Dancing between Theory and Practice: Enhancing Work Engagement through Work Stress Intervention

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Abstract

This quasi-experimental and longitudinal study assesses the effectiveness of a work stress intervention (i.e., Team Redesign) to increase job and personal resources and to consequently reduce job strain and increase employee psychosocial well-being in an enamel manufacturing company following the Resources-Experiences-Demands Model (RED Model) and within the Action-Research approach. The sample consisted of 108 employees at Time 1 and 72 employees at Time 2. Repeated-measures multivariable analysis of variance (MANOVA) showed that the Time × Intervention interaction had reliable, positive, and incremental effects on job resources (i.e., innovation climate), personal resources (i.e., professional self-efficacy and perceived competence), and motivational outcomes (i.e., work engagement, vigor, and dedication) on the intervention group (laboratory team, $n = 9$) when compared with the control group ($n = 63$ employees from different departments). Finally, we discuss the theoretical and practical implications based on the RED Model, including the feedback from Intervention (Action) to Theory (Research). © 2010 Wiley Periodicals, Inc.

Keywords: Work stress intervention; Well-being; Demands; Resources; Self-efficacy; Action-Research; Engagement

1. INTRODUCTION

The manufacturing industry has a long history of assessing and intervening in health and safety at work (i.e., Emmons, Marcus, Linnan, & Rossi, 1994; Picard et al., 2008; Yen, Edington, & Witting, 1991; see also Heidel, 2008). Risk assessment has become a key tool for organizations (both top management and employees' representatives) to enhance quality of working life given its potential to avoid accidents and improve working conditions. This risk assessment has focused, however, on physical and ergonomics factors, such as musculoskeletal disorders (see Pascual, Frazer, Wells, & Cole, 2008; Rinder, Genaidy, Salem, Shell, & Karwowski, 2008; Tuncel et al., 2008), while wider psychological problems have been ignored (Jensen, 2001). According to the Sixth Spanish National Survey of Work Conditions (Spanish National Institute of Occupational Safety and Health at Work, 2007) only 9.6% of Spanish manufacturing companies have assessed mental and organizational aspects of work, focusing mainly on the assessment of noise, safety (of machinery, equipment, materials, and work postures), repetitive movements, and physical effort even though, according the aforementioned survey, a high percentage of employees in the manufacturing industry (34%) suffer stress and other psychosomatic complaints (headache, depression, and insomnia), a percentage surpassed only by back pain complaints (44%). In fact, according to the Fourth European Working Conditions Survey (European Foundation for the Improvement of Living and Working Conditions, 2007), the manufacturing

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industry might be included in the group of high-strain work organizations (high demands, low control-autonomy). Clearly, then, developing a methodology that supports the assessment of psychosocial factors in the manufacturing industry is an important task for occupational health research.

Factors that have received little attention in this regard are assessment and intervention on psychosocial factors. This lack of Occupational Stress Management Intervention Programs (OSMIPs) and the assessment of their effectiveness are even more obvious in the manufacturing sector. For example, a recent meta-analysis performed by Richardson and Rothstein (2008) about the effects of OSMIP considered 36 studies, and found that only one had been developed in office workers of a manufacturing company.

Beyond the sector of assessment/intervention, studies concerning effectiveness of work stress intervention (WSI) in general are scarce, mainly because this research is full of obstacles, for instance, 1) excessive emphasis on intervention at the individual employee level, 2) difficulty in implementing intervention programs, and 3) unclear links to theoretical models (Lipsey & Cordray, 2000).

In relation to the first obstacle, stress prevention programs predominantly focus on the individual and reactive (nonproactive) levels (e.g., Kahn & Byosiere, 1992). This means that intervention programs, which focus only on an individual level, teach employees to cope with strain, but ignore the causes of strain (e.g., work characteristics that are demanding and stressful to employees; Beehr & O'Hara, 1987). The study on WSI effectiveness also follows this trend. In that sense, Van der Klink, Blonk, Schene, and van Dijk (2001) carried out a meta-analysis of 48 well-designed (quasi-) experimental studies about WSI effectiveness, and found that only 5 of them focused on the organizational level. The most recent meta-analysis conducted by Richardson and Rothstein (2008) reinforces this result as it found that only 5 of the 55 initially included studies actually focused on the organizational level. Proactive–preventive intervention, which centers on the organizational level or which targets the stressors at their source (i.e., organization of work, working conditions), seems to be the most effective, however (for a systematic review of the job-stress intervention evaluation literature, see Lamontagne, Keegel, Louie, Ostry, & Landsbergis, 2007).

In relation to the second obstacle and to the weakness of the current WSI effectiveness research designs, we wish to stress the fact that few studies have conducted quasi-experimental and longitudinal studies (and even fewer focus on theoretical backgrounds; see Bond & Bunce, 2001; Landsbergis & Vivona-Vaughan, 1995) because it is difficult to implement them in real organizations.

The third obstacle is the core of the current study: the need to link the theoretical and the practical points of view. The theory and practice of stress management and interventions (SMI) seem to be separate scopes that are difficult to join. To advance and shorten this distance between research and practice, we need methodological approaches. Both the second and third obstacles can be overcome by the Action-Research (AR) approach, which constitutes a methodological approach to guide not only the assessment, but also the intervention in SMI grounded on a theoretical background (third obstacle) based on quasi-experimental and longitudinal studies (second obstacle). Briefly, the AR approach is the change process based on systematic data collection and the selection of an action (intervention) based on results when organizational constraints allow it (Robbins, 2005). As this is the basis of the current study, we will come to it later (in Section 1.1).

Finally, we wish to point out a last weak point of current occupational health research. At this point, we consider it important to take into account not only stress but also health indicators (i.e., negative health indicators or strain and positive psychological well-being) when studying WSI effectiveness. Along these lines, research on occupational health psychology (OHP), in general, has focused mainly on negative work-related outcomes (Schaufeli & Bakker, 2004). Nowadays, however, we see a shift from the traditional focus on weaknesses and malfunctioning to human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000), which is the so-called positive psychology movement. We believe that it is one of the sides that the OHP in general, and research on WSI effectiveness in particular, should take into account to consider the whole phenomenon.

This study addresses these issues, and proposes and develops a methodology based on the AR approach that allows not only the assessment of, but also intervention regarding, psychosocial factors in a manufacturing company by grounding and fostering the whole process theoretically on the Resources-Experiences-Demands (RED) Model (Salanova, Cifre, Llorens, Martínez, & Lorente, 2011).

1.1. AR Approach

Several authors have recommended stress reduction programs. For example, Kahn and Byosiere (1992) and Kompier, Geurts, Grundemann, Vink, and Smulders (1998) suggested that the systematic identification of stress risk factors and risk groups should be the basis of the type of intervention used in stress reduction programs. An optimal fit between intervention and the target of such intervention is not possible without systematic risk assessment, which may finally result in the absence of an effect. Indeed, intervention effectiveness is hard to assess without this systematic identification and assessment. One well-known framework that facilitates this systematic approach is the so-called AR approach.

Briefly, one definition of the AR approach is an "emergent inquiry process in which behavioral science knowledge is integrated with existing organizational knowledge and applied to solve real organizational problems. . . It is an evolving change process that is undertaken in a spirit of collaboration and coinquiry" (Shani & Pasmore, 1985, p. 439). As mentioned, the AR approach is the change process based on systematic data collection and the selection of an action (intervention) based on results when organizational constraints allow it (Robbins, 2005). Therefore, the aim of this approach is to provide a methodology to handle planned changes. From our point of view, there are at least three strong points that support this approach for the study and intervention on occupational health in organizations. First, it represents a collaborative and participative relationship between researchers and stakeholders because of "a double purpose which runs in parallel: The research ends are the researcher's reason for getting involved, but the intervention itself is driven by the clients' needs and usually initiated by the client" (Huxham & Vangen, 2003, p. 385). This collaboration allows the intervention actions derived from the assessment to be tailored to the context of each organization. Besides, this heavy employee involvement reduces resistance to change (Robbins, 2005). Second, it consists of a systematic and cyclical process to approach the organizational phenomena overcoming "the dual purpose of bringing about practical transformation and advancing knowledge" (Huxham & Vangen, 2003, p. 384). This means that the AR concurrently solves problems and creates new knowledge (Khanlou & Peter, 2005), in other words, problem-solving is based on previous theory, and it adds new insights into this preexisting theory after completing interventions. As far as we are aware, however, there are no empirical studies that evidence this feedback from action to research. Third and finally, the AR approach represents a step forward to the WSI by its cyclical process, taking into account not only the intervention, but also the assessment of its effectiveness.

In relation to the second point, the theory and practice of WSI appear to be separate scopes that prove difficult to combine. This is precisely one of the strong points of the AR approach, as explained earlier in text. Specifically, and with a view to advancing and bridging this distance between research and practice, the AR approach requires theoretical background as a starting point, although it gives researchers the chance to select that which better suits their interpretation of reality. At this point, we consider that the RED Model (Salanova et al., 2011) fulfills this need because of its theoretical and empirical background, and given its specificity as it has been validated in the construction sector (which is included in the manufacturing industry).

1.2. Theoretical Background: The RED Model

The RED Model (Salanova et al., 2011) extends the Dual Process Model (Schaufeli & Bakker, 2004) which, in turn, extends the Job Demands-Resources (JD-R) Model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The JD-R Model indicates that the amount of stress experienced at work results from the combination of the job demands and job resources available to cope with these demands. Job demands (i.e., quantitative overload, role conflict) refer to those physical, psychological, social or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) efforts or skills, and are, therefore, associated with certain physiological and/or psychological costs. Job resources (i.e., social support, job control) refer to those physical, psychological, social, or organizational aspects of the job that 1) are functional in achieving work goals; 2) reduce job demands and the associated physiological and psychological costs; and 3) stimulate personal growth, learning, and development. Hence, resources are not only necessary to deal with job demands, but are also important in their own right.

The JD-R Model focuses mainly on negative results, such as employee burnout. Later, Schaufeli and

Bakker (2004) extended this model to the Dual Process Model by including not only negative outcomes of stress but also positive ones, such as work engagement. The model assumes two different underlying psychological processes that play a role in the development of psychological well-being outcomes: the Erosion Process (which leads to exhaustion and long-term burnout) and the Motivational Process (which leads to high work engagement and then to excellent performance) (see Schaufeli & Bakker, 2004, for a review).

The Dual Process Model, however, does not pay attention to the special and somewhat "crucial" resources that, from our point of view, make the model completely meaningful (i.e., personal resources). These personal resources (i.e., self-efficacy, perceived competence) affect not only the stress process as to how a person appraises the situation, but also both the actual coping process and recovery from the job stress process. Thus, individuals with greater personal resources handle stress more effectively and may recover from experienced stress more quickly (Salanova, Bakker, & Llorens, 2006; Salanova, Grau, Cifre, & Llorens, 2000; Salanova, Peiró, & Schaufeli, 2002). This is the reason why the RED Model includes personal resources, thus extending the previous Dual Process Model described earlier in text. In that sense, the RED Model sees self-efficacy as a personal resource that plays a key role in coping with stress (Salanova, Grau, Llorens, & Schaufeli, 2001; Salanova et al., 2002), which the Social Cognitive Theory (SCT) supports (Bandura, 2002). In this sense, decades of empirical research have generated numerous studies that demonstrate positive relationships between task-specific self-efficacy and different motivational and behavioral outcomes in a variety of work and organizational settings (Stanjovic & Luthans, 1998; Latham, 2005; as cited by Salanova et al., 2011). There is a reason for this: When efficacy belief levels are high and individuals believe they can control their environment effectively, they are more likely to perceive job demands as challenging, and job and other personal resources as abundant. Consequently, individuals are more likely to be engaged in their tasks and perform well (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2009). It is important to note then that efficacy beliefs play a key and differential role in this RED Model. In this sense, the RED Model considers that efficacy beliefs perform as an antecedent of demands and resources (Salanova et al., 2011). Hence, we should consider self-efficacy sources (i.e., mastery experiences, vicarious experiences, social persuasion, and somatic and emotional states; see Bandura, 2002, for a longer description) when planning interventions.

1.3. Aim of the Study

In short, the aim of this article is to describe a WSI program based on the empirical results of a manufacturing company following the AR approach and grounded on the RED Model. In doing so, our intention is to overcome some of the obstacles and weaknesses of the stress intervention literature. To overcome these obstacles and weaknesses, we perform the following actions:

- We systematically identify stress risk factors (high job demands and low job/personal resources) and risk groups (groups in the organization with the poorest psychological employee well-being). If we commence with this identification, intervention at both the organizational and group levels also focuses on the psychosocial factors that may promote positive psychological well-being and diminish employees' negative psychological well-being. Thus, this involves considering not only the negative (i.e., burnout, anxiety, and depression), but also the positive (i.e., engagement, flow, and satisfaction) psychosocial constructs in attempt to capture both sides of the employee well-being indicators.
- We clearly link a theoretical model to practice/intervention. In this way, the RED Model will orient both assessment and intervention in the whole stress program. This theoretical model will help researchers to interpret the reality in the company (Research) and to decide which interventions (Actions) would be the most appropriate. Besides, we will also stress the importance of an alternative way (i.e., we will emphasize the main contributions to theory that the evaluation of the WSI will provide). As noted earlier in text, and as far as we know, this relationship has not been stressed in the empirical studies.
- We study the WSI effectiveness by 1) using a quasi-experimental longitudinal study (T1-intervention-T2, where T1 = Time 1 and T2 = Time 2), which includes an intervention and a control group to overcome the weakness of previous research designs; 2) doing a longitudinal study to assess the effectiveness of

the interventions; and 3) performing complex statistical analysis such as repeated-measures multivariable analysis of variance (MANOVA), which considers both quasi-experimental conditions (intervention group vs. control group) and the development of the phenomena over time (T1-T2).

According to the RED Model, we propose that intervention will decrease job demands and will foster (personal and job) resources which, in turn, will be related to employee well-being at work. We tested this proposition in a case study in a manufacturing company by taking into account the whole organization (both shop floor and office environments). First, we assessed the psychosocial factors in all the areas of the organization (Time 1, T1). Second, we intervened in one of the most conflictive areas by proposing interventions grounded on our theoretical model. Finally, we assessed the effectiveness of these interventions in decreasing job demands and increasing (job/personal) resources and employee well-being at work (Time 2, T2).

Thus, on the basis of these arguments, the following are our hypotheses:

Hypothesis 1: Employees in the intervened area will report increases in job/personal resources when compared with the control group over time.

Hypothesis 2: Employees in the intervened area will report decreases in job demands when compared with the control group over time.

Hypothesis 3: Employees in the intervened area will report decreases in strain and increase of employee well-being when compared with the control group over time.

Hypothesis 4: An interaction effect of Time × Intervention in both job demands-job/personal resources and employee well-being is expected.

Hence, according to the RED Model, a decrease in job demands accompanied by an increase in job and personal resources will lead to an increase in employee well-being at work. Then, this increase will be due to not only the time flow, but also to the interventions performed (Hypothesis 4). Therefore, this will be the central point of our interventions, and will become specific (with resources and demands, according to the assessment outcomes) throughout the study.

2. STUDY DESIGN AND SAMPLE: THE AR PROCESS

We designed an intervention program as a field quasi-experimental study for the purpose of measuring the effects of group interventions on psychosocial variables. We carried out a two-wave longitudinal design in a Spanish production branch of a multinational enamel company. According to the AR approach, the study design process included five phases (Robbins, 2005): 1) diagnosis, 2) data analysis, 3) feedback survey, 4) intervention, and 5) postintervention assessment.

2.1. Diagnosis Phase

We used self-report questionnaires to carry out the preintervention assessment (pretest) that involved a T1 pretest or psychosocial risk assessment. After several meetings with top management, the health and safety prevention manager, the human resources manager, and all the immediate supervisors of each company area, the diagnosis phase took place through a document review, and we handed out self-report questionnaires to all the company staff.

To encourage the participants to complete the self-report questionnaires, a meeting took place between the researchers and the immediate supervisors to explain the aim of the full psychosocial risk assessment and the intervention program and to request their collaboration. The immediate supervisors delivered 184 self-report questionnaires to the employees, who had to return the completed questionnaires to the researchers in sealed envelopes. This study ensured individual anonymity as the questionnaire included only the working area and a code known only by each worker. Finally, 108 respondents (74% men) returned the questionnaire (58% response rate). Employees belonged to eight different areas or departments (24% technical and sales assistance area, 19% enamel production plant, 18% office and central services, 14% maintenance, 9% color laboratory, 7% warehouse, 5% special products laboratory, 4% chemical analyses laboratory). The mean age of the sample at T1 was 38 years (standard deviation [SD] = 11), with an average organizational tenure of 11 years (SD = 10).

We assessed job demands, job resources, and personal resources (i.e., self-efficacy) as well as employee well-being indicators (see Table 1).

Research members translated the scales from English to Spanish, and then native English speakers translated them back into English to test their adequacy with the original ones. Previous studies validated all these scales (Cifre, Llorens, & Salanova, 2003; Cifre & Salanova, 2002; Martínez, Cifre, & Salanova, 1999; Salanova et al., 2002; 2006), except the "training" scale (self-constructed) as this study measured its validity. All the items were scored on a 7-point frequency rating scale ranging from 0 ("never") to 6 ("always"). Table 1 shows the key aspects of those scales, including their internal consistencies (Cronbach's α values, in T1 and T2).

2.2. Data Analysis

The data analysis phase covered both the data analysis and the preparation of an overall results report and eight area reports (one for each aforementioned area), all of which compared the risk assessment among areas and among companies (internal and external benchmarking). The data analysis phase took 2 months. We compared all the variables from the different areas with a large database from previous studies belonging to the research team (external benchmarking). Analyses with this large database allowed researchers to locate cutoff points for low (−1 *SD*) and high (+1 *SD*) scores in all the areas of this company. We delivered a report of the overall results to the top company management. The researchers kept the particular results reports per area to show them to the employees in the feedback survey phase.

2.3. Feedback Survey Phase

After reporting the main obtained results to top management, we performed the feedback survey phase (Step 3). This steps was one of the most important. Based on previous data analyses, the aim of this phase was to focus on reporting the results per area to those employees who participated and, by using the feedback survey technique, to compare the results with the rest of the company. The researchers organized and led a meeting for all the supervisors and employees of each area to attend (one meeting per area). During the meeting, the researchers distributed the results report of their area to all the attendees. This technique 1) allowed employees to explain the results in their own words, and 2) provided key qualitative information about them. Besides, we gave the employees the chance to propose improvement strategies. The researchers encouraged this form of participation to increase employees' commitment to the final strategies adopted. Then, the researchers prepared a new report by summarizing all the intervention proposals of the particular area, which they delivered to top management of the company.

2.4. Intervention Phase

Owing to the organizational constraints operating within the company, it was not possible to either randomly allocate participants to the intervention or control groups or to intervene in those groups showing the poorest well-being indicators. Because of company policy, the top management agreed to perform some of the interventions proposed by the research team only in the color laboratory area.

According to the results obtained in Phase 2 (data analyses) and Phase 3 (feedback survey), the main psychosocial risks in the color laboratory area were those related to low job resources, such as job autonomy, innovation climate, and perceived training quality. By taking these results into account, we decided to carry out a "Team Redesign" intervention program that consisted of two main actions:

1. Role redesign. An in-depth interview with the supervisor revealed that he did not feel comfortable in his job as he was performing a job that did not match his competencies. In particular, he showed a low degree of social competencies in terms of all those that deal with the supervising activities expected by the company (i.e., empowering employees, communicating relevant information). After negotiation, the supervisor preferred to be relocated to another area and to another job which better matched his technical and social competencies and which did not require leading competencies. In the intervened area, the supervisory role was performed by another member with supervisory competences, and with the trust and support of her coworkers. Moreover, to increase job control and the innovation climate, we divided the area into two subareas according to the similar roles and competencies

TABLE 1. Scales Used in the Study with Their Means (M), Standard Deviations (SD), and Internal Consistencies (*Cronbach's* α) ($N = 72$)

Factor Assessed	Original Authors' Scale	Example of Item (No. of Items)	*M* T1	*SD* T1	*M* T2	*SD* T2	α T1	α T2
Demands								
Quantitative overload	Beehr, Walsh, & Taber (1976)	"I have too much work for it to be done properly" (3)	2.45	1.56	2.35	1.69	.89	.87
Low role clarity	Rizzo, House, & Lirtzman (1970)	"What I must do in my job is clearly specified" (8)	4.62	0.73	4.74	0.88	.78	.85
Role conflict	Rizzo, House, & Lirtzman (1970)	"I receive incompatible demands from two people or more" (8)	1.55	1.01	1.61	1.00	.81	.77
Job Resources								
Autonomy	Jackson, Wall, Martin, & Davis (1993)	"I have the discretion to decide what tasks I will do during my working day" (5)	4.56	0.87	3.67	1.36	.90	.90
Organizational support climate	Scale extracted from the FOCUS Organizational Culture Questionnaire (Van Muijen et al., 1999)	"People help their partners to get the work done" (3)	3.85	1.17	4.05	0.95	.88	.76
Organizational innovation climate	Scale extracted from the FOCUS Organizational Culture Questionnaire (Van Muijen et al., 1999)	"Suggestions to improve the efficacy and quality of my work are welcomed" (3)	3.73	1.12	3.98	1.23	.77	.89
Organizational training	Self constructed	"The company considers my present or future training needs before it organizes training" (8)	3.28	1.25	3.58	1.25	.87	.90
Personal Resources								
Professional self-efficacy	Adapted to work from the generalized Self-Efficacy by Schwarzer (1999)	"I can solve most problems if I make the necessary effort" (10)	4.90	0.76	4.93	0.80	.86	.71
Perceived competence	MBI-GS (Maslach Burnout Inventory-General Survey, Schaufeli, Leiter, Maslach, & Jackson, 1996)	"In my opinion, I am good at my job" (6)	4.61	0.85	4.70	0.91	.94	.95
Positive Psychosocial Well-Being Indicators								
Work satisfaction	Face Scale (Kunin, 1955)	Satisfaction with the work itself, with group/ workmates and with the organization (3)	4.61	0.85	4.58	0.85	.71	.81
Flow at work	WOrk-reLated Flow scale (WOLF, Bakker, 2001)							
Happiness		"I feel happy while I am working" (4)	4.71	1.03	4.49	1.20	.87	.89

(*continued*)

TABLE 1. Continued

	Original Authors' Scale	Example of Item (No. of Items)	*M* T1	*SD* T1	*M* T2	*SD* T2	α T1	α T2
Absorption		"I forget everything else around me when I am working" (4)	3.86	0.96	3.97	1.12	.80	.86
Intrinsic work motivation		"I get my motivation from the work itself, and not from the rewards from it" (6)	3.50	1.15	3.42	1.41	.78	.86
Engagement	Engagement Scale (Schaufeli, Salanova, González-Romá, & Bakker, 2002)							
Vigor		"When I get up in the morning, I feel like going to work" (6)	4.75	.87	4.68	1.06	.89	.89
Dedication		"I'm enthusiastic about my job" (5)	4.19	1.12	4.35	1.35	.87	.94
Negative Psychosocial Well-Being Indicators								
Burnout	MBI-GS (Schaufeli et al., 1996)							
Emotional exhaustion		"I feel emotionally drained by my work" (5)	1.54	.84	1.45	0.95	.82	.84
Cynicism		"I have become less enthusiastic about my work" (4)	.73	.81	.89	1.08	.85	.87
Job-related anxiety and depression	"Psychological well-being related to work" questionnaire (Warr, 1990)							
Relax–Anxiety		"Tense" (6)	4.15	1.09	4.17	1.18	.87	.89
Enthusiasm–Depression		"Depressed" (5)	4.78	.89	4.69	1.22	.84	.89

Note: MBI-GS: Maslach Burnout Inventory–General Survey.

among employees. The main objective was to gain a better adjustment between job requirements (job demands) and employees' competencies (personal resources) to, in turn, lead to higher personal development and, consequently, to an increase of psychological well-being (as postulated by the RED Model).

2. Information actions about job training in this area. One of the company managers orally explained to employees the on-the-job training that had been conducted in the whole area in recent years to make employees aware of this process and to suggest future improvements to the training process in the company. Then, the intervention aimed to focus on increasing a job resource (training) which, in turn, was expected to increase employees' psychological well-being (as postulated by the RED Model).

We consider that this is the crucial point to link theory and practice. As explained before, the RED Model considers self-efficacy to be a key aspect when implementing WSIs. Therefore, according to SCT (Bandura, 1986; 2002) (on which this part of the RED Model lies),

the fact of intervening directly on the four self-efficacy sources will be the basis of the intervention's success. These four self-efficacy sources are 1) mastery experiences, as the redesign allowing employees to perform activities that adjust more to their own competences, thus facilitating successful experiences that will build a robust belief in one's personal efficacy; 2) vicarious experiences, provided by colleagues as social models, in other words, looking at other people with similar characteristics (work colleagues in their new roles) because doing specific tasks successfully will help them to trust in their own capacity to successfully carry out the same task; 3) social persuasion, from the new transformational group leader as others' positive reactions can have a positive effect on one's own beliefs in effectiveness and can encourage people to make more effort in difficult tasks and to improve their own performance; and 4) modifying somatic and emotional states that will affect employees in judging their capabilities in a positive mood (in our study, engagement), which will lead to enhanced perceived self-efficacy.

Besides, given the results obtained in the two previous phases (data analysis and feedback survey), the intervention program specifically focused on improving "resources" and not on reducing job demands. Therefore, we expected the motivational process of the RED Model to be activated (job and personal resources would be positively associated with positive outcomes).

2.5. Postintervention Assessment Phase (T2)

To test the effectiveness of the intervention carried out in the company, we performed a postintervention, psychosocial factors assessment 9 months after the preintervention assessment and 6 months after a 2-week intervention phase. We adapted the assessment design by splitting the groups of participants into intervention and control groups according to intervention exposure.

We distributed identical questionnaires to all the areas. To guarantee confidentiality, we delivered an identical number of questionnaires, and recommended that employees participate only if they had already participated at T1. After deleting missing cases, 72 employees (68% men) from all the areas completed both questionnaires. Thus, 75.6% of the employees who participated at T1 also participated at T2. Again, the mean age of the sample at T2 was 38 years ($SD = 10$), and the average organizational tenure was 11 years ($SD = 10$).

The sample of the intervened area comprised its full population (all the staff of the color laboratory) both at T1 and T2 ($N = 9$). The mean age was 32 years ($SD = 7$) with an average organizational tenure of 7 years ($SD = 8$).

3. RESULTS

3.1. Cross-Time Analyses

To test whether dropouts differed from the panel group, we compared the T1 age and organizational tenure of both groups with the whole sample ($n = 108$). The results of the ANOVAs showed that there were no significant differences among the groups regarding these two variables, $F(1, 97) = 3.24$, $p > 0.05$, $F(1, 103) = 1.95$, $p > 0.05$. We therefore concluded that the panel group did not differ from the dropouts in terms of the background variables.

We computed the means, *SD* values, Cronbach's α coefficients, and bivariate correlations at T1 and T2.[1] Cronbach's α coefficients showed that all scales were sufficiently consistent internally as they met the criterion of .70 (Nunnally & Bernstein, 1994).

According to the ANOVAs, some intergroup differences among the study variables at both T1 and T2 were found (see Table 3). Given all the results shown in Table 2, the control group not only showed higher levels of work overload at T1, but also perceived better quality training than the intervention group. These differences in overload continued at T2 (employees in the color laboratory continue to underload compared with other areas). The differences in perceived quality of training disappeared at T2, however. Apparently, the quality of training in the intervened area increased at T2. It is remarkable to recall that some of the interventions conducted at the color laboratory addressed the improvement of this perception.

3.2. Over-Time Analyses: Longitudinal Design

To test whether the differences at T2 were owing to time (within-subjects effect) or to intervention (between-subjects effect), we performed four doubly multivariate repeated-measures ANOVA (Norusis, 1988; SAS Institute, 1990) with the different dependent variables. We grouped these according to their nature (job demands, job resources, personal resources, and employee well-being). This repeated-measures ANOVA

TABLE 2. Cross-Sectional T1 versus T2 Descriptive Analysis with F Differences ($n = 72$)

	Time 1			Time 2		
	Intervention Group	Control Group	F_{df}	Intervention Group	Control Group	F_{df}
Demands						
Quantitative overload	1.5 ($SD = 1.2$)	2.7 ($SD = 1.5$)	$4.64_{1,67}$*	1.15 ($SD = 1.0$)	2.5 ($SD = 1.7$)	$5.33_{1,67}$*
Role clarity	4.5 ($SD = 0.5$)	4.6 ($SD = 0.8$)	$0.17_{1,67}$	5.1 ($SD = 0.6$)	4.7 ($SD = 0.9$)	$1.44_{1,67}$
Role conflict	1.2 ($SD = 1.3$)	1.6 ($SD = 1.0$)	$1.22_{1,67}$	1.1 ($SD = 0.8$)	1.7 ($SD = 1.0$)	$2.40_{1,67}$
Resources						
Job resources						
Autonomy	4.1 ($SD = 0.7$)	4.5 ($SD = 0.8$)	$2.99_{1,66}$	3.6 ($SD = 1.2$)	3.6 ($SD = 1.4$)	$0.04_{1,67}$
Organizational support climate	4.1 ($SD = 0.9$)	3.7 ($SD = 1.2$)	$0.44_{1,66}$	4.6 ($SD = 0.6$)	3.8 ($SD = 0.9$)	$4.56_{1,67}$*
Organizational innovation climate	3.6 ($SD = 1.0$)	3.7 ($SD = 1.2$)	$0.09_{1,67}$	4.7 ($SD = 0.9$)	3.8 ($SD = 1.3$)	$4.22_{1,64}$*
Training quality	1.8 ($SD = 1.6$)	3.4 ($SD = 1.1$)	$6.81_{1,31}$*	3.4 ($SD = 0.5$)	3.6 ($SD = 1.3$)	$0.26_{1,27}$
Personal resources						
Perceived competence	4.1 ($SD = 0.7$)	4.6 ($SD = 0.8$)	$3.81_{1,66}$**	4.7 ($SD = 1.0$)	4.7 ($SD = 0.9$)	$0.10_{1,64}$
Professional self-efficacy	4.5 ($SD = 0.8$)	4.9 ($SD = 0.8$)	$2.29_{1,67}$	5.2 ($SD = 1.0$)	4.9 ($SD = 0.7$)	$1.54_{1,67}$
Psychosocial well-being						
Work satisfaction	4.5 ($SD = 0.5$)	4.6 ($SD = 0.9$)	$0.14_{1,67}$	4.8 ($SD = 0.4$)	4.5 ($SD = 0.9$)	$1.17_{1,67}$
Flow: Happiness	4.5 ($SD = 1.0$)	4.7 ($SD = 1.1$)	$0.21_{1,67}$	4.9 ($SD = 0.8$)	4.3 ($SD = 1.2$)	$1.91_{1,67}$
Flow: Absorption	3.9 ($SD = 1.5$)	3.8 ($SD = 0.9$)	$0.17_{1,67}$	4.4 ($SD = 1.6$)	3.8 ($SD = 1.0$)	$2.92_{1,67}$
Flow: Intrinsic motivation	3.7 ($SD = 1.2$)	3.4 ($SD = 1.5$)	$0.38_{1,67}$	4.3 ($SD = 0.9$)	3.2 ($SD = 1.4$)	$4.52_{1,67}$*
Burnout: Emotional exhaustion	1.3 ($SD = 0.7$)	1.6 ($SD = 0.8$)	$0.26_{1,67}$	1.3 ($SD = 0.8$)	1.5 ($SD = 1.0$)	$0.31_{1,67}$
Burnout: Cynicism	0.7 ($SD = 0.8$)	0.7 ($SD = 0.8$)	$0.97_{1,67}$	0.8 ($SD = 0.7$)	0.9 ($SD = 1.1$)	$0.22_{1,67}$
Engagement: Vigor	4.4 ($SD = 0.9$)	4.7 ($SD = 0.9$)	$1.03_{1,67}$	5.0 ($SD = 1.0$)	4.6 ($SD = 1.1$)	$2.04_{1,67}$
Engagement: Dedication	3.8 ($SD = 1.2$)	4.1 ($SD = 1.1$)	$0.05_{1,67}$	5.0 ($SD = 1.3$)	4.1 ($SD = 1.4$)	$3.71_{1,67}$**
Relax–Anxiety	4.5 ($SD = 0.8$)	4.0 ($SD = 1.1$)	$1.10_{1,63}$	4.5 ($SD = 1.1$)	4.1 ($SD = 1.2$)	$1.91_{1,66}$
Enthusiasm-Depression	4.7 ($SD = 0.8$)	4.8 ($SD = 0.9$)	$0.36_{1,61}$	4.9 ($SD = 0.6$)	4.7 ($SD = 1.2$)	$0.65_{1,67}$

Note: * $p \leq 0.05$; ** $p \leq 0.06$.

became doubly multivariate because we measured two dependent variables, or more, at a minimum of two time points (Weinfurt, 1995), and reported results not only related to the differences between T1 and T2 in the dependent variables (Hypothesis 1: job/personal resources; Hypothesis 2: job demands; and Hypothesis 3: employee well-being), but also about their interaction effect Time × Intervention (Hypothesis 4).

Table 3 summarizes the results of the four doubly multivariate repeated-measures ANOVAs for all the groups of variables. We tested three main multivariate effects for each group of variables. We excluded training quality (resource variable) from the analysis given the low number of respondents. The results show that only the main effects appeared in the Personal Resources group of variables (Wilks' lambda, Λ). Specifically, the effect of Time on Personal Resources was highly significant, indicating that the change in the pretest–posttest scores of the different subscales of the resources group differed mainly because of change over

TABLE 3. Summary of the Main Effects of the Four Doubly Repeated-Measures MANOVAs ($n = 72$)

Multivariate Effect	Λ	df_1	df_2	F	η^2
Job Demands					
Time	0.91	3	65	2.06	0.09
Interventions	0.91	3	65	2.23	0.09
Time × Interventions	0.95	3	65	1.11	0.05
Job Resources					
Time	0.91	3	61	2.18	0.10
Interventions	0.91	3	61	2.11	0.09
Time × Interventions	0.91	3	61	1.89	0.08
Personal Resources					
Time	0.85	2	62	5.45**	0.15
Interventions	0.99	2	62	0.41	0.01
Time × Interventions	0.88	2	62	4.31*	0.12
Psychosocial Well-Being					
Time	0.74	10	51	1.79	0.26
Interventions	0.86	10	51	0.80	0.14
Time × Interventions	0.78	10	51	1.43	0.22

Note: $^*p \leq 0.05$; $^{**}p \leq 0.01$.

time. Not only the Time variable (within the subject variable) seemed to have a main effect on the Personal Resources variables, but the effect of the interaction Time × Intervention (within and between variables) was also significant.

The effect sizes of the models show the magnitude of the treatments. According to Cohen's (1977) classification of effect sizes (measured in this case by an eta-square [η^2]), effect sizes around 0.01 were small, those around 0.09 were medium, and those exceeding 0.25 were large. Then, the effect sizes shown by the tested models in this study were small-medium, with results similar to those of the majority of social research works (Weinfurt, 1995). The demands variables were less affected over time, whereas time showed a greater effect size on resources (mainly personal resources) and an even greater effect on employees' psychosocial well-being. Besides, we agree with Cortina and Landis (2009) about the need to include a reflexive interpretation of the effect sizes by taking into account the context in which we did the study. In this case, if we were to consider the fact that the whole company intervened in some way (as we invited all the workers to participate and we carried out the feedback survey in all the units), the effect of the extra interventions (i.e., interventions performed in the color area) were considerably large, especially on the psychosocial well-being variables. Therefore, we may conclude that interventions had a significant effect on psychological well-being and resources, particularly on personal resources, which also significantly differed between the intervention and control groups.

The main multivariate effects only account for the differences in personal resources as a whole because of the changes taking place over time (within-subject variable) and the interaction between Time and Intervention. Another look at the univariate contrasts test highlights some even more interesting results. Besides all the personal resources, as the main multivariate effects show, the univariate results reveal the effect of the within-subject variable (time) over one demand variable (role clarity, $F(1, 67) = 1.52$, $p < 0.05$), one job resource variable (innovation climate, $F(1, 63) = 6.37$, $p < 0.05$), and one psychosocial well-being variable (the dedication component in the engagement scale, $F(1, 60) = 6.99$, $p < 0.05$). Moreover, the intervention group variable (between-subjects variable) affected one job demand variable [overload; $F(1, 67) = 6.18$, $p < 0.05$)].

Finally, we stress more interesting effects (i.e., interaction effects) obtained from these univariate contrasts. In fact, five interaction effects (Time × Intervention) show one job resource (innovation climate, $F(1, 63) = 5.43$, $p < 0.05$), two assess personal resources (professional self-efficacy, $F(1, 63) = 4.30$, $p < 0.05$, and perceived competence, $F(1, 63) = 8.52$, $p < 0.01$), and two positive psychosocial well-being variables, the core dimensions of work engagement (vigor, $F(1, 60) = 4.95$, $p < 0.05$, and dedication, $F(1, 60) = 7.43$, $p < 0.01$).

Figure 1 graphically presents the significant Time × Intervention interaction effect on innovation climate.

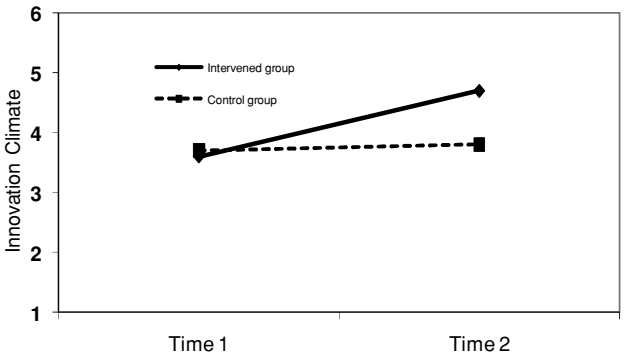

Figure 1 Two-way interaction effect of Time × Intervention on Innovation Climate (levels of Innovation Climate on the *y*-axis) ($n = 65$).

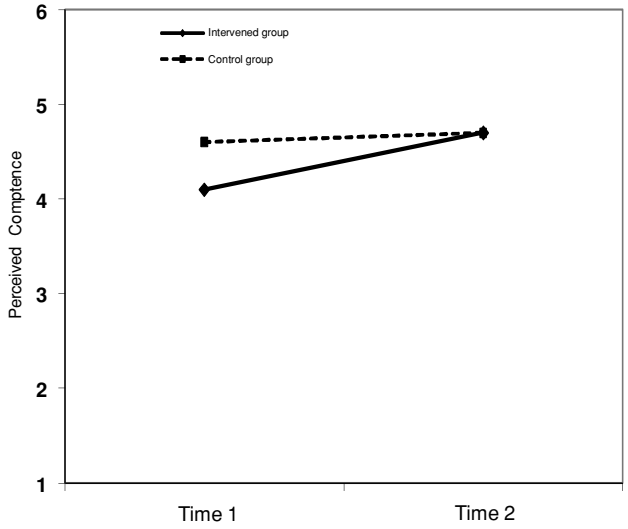

Figure 2 Two-way interaction effect of Time × Intervention on Perceived Competence (levels of Perceived Competence on the *y*-axis) ($n = 65$).

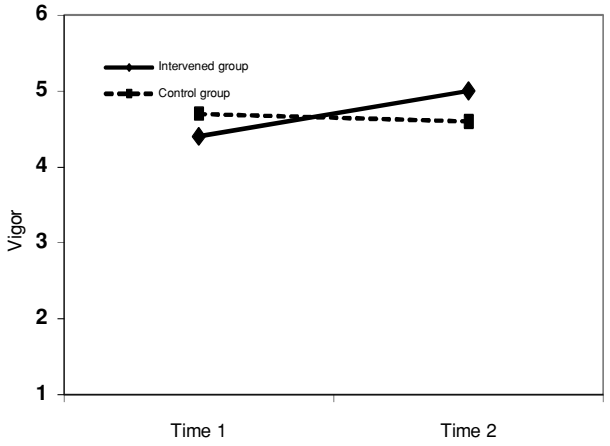

Figure 4 Two-way interaction effect of Time × Intervention on Vigor (levels of Vigor on the *y*-axis) ($n = 62$).

The results of the employees in the control group remained constant over time. A different picture was seen, however, for employees in the intervention area. In this case, innovation climate at T2 increased, and significantly improved from T1 to T2.

Figures 2 and 3 graphically depict the significant interaction effects of intervention exposure and time on perceived competence and self-efficacy, respectively. Again, the results for employees in the control group remained constant over time. In this case, the employees in the intervened area obtained lower scores in efficacy beliefs at T1. These scores significantly increased at T2 (postintervention time) to reach (perceived competence), or even exceed (professional self-efficacy) those of the control group.

Figures 4 and 5 graphically depict the significant interaction effects of intervention exposure and time on both cores of engagement dimensions (i.e., vigor and dedication). In this case, the levels of vigor and dedication in the control group decreased over time, whereas they significantly increased in the intervention group. In fact, the intervention group obtained lower scores in both engagement dimensions at T1, whereas the scores were higher at T2 (even higher than in the control group at T1). This trend was even more evident for dedication.

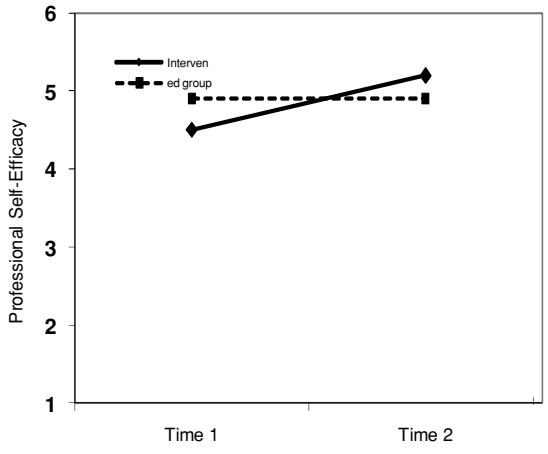

Figure 3 Two-way interaction effect of Time × Intervention on Professional Self-Efficacy (levels of Professional Self-Efficacy on the *y*-axis) ($n = 65$).

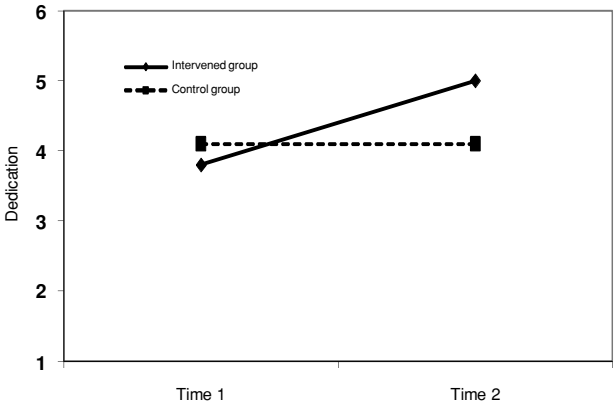

Figure 5 Two-way interaction effect of Time × Intervention on Dedication (levels of Dedication on the *y*-axis) ($n = 62$).

4. DISCUSSION

The aim of this study was to show a stress management intervention guided by theory and practice. For this purpose, we used the RED Model (Salanova et al., 2011) as a theoretical basis and we followed the AR approach. The results show that the data–theory–grounded interventions performed to increase resources worked as expected, thus supporting the motivational process postulated by the RED Model. The repeated-measures MANOVA shows that the Time × Intervention interaction had reliable, positive, and incremental effects on job resources (i.e., innovation climate), personal resources (i.e., professional self-efficacy and perceived competence), and motivational outcomes (i.e., work engagement: vigor and dedication) for the intervened group (laboratory team, $n = 9$) when compared with the control group ($n = 63$ employees from different departments). Besides, we also found collateral benefits for resources.

Results partially support Hypothesis 1 as they show that the Team Redesign Intervention strategies derived after the T1 assessment specifically address the increased job resources reported as the main psychological factors associated with the intervened group (Hypothesis 1), which were partially successful as they caused significant changes in two of the three psychosocial risks assessed at T1 (low innovation climate and low perceived training quality). In fact, innovation climate increased by more than one point at T2, showing statistical significant differences with the control group; these differences were not seen at T1. Furthermore, by taking the cross-sectional analyses at T1 and T2 into account, the perceived quality of training (job resource) also increased at T2 in the intervention group and reached the control group scores.

In addition, we found interesting results with the interaction effects of Time × Intervention as they reflect the effect of not only time flow, but also intervention at the same time, thus supporting Hypothesis 4. Regarding these interaction effects, we found personal resources (self-efficacy beliefs and perceived competence) and two positive employee well-being indicators: 1) the core of engagement (vigor and dedication), and 2) collateral improvements in the social support climate (job resources) and intrinsic motivation (flow antecedent). No changes in the negative variables (i.e., neither job demands nor negative employee well-being indicators) were found, however. Therefore, we adjusted the intervention program to the results of the T1 assessment to increase job resources. Briefly, we may state that the intervention strategies at this point were effective.

4.1. Theoretical Implications

Our results show the key role played by personal resources (self-efficacy and perceived competence) in the WSI programs. The significant interaction effect shown on personal resources reflects how the employees in the intervention group changed their beliefs about professional self-efficacy and perceived competence positively over time and at a different rate than those in the control group. This trend was even stronger with professional self-efficacy if compared with the control group. Specific beliefs (professional self-efficacy) in the intervention group were lower at T1 than in the control group, but higher at T2. This result agrees with Albert Bandura's SCT (Bandura, 2002; Salanova et al., 2002; included in the RED Model), which predicts that domain-specific efficacy beliefs prove to be more powerful predictors of behaviors and psychosocial well-being than do general beliefs. In contrast, the positive changes noted in self-efficacy from T1 to T2 after one intervention program could be indicators of the effectiveness of the intervention program itself. This is even more important if we take into account that previous studies indicate that manufacturing workers (i.e., construction workers) show lower levels of self-efficacy than do the general population (Salanova et al., 2011). Thus, this reinforces the key role played by self-efficacy in the RED Model as it modulates the way employees perceive job demands and resources.

Why was intervention successful? At this point, it is time to again link theory and practice. According to the SCT (Bandura, 1986; 2002), Team Redesign intervention was grounded on the four self-efficacy sources: 1) mastery experiences, 2) vicarious experiences, 3) social persuasion, and 4) modifying somatic and emotional states that would affect employees in judging their capabilities in a positive mood (in our study, engagement), which would lead to enhanced perceived self-efficacy.

Besides, the intervention program specifically focused on improving resources, not on reducing job demands. Prior research shows that job resources positively associate with positive outcomes, especially with work engagement (Salanova, Agut, & Peiró, 2005; Schaufeli & Bakker, 2004). In that sense, this study

validates the Motivational Process (the more job resources, the greater job engagement) of the RED Model (extending the Dual Process Model by Schaufeli & Bakker, 2004) by using a real intervention program in the workplace.

4.2. Practical Implications

This study makes clear the importance of linking the OHP with professionalized human resources management (HRM) within organizations. In fact, al the practical implications of our study (framed on OHP) have sense only when being contextualized and applied to organizations by HRM actions.

Focusing on concrete actions, in our opinion, the feedback survey technique (conducted in Phase 3) has shown a key role in this entire WSI Program. According to the AR approach, all the company employees participating in the study carried out this technique, whereas the intervention group received help in using this feedback-survey. This scenario makes us think that we cannot talk of a "pure" control group as the whole company showed improvements in some of the psychosocial factors assessed (role clarity, innovation climate, both personal resources and dedication), probably not only as a result of the time flow, but also because we intervened with all the employees in some way ("Intervention implies change"; Cox, Karanika, Griffiths & Houdmont, 2007, p. 353). Therefore, we believe that this is a technique that the practitioners in HRM interested in WSI should really take into account.

Therefore, the AR approach has proved to be a robust model to follow when it comes to designing a WSI as it includes not only the first steps to carry out a WSI, but also the last ones involved in evaluating the effectiveness of the WSI. Besides following McClenahan, Giles, and Mallett's (2007) recommendation, this model includes specific context designs as we needed a different design to be able to adapt to each company reality, mainly through to the HRM professionals. As Cox and colleagues (2007) remark, "the fixed point is largely context-specific" (p. 357). In this case, it has shown its huge potential to be used in manufacturing companies. Besides, the results of this study potentially encourage companies and practitioners interested in improving employees' psychosocial well-being to use this interesting approach to analyze their organizational reality.

Another important practical implication of this study lies in the fact that we have assessed not only negative constructs (demands, strain, etc.), but also positive ones (resources, psychosocial well-being, etc.). In fact, if this study had focused only on the negative ones, no improvements would have been shown at T2, and the effectiveness of the WSI would be unclear. This, however, is not the case because the results support the so-called organizational wellness programs (carried out by the HRM area) that attempt to promote good health or to identify and correct potential health-related problems (Wolfe, Parker, & Napier, 1994) and the effectiveness of which is associated with decreased absenteeism and increased job satisfaction (see Parks & Steelman, 2008, for a meta-analysis).

Summing up, the importance of connecting OHP with professionalized HRM remains clear. The link between both scopes is clearly strong as HRM must carry out the intervention strategies proposed by the OHP, and it (HRM) usually has the last word about which strategies best fit the organizational aims and particular interests. Our study stresses the need to build bridges between both scopes.

4.3. Limitations and Future Research

The AR approach assumes a (quasi) experimental approach to understanding organizational reality. Organizational constraints, however, usually avoid carrying out the action as originally planned by the researchers (difficulty of implementation, which Lipsey & Cordray, 2000, mentioned to be a main obstacle). In particular, we found some organizational constraints that imply certain limitations for our study.

The first limitation lies in the selection of areas of intervention because we did not base them directly, uniquely, and exclusively on the T1 results, which are reasonable for a quasi-experimental study. Therefore, although the intervened area shows indicators to be improved through intervention, the top management selected the area to be intervened to not include some others that would objectively have also required intervention. Researchers do not usually have access to organizational dynamics and policies, so they do not normally have any control over them, and this is a typical obstacle for practitioners/researchers working in real organizations. Nonetheless, it is a reality in organizational interventions.

Another limitation, which relates to the previous one, concerns the low number of employees intervened, even though all the employees of the intervention group participated. Besides, the size effect shows fairly large η^2 values. All in all, we found statistically

significant interaction effects that revealed a positive impact on the full WSI program despite the group size not being large. The most important idea is to generalize not the power of the specific intervention strategies, but the power of the full methodology of the AR approach based on a theoretical framework. Moreover, it is difficult to reproduce these results in other companies of different sectors and countries as the AR approach considers each company to be unique. In that sense, the process of action research can be generalized to other companies interested in this process. We believe that this approach has shown the strength to improve the psychosocial factors at work (see previous empirical studies of participatory AR, such as Heaney et al., 1993; Huxham & Vangen, 2003; Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007; Pasmore & Friedlander, 1982; Rasmussen et al., 2006; Whyte, 1989; see Dollard, Le Blanc & Cotton, 2008, for a review). Therefore, we should take its use into account when designing a WSI.

Nevertheless, it is worth mentioning that most of the above-mentioned limitations were already noted by Cox and colleagues (2007) when they proposed a new framework for the evaluation of organizational-level interventions. We agree with the authors when they emphasize that the "traditional experimental approach in applied psychology may be inadequate for exploring the complex and changing world of organizations" (p. 350). Therefore, the lack of absolute methodological rigor in this kind of intervention leads us to talk about "acceptable evidence," which we think we have obtained.

Briefly, this study shows the strength of using a systematic approach (the AR approach) when performing a WSI. It involves empirically analyzing organizational intervention effects, which are scarce in work and organizational research in general, and in the OHP literature in particular. Its longitudinal design contributes to the completion of the Research-AR circle as it also supports the RED Model.

4.4. Final Note

This study shows the effectiveness of a WSI (i.e., Team Redesign) carried out in one organization from the AR paradigm in a manufacturing company. Moreover, and as far as we know, we show the importance of making a continuous cyclical feedback from theory to practice, and vice versa, possible for the first time. Right from the start, the theory describes the basis of all the interventions (from the risk assessment to the final interventions performed). The opposite also applies, that is, the empirical results obtained help to improve the original theoretical framework by highlighting the role played specifically by personal resources (i.e., self-efficacy and perceived competence) in the improvement of well-being at work. Therefore, this study underlines the importance of continuing to dance between theory and practice, at the same beat, over time.

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Endnote

1. Because of the length of the correlation matrix, we have not included them in the article. The information is available from the first author upon request.