

TRAINING IN TIME MANAGEMENT: A CASE STUDY IN AN OUTERMOST INSULAR CONTEXT

Luís Filipe Sardinha¹, Áurea Sousa², Eduardo Leite³, Andreia Carvalho⁴

¹*Higher Institute of Administration and Languages, CIISAL (ISAL Research Center)
(PORTUGAL)*

²*University of the Azores, CEEApIA (Center of Applied Economics Studies of the Atlantic)
(PORTUGAL)*

³*University of Madeira, School of Technology and Management, CiTUR (Center for
Research, Development, and Innovation in Tourism) (PORTUGAL)*

⁴*Higher Institute of Administration and Languages, CIISAL (ISAL Research Center)
(PORTUGAL)*

Abstract

The theme of Time Management (TM) has been attracting growing attention from contemporary societies, with several authors having proposed different TM models. To improve TM skills, Training in Time Management (TTM) is recommended, which allows the development of cognitive skills. In practice, it translates into thought processes that allow the individual to analyse situations and that can be used to understand, address issues or problems, on the assumption that individual effectiveness is linked to organisational effectiveness. An attempt was made to apply a flexible TM model to employees from various organisations and to assess the assumed evidence of the benefits of this implementation. Through a quasi-experimental procedure, three TM training courses were delivered, in person and online, to workers from the Portuguese outermost regions. The programme was developed with a focus on the three pillars of the flexible TM model proposed by the authors: time perspective, self-recognition, and TM. Dependent variables were measured before training and two weeks after training. The training programme lasted for three hours. In general, it was found that statistically significant differences ($p < 0.001$) were found between the average scores obtained on the scale that assesses TM behaviour at the two points in time in which the questionnaire was administered. In the 2nd time, after the training course on TM, the average total scores obtained were higher, so the training provided proved to be effective, as it led the participants to change some of their behaviours, thus contributing to a better TM on the part of the trainees.

1 INTRODUCTION

Emerging organisations, as well as traditional ones, are increasingly aiming to present competitive advantages over competitors in the market. Indeed, any organisation's survival and long-term success depend on its competitive positioning. Competitiveness factors are understood to be all those that contribute to improving the organisation's functioning and increasing its performance. In practice, several factors can contribute to improving competitiveness, but much of this is linked to employees and their job satisfaction. In fact, concern for employee satisfaction is a key factor for organisational effectiveness and efficiency, as well as for the successful implementation of a corporate strategy. In this context, motivation has been widely studied by many researchers, precisely because it plays a central role in almost every aspect of the behaviour of employees in the workplace, who are one of its greatest assets. On the other hand, when employees join an organisation, they have professional and personal expectations of progression, recognition, in addition to the natural financial rewards.

The contribution of micro, small and medium-sized enterprises (SMEs) is essential for the economy of a country or region [1]. The globalisation of markets enhances business competitiveness. The most peripheral regions, called outermost regions, through the Treaty of Rome, benefit from legislative protection [2]. In Portugal there are two regions with the status of outermost region, namely the Autonomous Region of Azores (ARA) and the Autonomous Region of Madeira (ARM). In the ARA, in 2021, the resident population was 236 657 inhabitants and in the ARM it was 251 060 inhabitants [3]. In 2017, the total number of companies in the ARA was 27 174 and, in the ARM, the total number of companies amounted to 26 400. As for the typology, in the ARA, in 2017, 96.8% were micro entities, while in the ARM they amounted to 96.3% [4]. It is in this multidimensional framework of competitiveness and performance that the need for efficient TM arises, in harmony with the quality of life of individuals.

In 2020, in a study that took place in the ARA and ARM, an attempt was made to identify TM behaviours and relate them to the time perspectives of employees, in the exercise of liberal functions or on behalf of others in companies headquartered in these regions. By applying a questionnaire to 395 individuals, it was possible to verify that, despite the evidence of rational behaviours, it is highlighted that there is still room for improvement in TM [5]. Sardinha *et al.* presented a flexible TM model, after analysing the strengths and weaknesses of existing models [6]. The proposed model is based on three pillars: Time Perspective (TP), Self-recognition and TM Behaviours.

It is supported by these foundations that the present investigation emerges, which has as main objectives to administer a flexible TM model to employees from various organisations and to evaluate the assumed evidence of the benefits of this implementation. As a specific objective, a set of principles considered essential for a correct TM when planning TTM were distributed to the participants.

It is noteworthy that, in this study, the limitations of previous research were addressed (e.g., [7], [8]), as well as the adapted Macan Time Management Behaviour Scale (TMBS) [9], a scaled-down version of Zimbardo Time Perspective Inventory [10] and the TM behaviour scale [11], in order to register the evolution of the dependent variables on TM behaviours. In turn, to assess the control variables, the Perceived Stress Scale was used [12], as it evaluates variables that are not affected by the intervention to be administered. After training, participants are expected to report a more frequent involvement in goal setting, priority setting and planning. Training participants are also expected to perceive more control over their time, experience more job satisfaction and less stress, and receive higher performance ratings after training than those who did not receive training. This article presents, in a first section, a theoretical framework, followed by the methodology. The presentation of the results follows. At the end, after the conclusions, limitations are discussed and suggestions regarding future research developments are presented.

1.1 Time Management models

Proper use of time is critical in terms of performance in many areas [13]. D. Muste [13] states that the TM idea goes beyond its control, moving towards improving the quality of life of individuals. Several authors have demonstrated benefits of the correct use of time, such as: stress reduction [14]; quality of life [15]; self-control [16]; work-life balance (e.g., ([17], [18])); innovation [19]; procrastination reduction [20-21].

The theme of TM deserved the attention of contemporary society, with several authors having proposed different TM models [16]. Covey [23], considering the finding of Toffler [24], that there are three great waves of development: the agricultural revolution, industrial revolution and computer revolution, groups TM theory into four generations: the first generation uses TM memos and notes, trying to confer a certain appearance of organisation and relevance; the second generation emphasizes the use of calendars, diaries, and timetables, noting the importance of planning for the future. It reflects an attempt to look ahead, to mark future events and activities; the third generation emphasizes the important things, setting short, medium, and long-term goals according to priorities and then one by one to develop plans for the greatest efficiency. In this generation, they realised that the preparation of “efficient” agendas and TM are unproductive: “The focus on effectiveness generates expectations that clash with opportunities to develop richer relationships, to satisfy human needs...”. The fourth generation focuses on personnel management, emphasizing change in the quality of life, to achieve a meaningful and happy life.

Sardinha *et al.* [6] presented a flexible TM model, after analysing the strengths and weaknesses of existing models. In general, it was found that the current models do not distinguish between different time perspectives, not alluding to the uniqueness of each human being. Thus, in order to overcome some of the limitations of the current existing models, this proposed model is based on three pillars: i) Time perspective (TP) - a balanced TP translates into benefits for individuals and it is possible to change behaviours in TM based on time perspectives; ii) Self-recognition – the individual who is fully aware of their knowledge, skills and abilities may have better TM skills, the uniqueness of the human being translates into countless ways of being and thinking; and iii) TM Behaviours - effective and efficient TM must take into account the following principles: (1) Time awareness (time perspectives); (2) Mission, vision and personal goals; (3) Paradigm of importance; (4) Planning and prioritisation (maximisation and prioritisation of activities, avoiding wasted time); (5) Conscious decision making; (6) Work-life balance; (7) Organisational culture (how they manage and look at time) - Accountability of employees (who takes the initiative within their field of action, choosing their best working hours) (figure 1).

Zimbardo Time Perspective	Intellectual Professionals	Common principles in several models
Past negative	Mission	Work-life balance
Past positive	Vision	Conscious decision
Present fatalistic	Values	Planning and prioritization
Present hedonistic	Personality	Importance paradigm
Future	Leadership	Organizational Culture
Time Perspective	Self-recognition	Time Management
Balance between perspectives	Individual Singularity	Good practices

Figure 1 - 3 pillars of the flexible TM model. Source: Sardinha et al. [6]

1.2 Training in Time Management (TTM)

To improve TM skills, TTM is recommended. Current research has shown that TTM improves TM skills [25]. However, "investigations on the effectiveness of TTM are scarce" ([26], [27]). In several studies, after evaluating the programme through self-report, the perceived improvement in TM skills was not always accompanied by behavioural changes related to the way people spent their time. According to Häfner *et al.*, "However, despite the lack of empirical evidence, there seems to be a consensus that some form of system is necessary for people to manage their time effectively, although the type of system is a matter of personal preference and experimentation" [26]. These authors report that the picture in relation to the effectiveness of training in TM is confusing and inconclusive, presenting some explanations: the nature of the TTM, taking into account the generations of TM mentioned by Covey [22]; the adoption of an inadequate research approach as some present a qualitative approach and others quantitative; evaluation measurement methods (e.g., TM). The scales are prescriptive and insufficiently flexible to accommodate different training needs in TM. The complexity of the scales can lead to different definitions of the same theme and its simplification may be excessive.

Häfner *et al.* [14] sought to reduce stress in students by providing a TM training programme, using an investigation supported by a "non-equivalent dependent variables project" [28]. According to the authors, they delivered a training programme in TM to a group and included, in addition to the dependent variables, another variable that was not affected. Frese *et al.* [29], cited by Häfner *et al.* [14], states that if there are no changes in this variable between the first (before training) and the second (after training) measurement points, but there are changes in the expected direction in relation to the other dependent variables, these changes can be attributed to training. Souza *et al.* [30] proposed and applied a method to manage the time of account managers in a bank branch. They found an increase in the quality of life at work, a reduction in emergencies at work and more organisation. Nadinloyi *et al.* [31] evaluated the effectiveness of TTM in the TM of students. The study demonstrated that there are significant differences between both groups. The results showed that TM skills improved in the group that was provided with TTM. Häfner *et al.* [14] sought to evaluate the effects of a short-term training programme in TM on the perception of time control and perceived stress. They used a group in which they administered training in TM and an active control group. Participants in the active control group received an alternative training programme with the same duration and structure and comparable training methods, but with different content. Perceived stress increased in the active control group, but not in the TTM group. Furthermore, perceived control of time increased in the TTM group but remained unchanged in the active control group. Indreica *et al.* [32] demonstrated the effectiveness of TTM through a flexible individualised TM programme. The programme provided a counsellor who designed individualised and flexible programmes for each participant in the experimental condition according to the students' learning styles, circadian and dietary rhythms, and daily and weekly effort curves. The results showed the efficiency of the programme. Hafner & Stock [33] evaluated the effects of training in TM, based on the psychological theory under investigation, in the perception of time control, perception of stress and performance at work. They used a group in which they administered the TTM and a control group. They found that TTM led to an increase in perceived time control and a decrease in stress. TTM had no impact on different performance indicators. In particular, the authors explored the use and perceived usefulness of the techniques taught. Participants rated the techniques taught as useful, but there were large differences in their actual use. Green & Skinner [26] sought to determine whether TTM is effective not only from the point of view of the participants, but also from the perspective of the organisations' managers, through a longitudinal and triangulated evaluation of the TTM. The authors reflect on the evaluation of the TTM considering it as "an important part of the training

system". The investigation allowed to verify that, although training in TM is influenced by context and motivation, it has a positive impact for most participants. Van Eerde [34] tried to verify if there is any change in situations of procrastination after training in TM. A quasi-experimental design was used, which, despite not allowing conclusions about whether the training caused changes in the dependent variables, makes it more likely that a change can be attributed to the training. The investigation showed that training in TM reduced procrastination. Macan [35], through a quasi-experimental investigation, studied the effects of TTM based on 44 employees' self-reports on TM behaviour, control over their time, job satisfaction and responses to stress, and on supervisors' assessments of these employees' job performance. The authors found that perceptions of control over time increased in the training group participants, but job performance did not change significantly. Orpen [36] sought to test the effect of training in TM on 56 employees of an Australian company, half of whom participated in a training programme and the other half did not. The author found that the participants in the training group rated their TM significantly higher after the programme than the group that did not participate. Slaven & Totterdell [37] performed a behavioural assessment of the results of training in TM, examining both the perception and influence of behaviour at work, and the influence of the work environment on the results of training in TM. They found that training in TM improves knowledge and perception of TM skills. The participants stated that they implemented the knowledge acquired in their daily lives; however, the records did not show an increase in activity planning. The TM concept is not applicable to all jobs, and it was clear that TM training is applicable to jobs that have defined objectives, activities, and priorities, combined with a work environment, superiors and colleagues who are permeable to change. Woolfolk & Woolfolk [38] aimed to determine whether teachers manage their time more efficiently after receiving brief training in setting specific goals, making written plans, and using self-monitoring time. The significant result in the basic condition suggests that training in TM can reduce procrastination in intermediate terms.

2 METHODOLOGY

This research has a quantitative focus and is part of a case study research, namely in the context of quasi-experimental research. The case study "is a research method used in the field of Social Sciences that presupposes a rigorous presentation of empirical data, based on a combination of quantitative and qualitative evidence" [39]. A case study is "characterised by the deep and exhaustive study of one or a few objects, in order to allow wide-ranging and detailed knowledge of these objects" [40]. Yin (2018, p. 5) states that the case study "allows an investigation to preserve the holistic and meaningful characteristics of real life events – such as individual life cycles, organisational and administrative processes, changes in urban regions, international relations and the maturation of some sectors" [41]. While experimental research is guided by a study in which an intervention is deliberately introduced to observe its effects, in quasi-experimental research the units are not randomly assigned [28]. The quasi-experimental procedure tries to get closer to the real context, trying to control some conditions that can affect its internal validity.

2.1 Participants

99 workers working in the ARM (86.3%) and ARA (13.7%) participated in the 1st phase of this study (diagnosis on time management before the training in TM). Most of the participants are male (56.8%), have a higher education course (55.8%), are single (53.7%) and are 31 years old or older (70.5%), according to Table 1. Of these participants, 87 agreed to participate in the 2nd phase of the study (2nd moment of questionnaire administration), which took place two weeks after the training in TM. Data collection took place in 2021.

Table1: Sociodemographic characteristics of the sample (Phase 1): Distribution of the respondents (%).

Variable	Categories	%	Variable	Categories	%
Gender	Male	56.8	Higher education	No	44.2
	Female	43.2		Yes	55.8
Age	Less than 20 years	4.2	Marital status	Single	53.7
	Between 21 and 30 years old	25.3		married/de facto union	36.8
	Between 31 and 40 years old	38.9		Divorced/Separated/Widowed	9.5
	Between 41 and 50 years old	29.5			
	More than 50 years	2.1			

2.2 TM Training Programme and instruments

As part of the present study, the flexible TM model ([5-6]) was considered, focusing on three pillars (time perspective, self-recognition and TM), aimed at several organisations in the Portuguese outermost regions, in order to answer the following research question: "Was the training given efficient with regard to improvements in TM behaviours by trainees?". In this context, the following research hypothesis was considered: H1: "The average of the total scores obtained on the scale that evaluates the Time Management skills after training in TM (2nd phase) is higher than the average of the total scores obtained before the training (1st phase)".

The TM training programme (TMTP) was developed focusing on the three pillars of the flexible TM model: time perspective, self-recognition, and TM. The first phase had the purpose of framing each participant in their time perspective and understanding the ideal time perspective for each type of situation. In the second phase, each participant was encouraged to make a self-reflection about their mission, vision, and objectives, which will translate into a personal strategy. In the third phase, a set of TM principles was presented, considered applicable to the various labour practices that include goals, paradigm of importance, prioritisation, planning and monitoring of activities. The dependent and control variables were measured before training and two weeks after training. The training programme lasted three hours.

The questionnaire used, in addition to some sociodemographic variables, included the following scales, although only the results referring to the first scale are presented in this paper:

- TM Assessment (TMA) (20 items), which allows participants to evaluate how they manage their time, considering the classification of their activities as important or urgent. The items of this scale are measured from 1 (Rarely) to 5 (Very often). Cronbach's alpha coefficient values referring to the two phases (moments) of application of this scale pointed to a high internal consistency of the items that compose it (Cronbach's Alpha= 0.891 in phase 1; Cronbach's Alpha= 0.917 in phase 2). This scale consists of the following items: 1- I read selectively looking for information until I find what is important and highlighting it; 2- I make a list of tasks/activities to be performed every day / week; 3- At work, I keep everything in its proper place; 4- I organise the tasks I have to do according to their importance and urgency; 5- I focus on only one important task at a time, but I do several trivial tasks at once (such as signing letters while speaking on the phone); 6- I make a short-term to-do list (5 or 10 minutes); 7- I divide large projects into smaller and separate parts; 8- I identify which 20% of my tasks will produce 80% of the results; 9- I perform the most important tasks at the best time of the day; 10- I have a time during the day when I can work without interruptions; 11- I do not procrastinate. I do today what needs to be done; 12- Periodically, I evaluate the use of my time with the use of hours or schedules; 13- I set deadlines for myself; 14- I do something productive whenever I am waiting; 15- I perform routine work in a defined period during the day; 16- I finish at least one thing (task /activity) every day; 17- I schedule some time during the day for personal time (for planning, meditation, prayer, exercise); 18- I allow myself to worry about things only at a specific time during the day, not all the time; 19- I clearly set long-term goals for which I am working; and 20- I continually try to find small ways to use my time more efficiently.
- Perceived control of time, which integrates 5 of the 10 items of the TMBQ [14]. The response modalities for this set of items vary between 1 (never) and 5 (always).
- Scaled-down version of ZTPI (17 items - includes its original five factors and has appropriate model adjustment indexes. In addition, it is reliable in terms of internal consistency and temporal stability [10]. Items in this scale range from 1 (Never true) to 5 (Always true).

2.3 Procedure

Participants enrolled in the course on a voluntary basis, and randomness could not be attributed to the participating groups. The registration form has been made available online through Google Forms. The TMTP, lasting three hours, was taught in three sessions: one in person and two online, on May 14 and 22, 2021 and June 5, 2021. The questionnaire was administered (before and after training) through Google Forms, not only because they facilitate its application, but also because of the current context of the COVID-19 pandemic, one administration on the day of the program, before the start of training, and the second two weeks after training.

The data referring to the two collection phases were not paired, to avoid constraints on the part of the participants, thus ensuring the complete anonymity of the answers. The generated data were

subsequently transferred to the IBM SPSS Statistics software, with a view to performing the statistical analysis of the collected data. It should be noted that, after the information on the purpose of the study, the anonymity and confidentiality of the data has been given, the voluntary and informed consent of the participants has been requested in accordance with the General Data Protection Regulation. After completing and submitting the questionnaires, the answers were automatically recorded in the database. Before the questionnaire was administered to the sample under study, a pre-test was carried out, which allowed the analysis and correction of some gaps in spelling and discourse construction, facilitating the interpretation of the questions by the respondents.

2.4 Analysis

Statistical analysis was carried out using several statistical methods, including descriptive statistics, the Categorical Principal Component Analysis (CatPCA), the independent two-sample t-test and the Mann-Whitney U test. Hypothesis tests were used only as an indication, since the fact that the sample is not probabilistic conditions the generalisation of the results for the population.

The aim of Principal Components Analysis (PCA) is to reduce the dimensionality of the original data matrix (e.g., [42]). While the standard PCA assumes linear relationships among numeric variables, CatPCA (nonlinear equivalent of standard PCA) optimally quantifies categorical variables and can handle and evidence nonlinear relationships between variables. Thereby, in the present study, due to the ordinal nature of the scale items, CatPCA was applied (Rotation method: Varimax rotation with Kaiser normalization).

3 RESULTS

3.1 Item-to-item analysis

Table 2 contains the mode and quartiles (first quartile (Q1), second quartile (Q2) and third quartile (Q3)) values for each of the 20 items described in Section 2.

Table 2. Values of some summary statistics regarding the items of the TMA.

Items	Phase 1 (Before training)				Phase 2 (After training)			
	Mode	Q1	Q2	Q3	Mode	Q1	Q2	Q3
1	4	4	4	4	4	4	4	5
2	3	3	3	4	4	3	4	4
3	4	3	4	5	4	3	4	5
4	4	3	4	5	4	3	4	5
5	4	3	4	4	4	3	4	4
6	3	1	3	4	3	2	3	4
7	3	2	3	4	4	3	4	4
8	3	2	3	4	3	3	3	4
9	4	3	4	4	3*	3	4	5
10	3	2	3	4	3	3	3	4
11	3	3	3	4	3	3	3	4
12	3	2	3	4	4	3	4	4
13	4	3	4	5	4	3	4	5
14	3	3	3	4	3	3	4	4
15	3	3	3	4	4	3	4	4
16	4	3	4	5	4	3	4	5
17	5	3	4	5	4	3	4	5
18	3	2	3	4	3	3	3	4
19	4	3	4	5	4	3	4	5
20	4	3	4	4	4	3	4	4

*Multiple modes exist. The smallest value is shown

The TM behaviours most adopted by the participants before the training are those corresponding to items 1, 17, 3, 4, 13, 16 and 19, while the least adopted are those referring to items 18, 12, 6, 7, 8, 10 and 12, as shown in Table 2. After training, the TM behaviours most adopted by the participants are those that correspond to items 1, 3, 4, 9, 13, 16, 17 and 19, while the least adopted are related to items 6, 8, 10, 11 and 18.

To identify the items whose differences between phases 1 (before training) and 2 (after training) were statistically significant, the Mann-Whiney U test was used. The results point to the existence of significant differences between the two phases in terms of behaviours corresponding to items 2 (U=3326; p=0.013), 8 (U=3413; p=0.025), 10 (U=3122.5; p=0.002), 12 (U=2934.5; p=0.000), 15 (U=3455; p=0.000) and 18 (U=3503.5; p=0.000), with the mean ranks (MR) being higher after training. Thus, these items correspond to aspects related to TM behaviours that were significantly improved by the participants in the training, thus revealing that the training provided was efficient.

3.2 Categorical Principal Component Analysis (CatPCA) of the items

Applying a Categorical Principal Component Analysis, with Varimax rotation and Kaiser Normalization about the matrix consisting of the 20 items of the scale that assesses the behaviours of TM, five principal components (dimensions) were extracted. The percentage of variance accounted for (PVAF) across these components is 70.425% of the data's total variance.

Table 3 shows the loadings of each component after rotation, Cronbach's alpha coefficient values, the eigenvalues, and the percentage of variance explained by each component. All extracted components have eigenvalues greater than the unity. It should also be noted that the principal components 1, 3, 4 and 5 have a satisfactory internal consistency, while the second component has an acceptable internal consistency.

Table 3. CatPCA: Rotated component loadings of the 5-component solution.

	Component				
	1	2	3	4	5
1		0.749			
2					0.741
3		0.745			
4	0.744				
5				0.874	
6	0.485				
7	0.531				
8	0.629				
9			0.498		
10		0.771			
11	0.826				
12					0.813
13	0.611				
14	0.695				
15	0.407				
16					0.485
17			0.791		
18			0.901		
19	0.712				
20				0.654	
Cronbach's Alpha	0.891	0.675	0.732	0.809	0.778
Eigenvalue (VAF)	4.685	2.53	2.399	2.372	2.099
Percentage accounted (PVAF)	23.425	12.648	11.994	11.861	10.497

Variable Principal Normalisation. Rotation Method: Varimax with Kaiser Normalization.

Source: Own elaboration.

The items 4, 6, 7, 8, 11, 13, 14 and 19 are associated with the first component, that was called "**Prioritisation and organisation of tasks**". The items 1, 3 and 10 are the most important items for the second component. Thereby, this component was named "**Organisation and focus on work**". The items 9, 17 and 18 are correlated with the third component, which was called "**Separation between personal and professional life**". The items 5 and 20 are the most important items for the fourth component, and consequently this component was called "**Time optimisation**". The fifth component exhibits the strongest correlations with the items 2, 12 and 16, and for this reason this component can be called "**Work planning**". The implementation of CatPCA has thus reduced the dimensionality of the data and identified five key aspects within an efficient TM.

3.3 Analysis of the total scores

Table 4 contains some summary statistics regarding the scores (sum of the scores of the 20 items) obtained in the scale that assesses the time management skills before and after training in TM.

Table 4. Some summary statistics regarding the total scores obtained in both phases.

<i>Phases</i>	<i>n</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Std. Error Mean</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>
1st phase (Before training)	95	68.57	12.392	1.271	60.00	68.00	79.00
2nd phase (After training)	88	73.72	11.890	1.268	66.25	75.0	81.00

From Table 5, it is verified that the values of the mean and quartiles were higher after the training.

The application of the comparison test of two population means for the case of two independent samples allowed us to conclude that the average of the scores obtained in the 2nd moment is higher than the mean of the scores obtained in the 1st moment ($t=-2.863$; $p=0.0025$). Thus, our main research hypothesis (H1) is supported.

4 CONCLUSIONS

Personal strategic planning allows personal reflection, defining its mission, vision, values, and objectives [43]. There are numerous models that are sometimes not applied for lack of knowledge and/or lack of training [43]. Sardinha *et al.* [6] analysed some models of time management and found that the current models do not distinguish between different time perspectives, not alluding to the uniqueness of each human being, also presenting a flexible time management model. It is in this context that this research emerges that aims to apply a flexible Working Group model to several organisations and evaluate the assumed evidence of the benefits of this implementation. One face-to-face and two online training courses in TM were given to workers from the two Portuguese outermost regions, the ARA, and the ARM. The administration of online training has allowed for greater training as well as the administration of training in these regions, at the same time. The programme was developed focusing on the three pillars of the flexible TG model proposed by the authors: time perspective, self-recognition, and TM.

The dependent variables were measured before training and two weeks after training. The training programme lasted three hours. In general, statistically significant differences were found ($p < 0.001$) between the means of the total scores obtained in the scale that evaluates the TM behaviours in the two moments in which the questionnaire was administered, which were higher in the 2nd moment, after the training in TM, so that the training taught proved to be effective, to the extent that it led the participants to change some of their behaviours, thus contributing to a better TM on the part of the trainees. Moreover, the implementation of CatPCA has reduced data dimensionality and identified five key aspects within an efficient TM.

The application of the TMA in the business context, especially in the case of small and medium-sized enterprises, may allow the implementation of actions, in a personalised way, aiming to fix all possible factors that may contribute to their failure regarding TM, in the context of a monitoring of the type recommended in Silva *et al.* [44], based on the use of information and communication technologies.

4.1 Limitations and Future Suggestions

The theme of time management training is not exhausted by the present study. An evident limitation is that the sample is not probabilistic, which conditions the generalisation of the results for the population. Although the quasi-experimental methodology allows for research control, the lack of a control group

may be a limitation. As future suggestions it is recommended the design of a training course with the same duration, but on different days, allowing the assimilation of acquired knowledge, or even prolonged interventions to obtain consistent results and techniques to improve the transfer of knowledge (online training, post-training assistance, workshops), as suggested by Häfner & Stock [33]. It is also suggested the validation of the model, from the training designed according to the flexible time management model proposed, through its application to other people, building a database with the results and evaluating them. The model can be an academic reference and useful for management consultants. In future research, the development of a self-assessment scale based on the 3 pillars of the flexible time management model developed by Sardinha *et al.* [6] is suggested.

ACKNOWLEDGEMENTS

This paper is financed by Portuguese national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., project number UIDB/00685/2020.

REFERENCES

- [1] Comissão Europeia, Guia do utilizador relativo à definição de PME, 2015 [cited 2019 Feb. 3]. Retrieved from: <http://europa.eu>
- [2] Comissão Europeia D-G da PR e U, *As Regiões Ultraperiféricas Terras no Mundo - Política Regional e Urbana*, Luxemburgo; 2017 [cited 2019 Jul. 19]. Retrieved from: http://ec.europa.eu/regional_policy/index_en.htm
- [3] Censos, INE - *Plataforma de divulgação dos Censos 2021 – Resultados Preliminares*, 2021 [cited 2021 Aug 17]. Retrieved from: https://censos.ine.pt/scripts/db_censos_2021.html
- [4] L. Sardinha, Á. Sousa, E. Leite, P. Fernandes, "O setor empresarial nas regiões ultraperiféricas portuguesas – Uma década em perspetiva", *E3 - Revista de Economia, Empresas e Empreendedores na CPLP*, vol. 3, no. 1, 3–24, 2020.
- [5] L. Sardinha, Á. Sousa, E. Leite, H. Ribeiro, A. Carvalho, "The Relationship between time management behavior and time perspective: a case study in the context of outermost regions", in *66th International Scientific Conference on Economic and Social Development*, 2021. ESD 2021, pp. 230–40, 2021.
- [6] L. Sardinha, Á. Sousa, E. Leite, H. Ribeiro, A. Carvalho, "A flexible Time Managment Model Proposal" in *63 rd International Scientific Conference on Economic and Social Development – "Building Resilient Society"*, 2020. ESD 2020, pp. 11–2, 2020.
- [7] B. Aeon, H. Aguinis, "It's about time: New Perspectives and insights on time management", *Academy of Management Perspectives*, vol. 31, no. 4, 309–30, 2017.
- [8] B. Bajec, "Relationship Between Time Perspective and Time Management Behaviours", *Psihologija*, vol. 52, no. 2, 197–215, 2019.
- [9] T. Macan, "Time management: test of a process model", *Journal of Applied Psychology*, vol. 79, no. 3, 381–391, 1994.
- [10] G. Orosz, E. Dombi, I. Tóth-Király, C. Roland-Lévy, "The Less is More: The 17-Item Zimbardo Time Perspective Inventory", *Current Psychology*, vol. 36, no. 1, 39–47, 2017.
- [11] Montana Public Health Association, *Conference The Power of Story - MPHA Annual Conference: Time Management Assessment*, 2016 [cited 2021 Aug 24]. Retrieved from: <https://www.mtpha.com/page/PPHandouts>
- [12] H. Fliege, M. Rose, P. Arck, O. Walter, R. Kocalevent, C. Weber, et al. "The Perceived Stress Questionnaire (PSQ) reconsidered: Validation and reference values from different clinical and healthy adult samples", *Psychosomatic Medicine*, vol. 67, no. 1, 78–88, 2005.
- [13] D. Muste, "Time Management applied in education", in *The European Proceedings of Social & Behavioural Sciences*, 2019. *EpSBS 2019*, p. 77–82, 2019.
- [14] A. Häfner, A. Stock, V. Oberst, "Decreasing students' stress through time management training: an intervention study", *European Journal of Psychology of Education*, vol. 30, no. 1, 81–4, 2015.

- [15] Y. Souza, V. Mafra, J. Oliveira, "Gestão de tempo – Proposta e aplicação de metodologia para gestão de tempo em uma agência bancária", *Fafibe On-Line [Internet]*, vol. 8, no. 1, 218–228, 2015 [cited 2019 Apr 28]. Retrieved from: <http://unifafibe.com.br/revistasonline/arquivos/revistafafibeonline/sumario/36/30102015185112.pdf>
- [16] J. Zhang, J. Hailong, "Study on the Time Management and Self-controlled Learning of Students in Local Colleges and Universities in Transition.", in *Proceedings of the 2nd International Conference on Culture, Education and Economic Development of Modern Society*, 2018. ICCSE 2018. *Advances in Social Science, Education and Humanities Research*, p. 188–192, 2018.
- [17] G. Adams, S. Jex, "Relationships between time management, control, work-family conflict, and strain", *Journal of Occupational Health Psychology*, vol., no. 1, 72–77, 1999.
- [18] W. Orlikowski, J. Yates, "It's About Time - Temporal structuring in organizations", *Organization Science*, vol. 13, no. 6, 684–700, 2002.
- [19] T. Reunanen, R. Windahl, H. Vanharanta, "Innovativeness Through Time Management", in *Advances in Human Factors, Business Management, Training and Education. Advances in Intelligent Systems and Computing* (J.. Kantola et al. (eds.)), vol. 498, 289-299, Springer, Cham., 2017. https://doi.org/10.1007/978-3-319-42070-7_27
- [20] C. Grunschel, J. Patrzek, K. Klingsieck, S. Fries, " " I ' ll stop procrastinating now ! " Fostering specific processes of self-regulated learning to reduce academic procrastination", *Journal of Prevention & Intervention in the Community*, vol. 46, no. 2, 143–57, 2018. Retrieved from: <https://doi.org/10.1080/10852352.2016.1198166>
- [21] C. Wolters, S. Won, M. Hussain, "Examining the relations of time management and procrastination within a model of self-regulated learning", *Metacognition Learning*, vol.12, no. 3, 381–399, 2017.
- [22] S. R. Covey, *O 8º hábito - Da eficácia à grandeza*. Rio de Janeiro: Gradiva, 2017.
- [23] A. Toffler, *"A terceira vaga"*. Livros do Brasil, 1999.
- [24] Z. Molaei, H. Asadzadeh, F. Dortaj, "Parallel Programming: A Model for Time Management, Improving the Academic Achievement", *Procedia-Social and Behavioral Sciences*, vol. 112, 333–341, 2014
- [25] P. Green, D. Skinner, "Does time management training work ? An evaluation", *International Journal of Training and Development*, vol. 9, no. 2, 2005.
- [26] A. Häfner, A. Stock, L. Pinneker, S. Ströhle, "Stress prevention through a time management training intervention: An experimental study", *Educational Psychology*, vol. 34, no. 3, 403–416, 2014.
- [27] S. R. Covey, *Os 7 Hábitos das Pessoas Altamente Eficazes- Lições poderosas para a transformação pessoal*. Gradiva, 2017.
- [28] R. Shadish, T. Cook, D. Campbell, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin Company, 2002.
- [29] M. Frese, S. Beimeel, S. Schoenborn, "Action training for charismatic leadership : Two evaluations of studies of a commercial training module on inspirational communication of a vision.", *Personnel Psychology*, vol. 56, no. 3, 671–697, 2003.
- [30] Y. Souza, V. Mafra, J. Oliveira, "Gestão de tempo – Proposta e aplicação de metodologia para gestão de tempo em uma agência bancária", *Fafibe On-Line [Internet]*, vol 8, no. 1, 218–28, 2015. [cited 2019 Apr. 28] Retrieved from: <http://unifafibe.com.br/revistasonline/arquivos/revistafafibeonline/sumario/36/30102015185112.pdf>
- [31] K. Nadinloyi, N. Hajloo, N. Garamaleki, H. Sadeghi, "The Study Efficacy of Time Management Training on Increase Academic Time Management of Students", in *Procedia-Social and Behavioral Sciences*, vol. 84, 134–138, 2013. Retrieved from: <http://dx.doi.org/10.1016/j.sbspro.2013.06.523>
- [32] E. Indreica, A. Cazan, C. Truța, "Effects of learning styles and time management on academic achievement", *Procedia-Social and Behavioral Sciences*, vol. 30, 1096–1102, 2011.
- [33] A. Häfner, A. Stock, "Time management training and perceived control of time at work", *J Psychol Interdiscipl Appl.*, vol.144, no. 5, 429–447, 2010.

- [34] W. Van Eerde, Procrastination at work and time management training, *Journal of Psychology: Interdisciplinary and Applied*, vol.137, no. 5, 421–434, 2003.
- [35] T. Macan, "Time-management training: Effects on time behaviors, attitudes, and job performance", *Journal of Psychology*, vol. 130, no. 3, 229–36, 1996.
- [36] C. Orpen, "The effect of time-management training on employee attitudes and behavior: A field experiment", *Journal of Psychology: Interdisciplinary and Applied*, vol. 128, no. 4, 393–396, 1994.
- [37] G. Slaven, P. Totterdell, "Time management training: does it transfer to the workplace?", *Journal of Managerial Psychology*, vol. 8, no. 1, 20–8, 1993.
- [38] A. Woolfolk, R. Woolfolk, "Time Management: an experimental investigation", *Journal of School Psychology*, vol. 24, 267–275, 1986.
- [39] A. M. Barañano, *Métodos e Técnicas de Investigação em Gestão*. Lisboa: Edições Sílabo, 2008.
- [40] A. C. Gil, *Como Elaborar Projetos de pesquisa*, São Paulo: Editora Atlas, 6ª ed., 2017.
- [41] R. K. Yin, *Case Study Research and Applications*. Thousand Oaks: SAGE Publications Inc, 6th ed, 2018.
- [42] J. Lattin, J. Carrol, P. Green, *Analyzing Multivariate Data*, Pacific Grove, CA: Thomson Brooks/Cole, 1st ed., 2003.
- [43] L. Sardinha, Á. Sousa, E. Leite. "Recurso Tempo: uma ferramenta estratégica de gestão", *A Pátria* [Internet], 2019 [cited 2019 Oct 27]. Retrieved from: <https://apatia.org/artigo/recurso-tempo-uma-ferramenta-estrategica-de-gestao/>
- [44] O. Silva, O., J. Nunes, Á. Sousa, and J. Cabral, "Monitoring system in the context of a technological distance teaching-learning environment", in 9th International Conference on Education and New Learning Technologies, 2017. EDULEARN17, pp. 1215-1220., 2017, IATED Academy. doi: 10.21125/edulearn.2017.1258