steady pacing style is positively associated with team temporal leadership (H4a) while a deadline pacing style is negatively associated with team temporal leadership (H4b).

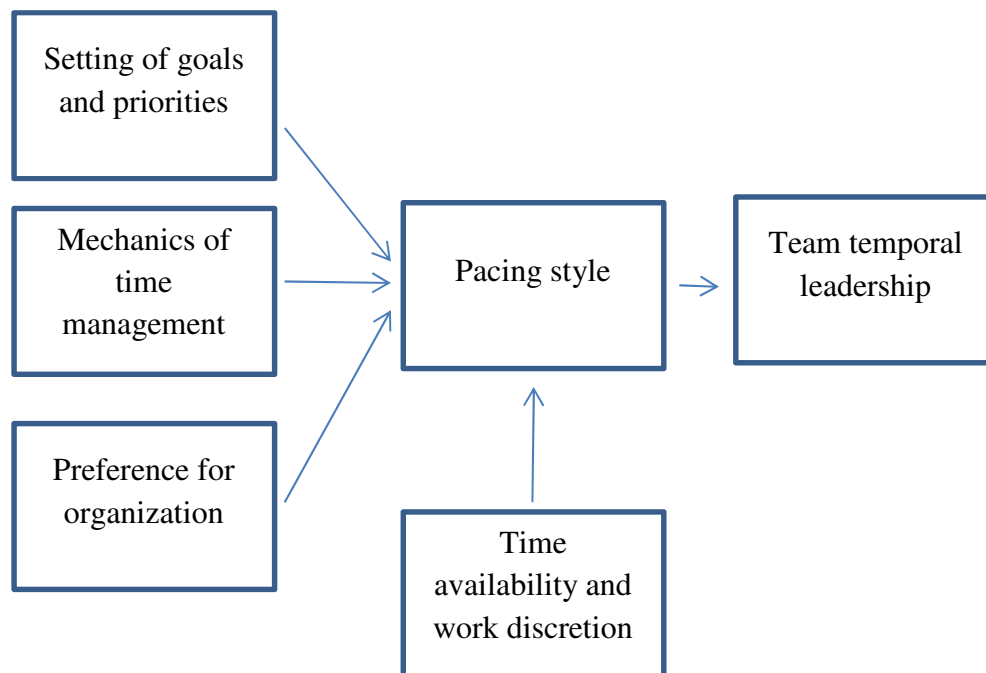
2.4. Work discretion and available time

An instrument called Corporate Entrepreneurship Assessment Instrument (CEAI) was created in order to measure the key internal organizational factors that influence a firm's entrepreneurial activities and outcomes

The content validity of the instrument was examined. According with the results of Kuratko et al. (1990) and Hornsby et al. (1999) and Zahra (2002) there were suggested five principal factors as antecedents of managers' entrepreneurial actions. Two of them are time availability and work discretion that were included by Hornsby, Kuratko, and Montagno (1999) as two additional factors that serve as determinants of managerial entrepreneurial behavior.

Work discretion is described as top-level managers' commitment to tolerate failure, provide decision-making latitude and freedom from excessive oversight and to delegate authority and responsibility to managers and time availability as evaluating

workloads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long-term organizational goals (Hornsby et al., 1999) These two variables were introduced in our model in order to see if there is any correlation between them and pacing style (H2). More specifically time availability is positively associated with steady pacing style (H2a) and negatively with deadline pacing style (H2b). And time management behaviors are positively associated with time availability ((H3).



Picture 1 – Model of analysis

3. METHOD

3.1. Procedure

The sample was identified by means of publicly available information that contained the research funded projects, between 2008 and 2010, identification of each research team members and their institutional affiliation.

We browsed the email of each research team leader either in the respective official website of the above stated institutions or via a search of the full name, mostly in the cases where there was a change of affiliation or no such information was made available in those websites.

The survey was built in Google Forms that generate a link to complete it. This link was made available via an email containing also information about the research purpose, plus assurance of anonymity and confidentiality, as well as the voluntary nature of the participation. The email also stated the option to directly inquire the researcher by replying to the email, in case any doubt should arise.

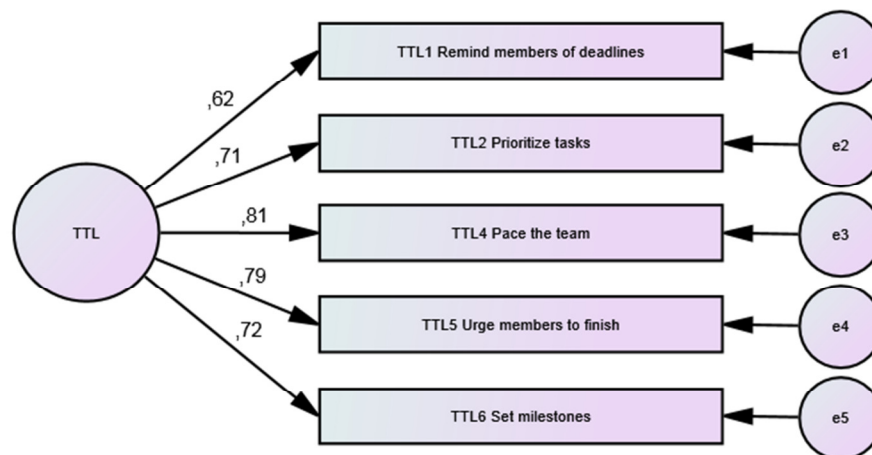
3.2. Sample

From the 1124 invitations sent we have received 176 valid responses which correspond to a response rate of 15,66%. Although this is an uncommonly low response rate, this population is rarely researched and the survey was actually not available to all invitees due to Google Forms requirement that respondents have a google account.

3.3. Measures

Team Temporal Leadership was measured with Mohammed and Nadkarni (2011) 7-item scale which was subjected to a confirmatory factor analysis for a single factor. On a 7-point scale (1= completely disagree; 7 = completely agree), participants

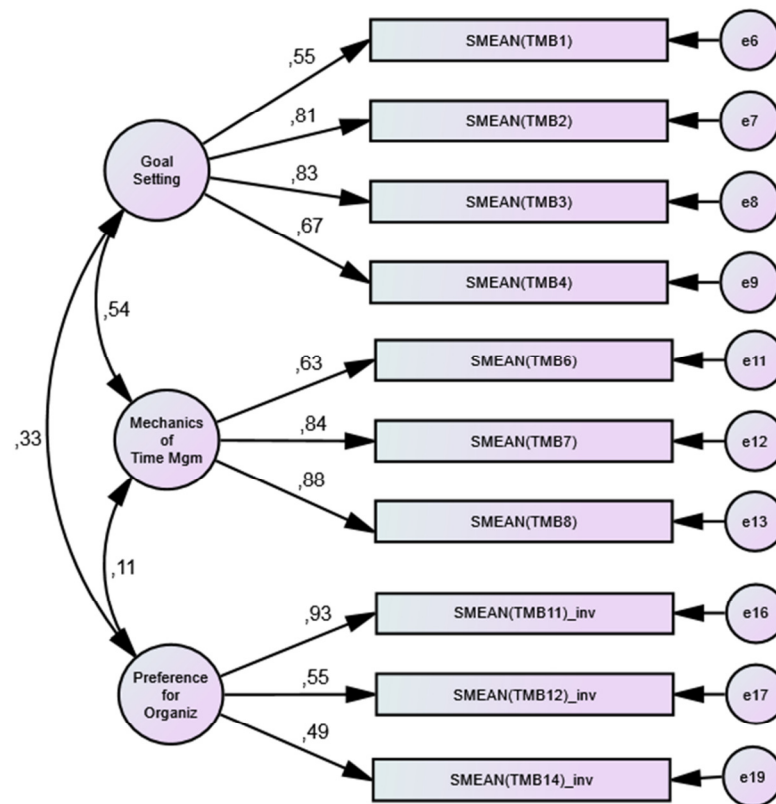
indicated how often they had demonstrated specific behaviors. The CFA showed the solution did not reach conditions to be accepted as valid (CMIN/DF=2.173, $p=.007$; CFI=.969; PCFI=.646; RMSEA=.082; SMRM=.0386). By applying procedures as stated in the data analysis strategy we found a valid 5 item solution (items “... prepare and build in time for contingencies, problems, and emerging issues” and “...effective in coordinating the team to meet client deadlines” were excluded) which had the following fit indices: CMIN/DF=1.116, $p=.349$; CFI=.998; PCFI=.499; RMSEA=.026; SRMR=.023. This factor solution has also convergent validity (AVE=.550) and has good reliability (CR=.859).



Picture 2 – Confirmatory Factor Analysis of Team Temporal leadership

Time management behavior was measured with Macan’s (1994, 1996) scale that comprehends three factors: Goal setting, Mechanics of Time Management, and Preference for organization (5 items each). On a 7-point scale (1= completely disagree; 7 = completely agree), participants indicated how often they had demonstrated specific behaviors. The confirmatory factor analysis showed unacceptable fit indices (CMIN/DF=2.702, $p<.001$; CFI=.852; PCFI=.706; RMSEA=.098; SMRM=.0816). From using Lagrange Multipliers the three-factor model was preserved with acceptable fit indices (CMIN/DF=1.313, $p=.135$; CFI=.986; PCFI=.685; RSMEA=.042; SRMR=.0472) comprehending Goals setting (4-items,

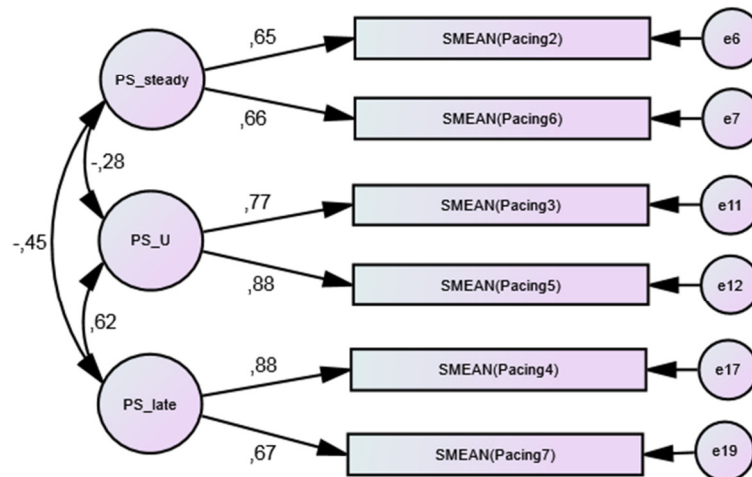
AVE=.527; CR=.813), Mechanics of Time Management (3-items; AVE=.624, CR=.830) and Preference for Organization (2-items, AVE=.534 but acceptable CR=.695). The model is thus considered both reliable and having convergent validity. As all latent variables squared AVEs are greater than the respective correlations with other latent variables (the largest correlation being .544 and the lowest AVE^{1/2} being .730) the model has also good divergent validity and is thus taken as psychometrically sound. The valid solution is pictured below.



Picture 3 – Confirmatory Factor Analysis of Time Management Behaviors

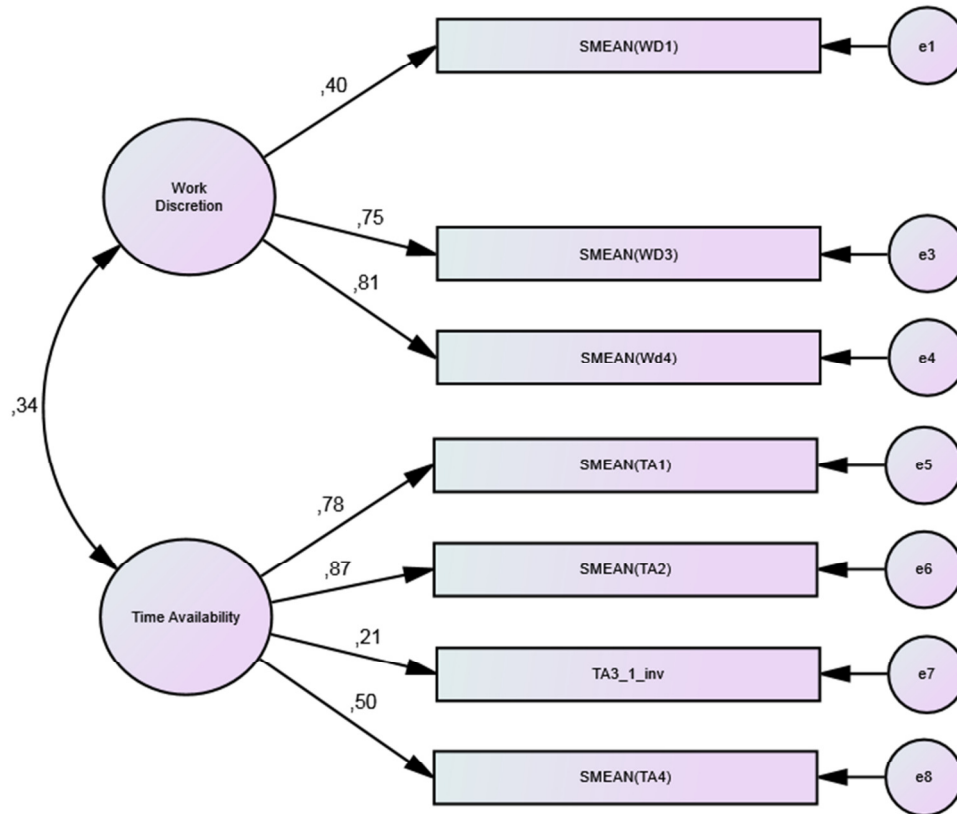
Pacing Style was measured with the 9-item Pacing Action Categories of Effort Distribution (PACED) scale (Gevers et al., 2015), in which Steady, U-shaped, and Deadline action pacing styles were each measured with three items on a 7-point scale (1= completely disagree; 7 = completely agree). The confirmatory factor analysis

showed unacceptable fit indices (CMIN/DF=3.164, $p < .001$; CFI=.888; PCFI=.592; RMSEA=.111; SRMR=.0815). From using Lagrange Multipliers the three-factor model was preserved with acceptable fit indices (CMIN/DF=1.446, $p = .162$; CFI=.986; PCFI=.591; RSMEA=.050; SRMR=.0591) but with the exclusion of one item from each factor, thus comprehending 6 items, a couple for each factor as follows: Steady (poor AVE=.429 but mediocre CR=.600), U-Shape (AVE=.684, CR=.811) and Deadliners (AVE=.612, CR=.756). The model is considered both reliable and having convergent validity. As all latent variables squared AVEs are greater than the respective correlations with other latent variables (the largest correlation being .624 and the lowest AVE^{1/2} being .654) the model has also good divergent validity and is thus taken as psychometrically sound. The valid solution is pictured below.



Picture 4 – Confirmatory Factor Analysis of Pacing Styles

Work Discretion (work autonomy) and **Time Availability** were drawn from Hornsby et al. (2013) scale, and treated as separate factors comprehending 7 items (3+4 items) and useful to characterize organizational context. The original bifactorial solution showed acceptable fit indices (CMIN/DF=1.537, $p = .096$; CFI=.974; PCFI=.603; RMSEA=.055; SRMR=.0491) as well as acceptable convergent validity both for work autonomy (AVE=.463 but acceptable CR=.706) and time availability (AVE=.413, and CR=.703).



Picture 5 – Confirmatory Factor Analysis of organizational context

3.4. Data analysis strategy

Data analysis follows a twofold path. Firstly we tested for psychometric quality of the measures to guarantee they have the required validity and reliability for further use. Then, we tested the hypotheses as stated in the research model.

Validity can be tested by means of factorial analysis which will be conducted by means of confirmatory factor analysis with the AMOS software 20.0, where a given factor structure is taken as valid whenever a set of fit indices achieve minimum thresholds. The most accepted recommendations for cutoff levels is Hu & Bentler (1999) who required cumulatively values of at least .90 for Comparative Fit Index (CFI), plus Root Mean Square Error of Approximation (RMSEA) below .08 and the Standardized Residual Root Mean Square Residual (SRMR) below .08. For simpler confirmatory factor analyses, we opted for we expect to refer to a chi square based index (CMIN/DF) below 3; Comparative Fit index (CFI) above .95; Root Mean

Square Error of Approximation (RMSEA) below .08 and the Standardized Residual Root Mean Square Residual (SRMR) below .09, considering Hair et al. (2010) recommendations on the basis also of previous research by Brown & Cudeck (1993); Joreskog & Sorbom (1996). Additionally, although parsimony indices such as PCFI do not have minimum thresholds, they may complement previous information concerning the parsimony of the model. In such case values closer to 1 will indicate higher parsimony, i.e. less redundancy among observed variables. Also, a variable must meet convergent validity criterion (judged on Fornell & Larcker (1981) measure of AVE reaching at least .500, or in alternative Composite Reliability reaching .700) as well as divergent validity (whenever there is more than one latent variable in the same construct) measured by Fornell & Larcker's (1981) requisite that squared AVE of each latent variable is larger than any corresponding correlation between any latent variable and the one under analysis.

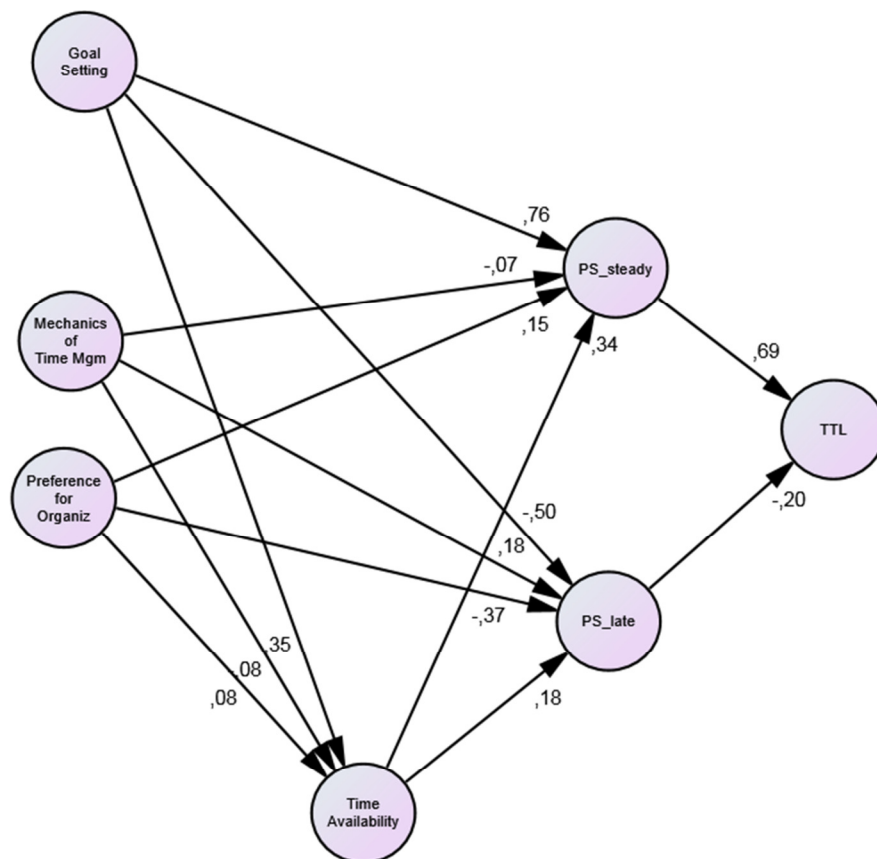
In the event a given model fails to meet criteria we conducted either an exploratory factor analysis as recommended by Brown (2006) and then re-test it with a confirmatory factor analysis (as it is more robust) or used Lagrange Multipliers to adjust the model. It must be noted that such adjustments must follow a theoretical line of reasoning and not merely the search for improved fit with the data. Exploratory factor analysis appropriateness requires $KMO > .70$, Measuring Sample Adequacies and commonalities all above 0.500, a significant p-value associated with Bartlett's statistic X^2 and at least 60% explained variance after rotation. Cumulatively, reliability is judged on Composite Reliability and Cronbach's alpha (at least .70)

We treated missing values following Hair et al. (2010) recommendations which, in the present case, were replaced by series means as the highest rate of missing data cases reached merely a 2.3% of total data inputs per variable.

4. RESULTS

The structural equation test conducted on the comprehensive model showed valid fit indices (CMIN/DF=1.307, $p=.002$; CFI=.957; PCFI=.812; RMSEA=.042; SRMR=.0641), thus allowing the interpretation of findings.

The model and respective figures is shown in the picture below:



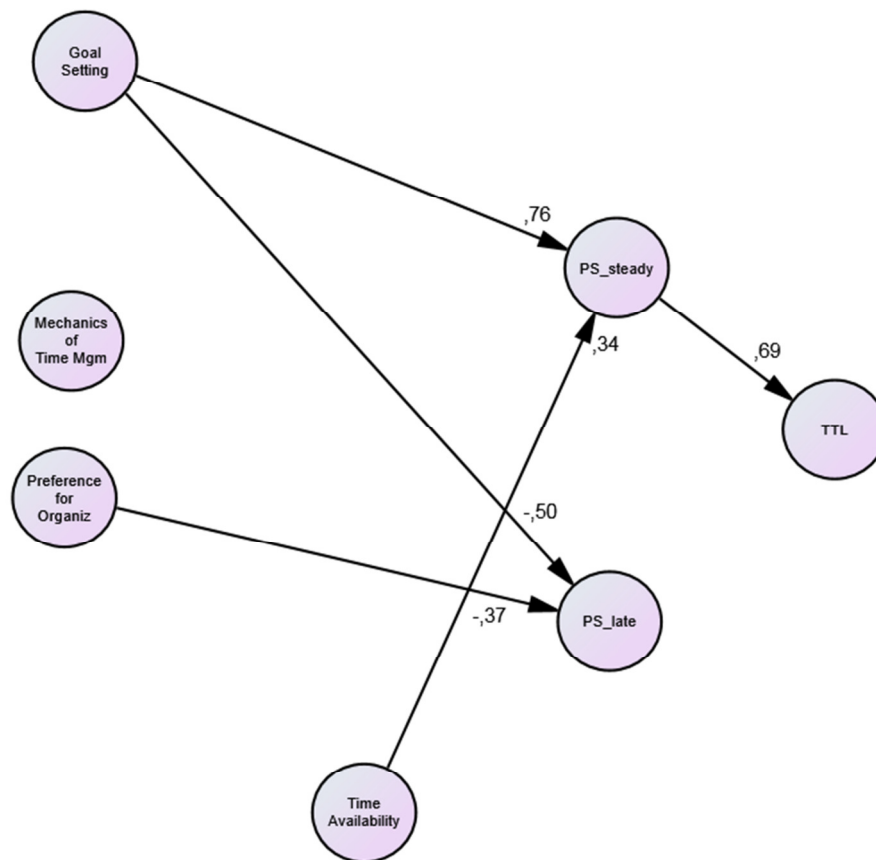
Picture 6 – Structural Model of Analysis

In order to judge on path significance, table 1 shows the estimates and respective p-values.

Table 1 – Unstandardized coefficients and p-values

			Estimate	S.E.	C.R.	P
Time Availability	<---	Preference for Organiz	,071	,086	,831	,406
Time Availability	<---	Time Mechanisms	-,067	,090	-,740	,459
Time Availability	<---	Goal Setting	,391	,142	2,751	,006
Pacing Style Deadliner	<---	Preference for Organiz	-,309	,086	-3,608	***
Pacing Style Deadliner	<---	Goal Setting	-,556	,148	-3,749	***
Pacing Style Deadliner	<---	Time Mechanisms	,151	,089	1,696	,090
Pacing Style Steadyy	<---	Preference for Organiz.	,094	,060	1,562	,118
Pacing Style Steadyy	<---	Time Mechanisms	-,041	,062	-,656	,512
Pacing Style Steadyy	<---	Goal Setting	,630	,128	4,920	***
Pacing Style Deadliner	<---	Time Availability	,183	,091	2,009	,045
Pacing Style Steadyy	<---	Time Availability	,254	,071	3,593	***
T. Temporal Leadership	<---	Pacing Style Steadyy	,562	,102	5,533	***
T. Temporal Leadership	<---	Pacing Style Deadliner	-,121	,055	-2,207	,027

The picture bellow shows only significant paths of the Structural Model of Analysis:



Picture 7 – Structural Model of Analysis (only significant paths)

For clarity sake we re-state the hypotheses to structure the interpretation of findings.

H1: Time Management Behaviors are positively associated with steady pacing style (a steady pacing style is favored by an effective time management options), H1a. Conversely, Time Management Behaviors are negatively associated with deadline pacing style (due to dysfunctions and time waste), H1b.

H2: Time availability is a key resource to be able to keep a steady pacing style. Thus “time availability is positively associated with steady pacing style (H2a). On the contrary, when individuals lack time, they will probably postpone less urgent or important task, thus creating more pressure for its performance close to the deadlines. Therefore time availability is negatively correlated with deadline pacing style (H2b).

H3: Time availability is also a product of adequate time management behaviors as these will push time efficiency and thus free more time and avoid waste. Hence, time management behaviors are positively associated with time availability.

H4: Team temporal leadership is favored by a steady pacing style. Hence, steady pacing style is positively associated with team temporal leadership (H4a) while a deadline pacing style is negatively associated with team temporal leadership (H4b).

Table 2 – Synopsis of hypotheses testing

H1a	Goal Setting - Steady Pacing Style	√
H1a	Mechanics - Steady Pacing Style	-
H1a	Preference for Org - Steady Pacing Style	
H1b	Goal Setting - Deadline Pacing Style	√
H1b	Mechanics - Deadline Pacing Style	-
H1b	Preference for Org - Deadline Pacing Style	√
H2a	Time availability - Steady Pacing Style	√
H2b	Time availability - Deadline Pacing Style	-
H3a	Goal Setting – Time Availability	-
H3b	Mechanics – Time Availability	-
H3c	Preference for Org – Time Availability	-
H4a	Steady Pacing Style –Team Temporal Leadership	√
H4b	Deadline Pacing Style – Team Temporal Leadership	-

√ signals corroborated hypotheses

Concerning the relation between steady pacing style and time management behaviors, findings show a positive relation with goal setting ($\gamma = .76$, $CR = -4.920$, $p < .001$) while for deadline pacing style the predictors were both goal setting ($\gamma = -.50$, $CR = -3.749$, $p < .001$) and preference for order ($\gamma = -.37$, $CR = -3.608$, $p < .001$). This partially supported H1a and H1b as the valence of the association is as expected (positive for time management behaviors with steady pacing style and negative with deadline pacing style).

As regards time availability relation with pacing style, findings showed a positive significant coefficient only with steady pacing style ($\gamma = .34$, $CR = -3.593$, $p < .001$). This corroborates H2a but not H2b.

No time management behavior was found to be associated with time availability thus rejecting H3.

At last, team temporal leadership is predicted only by steady pacing style ($\gamma = .69$, $CR = -5.533$, $p < .001$) which partially supported H4.

5. DISCUSSION AND CONCLUSION

Results generally followed the expected pattern although they were to a certain extent surprising. We believe they may offer insights especially because they are psychometric sound and help in differentiating relative paths in producing team temporal leadership.

The first finding that deserves attention is the centrality of goal setting followed by preference for organization within the context of time management behaviors. Indeed Gevers et al. (2015) stated the relevance of goal setting and preference for organization dimensions of time management behaviors negatively related to the deadline action style but positively related to the steady. Both play an important role in promoting a steady pacing style. It is with somewhat surprising that time mechanics had no association with pacing style. However, the relatively worst impact of this factor was already foreseen by Macan (1994, 1996) when stating that list-making is a potential useless behavior or at least an insufficient condition to favor an adequate time management.

Another finding goes against the grain of common sense in organizations. It is rather typical to hear individuals complaining about the lack of time to properly do their tasks. It is a subjective impression, but notwithstanding its subjectivity, it is taken as a prime factor in explaining deadline-pacing style, i.e. leaving most of the task to be done in the very last minute, with all the risks and consequences it may bring to the organization (author, data). Indeed, the lack of any significant association with both pacing styles suggests that such subjective impression of lacking enough time to do the job is not a factor of the pacing style one has, be it steady (some steady paced employees will feel they have enough time while others will not) or deadline (some deadliners will report they have enough time while others won't). So, not having time is not a reason to postpone tasks to the very last minute.

Another common assumption about time availability is the usual attribution of lack of time to bad time management, i.e. the individuals that lack competency in time management will experience a heightened feeling of lacking time due to the inefficient time management. They simply waste too much time in each task. The surprising finding that no time management behavior is associated with time availability casts a

new light upon the plausible causes of lack of time. It may be due to a compensatory psychological mechanism that individuals produce to protect their sense of self efficacy thus attributing causes externally (Ganzach et al., 2016) or just as well to the increasing pressure to accumulate responsibilities upon those that have higher performance creating the “full plate” syndrome (Tannenbaum et al., 2012) or simply a misconception decision maker have about required time to conduct each task (Schaetzle, 2015). This study is not able to clarify if any of these actually explains the subjective impression of lacking time. However, it does help casting a reasonable doubt that it is due to deficient time management behaviors. This has an impact on the focus of time management training to produce a sense of time availability in employees.

A finding that matched the expected was the positive association found between steady pacing style and team temporal leadership. Indeed steady pacing style is associated with many positive outcomes such as organization and planning (Claessens, Van Eerde, Rutte, & Roe, 2010; Macan, 1994, 1996). The same goes for team temporal leadership as it keep the team aware of time as a resource and prevents shifting from milestones (Mohammed and Nadkarni, 2011). Therefore, having these positively related shows another positive outcome of steady pacing style bringing with team temporal management effectiveness. Curiously, the same does not hold for deadline pacing style. It would be expectable to find a negative association, as hypothesized. However, no association was found. These can be interpreted as deadline pacing style being more common in creative and independent jobs where early starting patterns are less common (Beefink, Van Eerde, & Rutte, 2015).

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APPENDICES

Appendices 1 – Questionnaire

PERGUNTAS

RESPOSTAS

A gestão do tempo e a produção

Tendo em conta a sua experiência enquanto responsável por projetos de investigação financiados por entidades nacionais no âmbito de concursos decorridos em 2008, 2009 e 2010, indique em que medida está ou não de acordo com as seguintes afirmações:

1. Relembro os membros da minha equipa de prazos importantes.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

2. Priorizo as tarefas do projeto e aloco tempo para cada uma delas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

3. Preparo e construo em tempo útil soluções para contingências, problemas e questões emergentes.



	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

4. Giro o ritmo da equipa para que o trabalho seja concluído em tempo útil.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

5. Encorajo os membros da minha equipa a terminarem as tarefas a tempo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

6. Sou eficaz na coordenação da equipa para cumprir com os prazos impostos.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

7. Defino metas para medir a progressão do projeto.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

8. O(s) projeto(s) em que participei foi/foram concluídos dentro do prazo inicialmente previsto.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

9. Os objetivos propostos para o(s) projeto(s) em que participei foi/foram alcançados na sua totalidade.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

10. Faço diariamente uma avaliação da progressão das minhas tarefas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

11. Revejo com regularidade as tarefas pendentes.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

12. Defino prazos para a conclusão das minhas tarefas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

13. Procuro ser cada vez mais eficiente na execução das minhas tarefas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

14. Estabeleço prioridades.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

15. Trago sempre comigo um bloco de notas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

16. Faço listas com as tarefas que tenho de realizar.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

17. Anoto o que tenho de fazer para não me esquecer (lembretes).

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

18. Programo o tempo de modo a evitar desperdícios.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

19. Tenho o hábito de registar a informação.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

20. Sou desorganizado(a).

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

21. Tenho um espaço de trabalho desarrumado.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

22. Organizo as minhas tarefas pelo grau de preferência.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

23. Esqueço-me das listas de tarefas que faço.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

24. Considero que os dias são demasiado imprevisíveis.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

25. Sinto que tenho controlo sobre o tempo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

26. Considero difícil manter uma rotina porque os outros fazem com que tenha de interromper o meu trabalho.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

27. Subestimo o tempo que é necessário para realizar as tarefas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

28. Considero que gasto muito tempo em tarefas pouco importantes.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

29. Dou por mim a adiar tarefas que não gosto de fazer mas que têm de ser feitas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

30. Realizo a maior parte do trabalho num período de tempo relativamente curto antes do prazo terminar.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

31. Realizo as tarefas de forma constante, distribuindo o trabalho uniformemente ao longo do tempo (por exemplo, 3 horas por semana até à data limite).

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

32. O esforço que faço na execução do projeto é elevado no início, reduzido a meio e novamente elevado no final.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

33. Não tenho muito trabalho feito até o prazo final estar próximo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

34. Invisto a maior parte do meu esforço no início e no fim do projeto.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

35. Mantenho um ritmo de trabalho constante, todos os dias ou todas as semanas, em vez de fazer várias horas de trabalho de uma só vez.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

36. Geralmente não trabalho até que haja pressão de tempo dada pela aproximação do prazo final.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

37. Trabalho de uma forma lenta mas ritmada para concluir as tarefas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

38. Esforço-me mais no início das tarefas, bem como antes do prazo, mas sou menos ativo(a) a meio do ciclo de trabalho.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

39. Tenho muita autonomia no meu trabalho e é da minha responsabilidade concluí-lo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

40. É da minha própria responsabilidade decidir a forma como o meu trabalho é feito.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

41. Sinto que sou o meu próprio chefe e não tenho de justificar todas as minhas decisões.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

42. Tenho a liberdade de decidir o que faço no meu trabalho.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

43. Sinto que tenho sempre bastante tempo para concluir o meu trabalho.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

44. Tenho a quantidade de tempo e de trabalho ideais para fazer tudo bem.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

45. Sinto que estou sempre a trabalhar com limitações de tempo sobre o meu trabalho.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

46. Os meus colegas e eu encontramos sempre tempo para a resolução a longo prazo de problemas.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

47. Não gosto de lidar com várias atividades ao mesmo tempo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

48. As pessoas não devem tentar fazer várias coisas ao mesmo tempo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

49. Quando me sento à secretária, trabalho em uma tarefa de cada vez.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Discordo plenamente

50. Sinto-me confortável a fazer várias coisas ao mesmo tempo.

	1	2	3	4	5	6	7	
Discordo plenamente	☐	☐	☐	☐	☐	☐	☐	Concordo plenamente

51. Se entende que houve outros factores que influenciaram os prazos e consecução de objectivos do projecto, queira por favor

Appendices 2 – Curriculum Vitae

INFORMAÇÃO PESSOAL

Vera Camilo

[Todos os campos do CV são opcionais. Remova os campos não preenchidos.]

Sexo Feminino o sexo | Data de nascimento 13/02/1983 | Nacionalidade Portuguesa

EXPERIÊNCIA PROFISSIONAL

[Comece por indicar a experiência profissional mais recente. A cada posto profissional pertinente deverá corresponder uma entrada separada.]

Indique as datas (desde
Novembro de 2009)

Técnica Superior da Função Pública

FCT – Fundação para a Ciência e a Tecnologia

Av. D. Carlos I, 126, 1249-074 Lisboa, Portugal

▪ Técnica Gestora de projetos de investigação

Empresa ou setor Instituto Público

EDUCAÇÃO E FORMAÇÃO

[Comece por indicar a formação mais recente. Cada curso deverá corresponder uma entrada separada.]

Indique as datas (de - até)

Licenciatura em Sociologia das Organizações e Inovações

Indique o nível do
Quadro Europeu de
Qualificações

Faculdade de Ciências Sociais e Humanas da Universidade Nova de Lisboa (FCSH – UNL)

COMPETÊNCIAS PESSOAIS

Remova os campos não preenchidos

Língua materna

Indique a língua(s) materna(s)

Outras línguas

	COMPREENDER		FALAR		ESCREVER
	Compreensão oral	Leitura	Interacção oral	Produção oral	
Inglês	B2	B2	B2	B2	B2
Indique o título do certificado/diploma de línguas. Caso saiba, especifique o nível.					

Níveis: A1/A2: utilizador básico - B1/B2 utilizador independente - C1/C2: utilizador avançado
[Quadro Europeu Comum de Referência para as Línguas](#)

Competências de comunicação

▪ boa capacidade de comunicação adquiridas através da experiência profissional enquanto responsável pelo acompanhamento de painéis de avaliação de projetos de investigação.

Competências de organização

▪ autonomia no trabalho e capacidade de definição de prioridades.

Competências relacionadas com o trabalho

▪ bom domínio na gestão de projetos (atualmente responsável por cerca de 80 projetos ativos)

Competência digital

Processamento de informação	AUTOAVALIAÇÃO			
	Comunicação	Criação de conteúdos	Segurança	Resolução de problemas
UTILIZADOR INDEPENDENTE	UTILIZADOR INDEPENDENTE	UTILIZADOR INDEPENDENTE	UTILIZADOR INDEPENDENTE	UTILIZADOR INDEPENDENTE

Níveis: utilizador básico - utilizador independente - utilizador avançado

[Competências digitais - Grelha de auto-avaliação](#)

Indique o(s) certificado(s) TIC

- bom domínio das ferramentas informáticas (processador de texto, folha de cálculo, software específico da Instituição)

Outras competências

- desenho, natação.

Carta de Condução

B