

Pinto, Joana Carneiro; Taveira, Maria do Céu

**Article**

## Developing career self-management skills: A study in higher education

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## **Developing Career Self-Management skills: a study in higher education**

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### **Abstract**

This study aims to evaluate the Career Self-Management Seminar, version B. This is a psychological intervention model, developed to support PhD students in the improvement of crucial skills for effective career problem solving and decision making. Sample included 63 PhD's, (49 experimental group, 14 control group), from both sexes (44 women, 19 men), and with ages ranging from 22 to 49 years old ( $M=29.7$ ;  $SD=6.74$ ). These participants were assessed on the career exploration and career concern dimensions, through the completion of the Portuguese versions of the Career Exploration Survey and of the Adult Career Concerns Inventory respectively, at three different moments in time (pre-test, post-test and follow-up). Results demonstrated that the CSMS-B is effective in promoting external instrumentality beliefs, and self and environment exploration, and also in diminishing concerns and needs about the deceleration and reduction of their current professional role. Future studies should invest in the development and assessment of career self-management interventions aimed at students attending higher education.

**Keywords:** career self-management; career exploration; career concerns; effectiveness.



## 1. Introduction

Over the last few years, career self-management has been mostly recognized as a result of the economic, political and social changes that have affected society, in general, and organizational contexts, in particular (Cheremie, Sturman, & Walsh, 2007; Thomas, Lazarova, & Inkson, 2005). However, more recently, some authors have argued that the behaviors associated with career self-management are normative in the work life of individuals (e.g., King, 2000) and represent their desire to exercise control over their career results (Van Vianen, De Pater, & Preenen, 2008).

A variety of authors seem to be unanimous in considering the ability to effectively manage a career as one of the most important skills and also the most requested in the current professional world (Greenhaus, Callanan, & Godshalk, 2010; King, 2004). Career self-management is a process that must occur continuously and regularly in the life-cycle of an individual in order to promote healthy personal and professional trajectories. This process involves a diversity of steps, such as (a) career exploration, particularly, self-exploration (e.g., values, interests, skills) and exploration of the world (education, training, professionalism) in a systematic and intentional way, (b) the development of life/career goals that are clear, realistic and consider short, medium and long term dimensions, (c) the design and implementation of action plans, which include all the behaviors and strategies that individuals use in order to achieve their defined career goals, and (d) the monitoring and obtaining of feedback, through which individuals constantly assess their progress against their defined career goals (Greenhaus and Callanan, 1994; King, 2000; Noe, 1996; Pinto, 2010; Taveira, 2009).

However, despite being a highly valued skill in the current professional world, the existing literature suggests a lack of academic interest in the topic. First, despite fifteen years since the onset of the first formal model of career self-management of Greenhaus and Callanan (1994), there has been a very small evolution in our understanding about the subject. There are currently only two more models of career management. The Noe's model (1996), which was built from the assumptions of its predecessor model and which clarifies the relationship of job performance and the predisposition of individuals to engage in behaviors of self-development using career self-management behaviors. In turn, the King's model (2000, 2001, 2004) further elaborated on the nature of the behavioral strategies of career self-management and expanded them by introducing a set of antecedent (e.g., self-efficacy beliefs, career anchors) and consequent variables (e.g., life and career satisfaction, frustration) from career self-management behaviors. Each of these models represents a quite relevant contribution in the career management

domain but all of them would benefit from an in-depth study to confirm their theoretical and empirical validity.

Moreover, there are few existing interventions concerning career self-management. Despite the importance attached to this topic, it is imperative to recognize that most individuals lack the skills to independently carry out the effective management of their own career (Luzzo, 2000). In this sense, the relevance of investing in the development of structured, systematic and specialized intervention programs in career self-management becomes evident. However, in general, our understanding of how to deliberately encourage strategic career attitudes and behaviors among individuals is still limited. Currently, the community is discussing individual and organizational responsibilities for career management, and different studies demonstrated that despite individuals want to assume more responsibility in this process, they also have high expectations about the support from the organization in managing their careers. Indeed, there is evidence for the positive association between perceived organizational support and job performance, job productivity, and organizational commitment, job satisfaction and overall well-being, and a negative association between perceived organizational support and psychosocial stress, conflict, and intention to quit the organization (e.g., Babin & Boles, 1998; Cohen & Wills, 1985; Hutchison, 1999; Rhoades & Eisenberg, 2002, in Sawang, 2010; Sturges, Guest, Conway & Davey, 2002; Sturges, Conway & Liefoghe, 2008). Still, there is also a difficulty amongst several authors to establish the boundaries between the activities that constitute career self-management and those concerning the organizational career management (Arnold, 1997; Taveira & Moreno, 2010).

Career management interventions also need to be the object of systematic study in terms of the evaluation of their process and results. Apart from the studies developed by Kossek (1998) and Raabe (2007) and their colleagues, which address the effectiveness of career self-management interventions, other studies are rare or inexistent. Indeed, career professionals would benefit from being more open to the evaluation of their activities, due to the proven importance and need to assess their practices on behalf of their clients, their practices and their own professional group (Borgen, Hiebert, & Michaud, 2009; Hiebert, 1994). Currently, it is known that career intervention is more efficient than non-intervention, and that interventions in small groups lasting four or five sessions, which are developed in the form of a seminar and with the presence of a psychologist, are also those that have higher rates of proven efficiency (e.g., Brown & Krane, 2000; Faria, 2008; Luzzo, 2000; Spokane, 2004). However, little is

known about the effectiveness of interventions in the specific context of career self-management and the strategies that contribute most to its development.

Thus, the main goal of this study is to bridge the gaps in the literature in this regard, and to evaluate the results of a specialized career intervention model, implemented at the Career Guidance and Counseling Centre, at the University of Minho, Portugal. This program – Career Self-Management Seminar, version B (CSMS-B, Taveira et al., 2009) – is intended to support PhD students from that institution. It consists of seven intervention sessions, developed weekly, and aims to contribute to the promotion of effective career self-management behaviors (Pinto, 2010; Taveira, 2009).

The option to develop a program to meet PhD's specific needs caught up with the fact that, usually, they are considered an elite group, who are so involved in their careers that they do not require any support to manage them (Luzzo, 2000; Pinto, 2010). However, a series of national (e.g., Araújo & Sousa, 2008) and international (e.g., Davis & Parker, 1997; Golde & Dore, 2001) studies has shown that these individuals have a wide variety of career needs and concerns, related to their experiences before, during, and after their involvement in research projects (e.g., difficulty in life roles management, loneliness and isolation, lack of self-confidence, complicatedness in identifying future career goals).

Therefore, these participants were evaluated in three distinct moments in time, immediately before and after the intervention, and six weeks after its completion, in the career exploration and career concern dimensions. Given the scarcity of a questionnaire, nationally and internationally, oriented to the evaluation of the career self-management behaviors, it have been used the Portuguese versions of the Career Exploration Survey (CES; Stumpf, Colarelli, & Hartman, 1983; adapt. by Taveira, 1997), and of the Adult Career Concerns Inventory (ACCI; Super, Thompson & Lindeman, 1988; adapt. by Duarte, 1999), respectively.

## **2. Method**

### *Participants*

Participants were 63 PhD students (49 experimental group, 14 control group), developing their research projects in the University of Minho – a public university in the northwest of Portugal. These PhD students were research grant-holders, enrolled in term research contracts during three or four years. After this period of time their professional contract could, or not, be renovated which means that, in

short/medium-term, they would be required to plan their transition to a new professional role, either seeking employment in the job market, or creating their self-employment. That is, they would be entering in a mini-cycle (Super, 1990) or adaptability point (Savickas, 2005) of their career development course.

The experimental group ( $n=49$ ) included 34 women and 19 men, with ages ranging from 22 to 49 years old ( $M=29.88$ ;  $SD=6.44$ ). These participants were developing their research activities in the domains of engineering and technology ( $n=20$ ), law, social sciences and services ( $n=21$ ), natural sciences ( $n=5$ ) and educational science ( $n=3$ ). They were working in the job market, on average, for about 71.59 months ( $SD=83.01$ ;  $Min=0$ ;  $Max=372$ ), in their actual company or university, on average, for about 35.55 months ( $SD=42.51$ ;  $Min=0$ ;  $Max=176$ ), and in their current research positions, on average, for about 18.57 months ( $SD=17.34$ ;  $Min=0$ ;  $Max=72$ ). Furthermore, nine of these participants were anticipating the conclusion of their research contract in less than a year.

The control group ( $n=14$ ) included 10 women and 4 men, with ages ranging from 23 to 48 years old ( $M=29.07$ ;  $SD=7.94$ ). These participants were developing their research activities in the domains of engineering and technology ( $n=1$ ), law, social sciences and services ( $n=10$ ), natural sciences ( $n=1$ ) and educational science ( $n=2$ ). They were working in the job market, on average, for about 74.93 months ( $SD=102.92$ ;  $Min=5$ ;  $Max=336$ ), in their actual company or university, on average, for about 49.43 months ( $SD=38.29$ ;  $Min=5$ ;  $Max=96$ ), and in their current research positions, on average, for about 13.07 months ( $SD=13.07$ ;  $Min=5$ ;  $Max=48$ ). Furthermore, four of these participants were anticipating the conclusion of their research contract in less than a year.

### *Instruments*

*Career Exploration Survey* (CES; Stumpf, Colarelli & Hartman, 1983; adapt. by Taveira, 1997). The career exploration process was assessed using the Portuguese version of the CES. This self-report questionnaire assesses the cognitive, behavioral and affective dimensions associated with the process of career exploration. Specifically, it consists of five beliefs (Employment Outlook, Career Exploration Certainty of Outcomes, External Search Instrumentality, Internal Search Instrumentality and Importance of Preferred Position), four behaviors (Extent of Environment Exploration, Extent of Self-Exploration, Intended-Systematic Exploration and Amount of Information Acquired) and three reactions to career exploration

(Satisfaction with Information, Exploration Stress and Decision Stress), making a total of 12 subscales and 54 items. Respondents used a five-point Likert response option to rate items 1 to 43 and seven response categories for items 44 to 53, which were anchored by “little” (1) to “a great deal” (5 or 7). The 54<sup>th</sup> item used an open response format and allowed individuals to specify the number of explored vocational domains. Examples of items are: *“How certain are you that you will begin work upon graduation, at the specific job you prefer?”* (item 22); *“How important is it for you at this time to work at the job you prefer?”* (item 39). Recent studies developed with university (Silva & Taveira, 2010) and non-university students (Soares, 1998) show adequate levels of internal consistency with Cronbach alpha values ranging from .60 to .89 in the various subscales.

*Adult Career Concerns Inventory* (ACCI; Super, Thompson & Lindeman, 1988; adapt. by Duarte, 1999). Career concerns were assessed using the adapted Portuguese version of the ACCI. This self-report questionnaire assesses the adult career developmental stages, as defined by Super (Super et al., 1988, p.13). Specifically, it consists of four stages and each of them is further divided into three sub-stages, as follows: Exploration (Crystallization, Specification, Implementation), Establishment (Stabilizing, Consolidating, Advancing), Maintenance (Holding, Updating, Innovating) and Disengagement (Deceleration, Retirement Planning, Retirement Living), which cover a total of 12 subscales and 61 items. Respondents rated by using a five-point Likert-type response format that ranges from “little concern” (1) to “great concern” (5). The 61<sup>st</sup> item consists of five statements about career change from which individuals choose the one that best describes their current career project. Examples of items are: *“Clarifying my ideas about the type of work I would really enjoy”* (item1); *“Developing more hobbies to supplement work interests”* (item 50). Studies developed with Portuguese adult workers (Duarte, 1993; Rafael, 2001) demonstrate the psychometric robustness of the instrument with Cronbach alpha values ranging from .73 to .96.

### *Procedure*

The Career Self-Management Seminar – in its version for PhD students (CSMS-B; Taveira et al., 2009) – is a brief and structured vocational psychological intervention, which has been developed by professionals of the Career Guidance and Counseling Centre, of the University of Minho. Aimed at students of the intermediate years of the third cycle of Bologna’s, it comprises seven intervention/evaluation sessions

that are organized into four main stages ( a) reception, initial involvement and pre-test administration, (b) four sessions of analysis and reflection in terms of self-knowledge, awareness about opportunities for advanced training, job creation and attainment, as well as, life-planning and decision-making ability, (c) learning consolidation and generalization and post-test administration; and, (d) follow-up administration. Except for the last session, all sessions are developed weekly during 120 minutes each and in a small group environment (4 to 7 participants). The follow-up session occurs five weeks after the end of the program on an individual basis, which generally does not exceed 30 minutes. Table 1 presents the structure and content of each session.

The program was implemented at the experimental group between January 2008 and June 2009. Participants from this group had to meet the following criteria: a) attendance on a doctoral program or research project; b) acceptance of a grant; c) voluntary enrolment in the CSMS; and, d) absence of simultaneous psychological counseling. In turn, participants from the control group had to meet the same criteria, excepting that they didn't enroll themselves to the attendance of this or any other psychological intervention during this period of time. Participants from both groups were informed about the main goals of this study, and completed an informed consent, as well as, both self-administered instruments (CES and ACCI). Their completion occurred in three different moments in time corresponding to the pre-test, post-test, and follow-up sessions, and they took 30 minutes, on average, for each evaluation session.

Table 1. Career Self-Management Seminar: structure and content

Session	Intervention and Assessment Goals
0 Beginning	<ul style="list-style-type: none"> <li>- Reception and initial involvement</li> <li>- Establishment of a collaborative help relationship</li> <li>- Administration of pre-test measures</li> <li>- Evaluation of myths and expectations toward the psychologist and the intervention evaluation</li> <li>- Awareness of career self-management</li> <li>- Presentation of seminar themes, goals, and activities</li> <li>- Rule setting and intervention contract</li> </ul>
1 Career path	<ul style="list-style-type: none"> <li>- To support participants exploration of personal life and balance of personal skills and career adaptability</li> <li>- The doctoral/research work in the broader context of career/life history</li> <li>- Analysis of short, medium, and long term goals</li> </ul>
2 Recognition and validation of career skills	<ul style="list-style-type: none"> <li>- Development of self-observation and self-consciousness of career management: establishment of goals, interests, skills acquired by participants through life</li> <li>- Desired lifestyle and career goals of short, medium, and long term: the role of career self-regulation</li> </ul>
3 Establishment of a life project	<ul style="list-style-type: none"> <li>- Development and maintenance of a positive view of the future</li> <li>- To support the designing of career projects on the future: information exploration, and simulation of the implementation of action career plans, resources and obstacles</li> <li>- To support the reconciliation of personal, social, educational, and professional goals, and the construction of a positive view on the future</li> </ul>
4 Self management of life project	<ul style="list-style-type: none"> <li>- To support the designing of future projects: deepening the process of creating their own jobs and approaches to job attainment</li> <li>- Job interview simulation</li> </ul>
5 Conclusion	<ul style="list-style-type: none"> <li>- Development and maintenance of a positive view of the future</li> <li>- Consolidation and generalisation of the learning undertaken throughout the intervention process</li> <li>- Intervention evaluation</li> <li>- Administration of post-test measures</li> <li>- Conclusion of the intervention</li> </ul>
6 Follow-up	<ul style="list-style-type: none"> <li>- Administration of follow-up measures</li> </ul>

Data were analyzed using SPSS (Statistical Program for Social Sciences) software for Windows, version 16.0. Descriptive statistical analyses were performed on the participants' socio-demographic characteristics, and also on the outcomes associated with their performance on the career exploration and career concern subscales. Considering that data didn't met the key assumptions for the use of parametric tests, Wilcoxon test was used to judge if the mean scores obtained, at each evaluation moment, were significantly higher than the standardized mean scores. In addition, Mann-Whitney test was performed to assess the differences at each evaluation moment, between experimental and control groups, and Friedman test was carried out to evaluate the time effect in the career dimensions at an intra-individual level. In the cases Friedman test indicated the existence of statistically significant differences between the three evaluation moments, they were also conducted post hoc comparison using Wilcoxon test. It has been used a statistical significance level of .05, excepting at the post-hoc comparisons, where it has been applied the method of Bonferroni correction ( $p=.05/3=.0167$ ).

## Results

Table 2 displays means, standard deviations, and ranges, for each career exploration and career concern subscale, and also the results from the comparison between the obtained mean scores and the standardized mean scores, considering experimental and control groups.

At pre-test, the experimental group obtained already mean scores that differed in a statically significant way from the standardized mean scores in ten career exploration subscales. Of these subscales, the following registered higher results when compared to the respective standardized mean score: external search instrumentality ( $Z= -4.95, p=.000$ ); internal search instrumentality ( $Z= -5.18, p.000$ ); importance of preferred position ( $Z= -2.62, p=.009$ ); amount of acquired information ( $Z= -3.53, p=.000$ ); and, satisfaction with information ( $Z= -1.97, p=.049$ ). All the others subscales registered lower results when compared to the respective standardized mean scores (certainty of exploration outcomes:  $Z= -3.8, p=.000$ ; self-exploration:  $Z= -3.47, p=.001$ ; environment exploration:  $Z= -5.07, p=.000$ ; exploration stress:  $Z= -4.7, p=.000$ ; and, decision stress:  $Z= -.597, p=.000$ ). Regarding post-test, this group of participants obtained mean scores statistically higher from the standardized mean scores in the previously mentioned subscales (external search instrumentality:  $Z= -5.6, p=.000$ ; internal search instrumentality:  $Z= -6.1, p.000$ ; importance of preferred position:  $Z= -3.77, p=.000$ ; amount of acquired information:  $Z= -$



4.82,  $p=.000$ ; and, satisfaction with information:  $Z= -4.06$ ,  $p=.000$ ), and also at the employment outlook ( $Z= -2.93$ ,  $p=.003$ ), self-exploration ( $Z= -6.03$ ,  $p=.000$ ), and environment exploration subscales ( $Z= -3.72$ ,  $p=.000$ ). And they obtained lower results when compared to the respective standardized mean scores in the exploration stress ( $Z= -2.87$ ,  $p=.004$ ) and, decision stress subscales ( $Z= -6.07$ ,  $p=.000$ ). At follow-up, participants obtained statically significant higher results when compared to the respective standardized mean scores in the employment outlook ( $Z= -2.89$ ,  $p=.004$ ), external search instrumentality ( $Z= -5.79$ ,  $p=.000$ ), internal search instrumentality ( $Z= -5.93$ ,  $p=.000$ ), importance of preferred position ( $Z= -3.58$ ,  $p=.000$ ), self-exploration ( $Z= 5.27$ ,  $p=.000$ ), environment exploration ( $Z= -4.07$ ,  $p=.000$ ), amount of acquired information ( $Z= -5.55$ ,  $p=.000$ ), and satisfaction with information ( $Z= -5.02$ ,  $p=.000$ ). And they obtained lower results when compared to the respective standardized mean scores in the exploration stress ( $Z= -4.07$ ,  $p=.000$ ) and, decision stress subscales ( $Z= -6.04$ ,  $p=.000$ ).

Concerning career concern subscales, participants registered, at pre-test, mean scores that differed in a statically significant way from the standardized mean scores in all subscales, excepting crystallization. Of these subscales, specification ( $Z= -2.71$ ,  $p=.007$ ), implementation ( $Z= 2.96$ ,  $p=.003$ ), stabilizing ( $Z= -2.79$ ,  $p=.005$ ), consolidating ( $Z= -4.52$ ,  $p=.000$ ), advancing ( $Z= -3.16$ ,  $p=.002$ ), holding ( $Z= -3.16$ ,  $p=.002$ ), updating ( $Z= -5.98$ ,  $p=.000$ ; and, innovating ( $Z= -5.83$ ,  $p=.000$ ), registered higher results than their respective the standardized mean scores. All the others registered lower results when compared to the respective standardized mean scores, that is, deceleration ( $Z= -3.49$ ,  $p=.000$ ), retirement planning ( $Z= -4.96$ ,  $p=.000$ ), and retirement living ( $Z= -2.46$ ,  $p=.015$ ). Regarding post-test, they obtained statically significant higher results, when compared to the respective standardized mean scores, in the following subscales: specification ( $Z= -2.19$ ,  $p=.028$ ), implementation ( $Z= 3.25$ ,  $p=.001$ ), stabilizing ( $Z= -2.78$ ,  $p=.005$ ), consolidating ( $Z= -4.76$ ,  $p=.000$ ), advancing ( $Z= -2.03$ ,  $p=.042$ ), holding ( $Z= -3.28$ ,  $p=.001$ ), updating ( $Z= -4.95$ ,  $p=.000$ ; and, innovating ( $Z= -5.3$ ,  $p=.000$ ); and, lower results when compared to the respective standardized mean scores, in the following subscales: deceleration ( $Z= -3.28$ ,  $p=.001$ ), retirement planning ( $Z= -5.03$ ,  $p=.000$ ), and retirement living ( $Z= -2.54$ ,  $p=.011$ ). Finally, with regard to follow-up, participants' results remained above to the respective standardized mean scores in the specification ( $Z= -2.44$ ,  $p=.015$ ), implementation ( $Z= -4$ ,  $p=.000$ ), stabilizing ( $Z= -3.17$ ,  $p=.002$ ), consolidating ( $Z= -5.68$ ,  $p=.000$ ), advancing ( $Z= -2.8$ ,  $p=.005$ ), holding ( $Z= -4.85$ ,  $p=.000$ ), updating ( $Z= -5.84$ ,  $p=.000$ ), and, innovating ( $Z= -5.73$ ,  $p=.000$ ) subscales; and, also, they remained below to the respective standardized mean scores in the deceleration ( $Z= -3.66$ ,  $p=.000$ ), retirement planning ( $Z= -5.5$ ,  $p=.000$ ), and retirement living ( $Z= -3.11$ ,  $p=.002$ ) subscales.

At pre-test, the control group obtained mean scores that differed in a statically significant way from the standardized mean scores in six career exploration subscales. Of these subscales, only the following registered higher results when compared to the respective standardized mean score: external search instrumentality ( $Z= 2.443$ ,  $p=.015$ ); and, internal search instrumentality ( $Z= -2.68$ ,  $p.007$ ). All the others registered lower results when compared to the respective standardized mean scores (employment outlook:  $Z= -1.96$ ,  $p=.05$ ; self-exploration:  $Z= -3.18$ ,  $p=.001$ ; exploration stress:  $Z= -2.46$ ,  $p=.014$ ; and, decision stress:  $Z= -3.24$ ,  $p=.001$ ). Regarding post-test, this group obtained mean scores statistically higher from the standardized mean scores in the internal search instrumentality ( $Z= -3.3$ ,  $p.001$ ) and, in the decision stress subscales ( $Z= -3.3$ ,  $p=.001$ ). But, they obtained lower results when compared to the respective standardized mean scores in the amount of acquired information subscale ( $Z= -2.6$ ,  $p=.009$ ). Finally, at follow-up, participants obtained statically significant higher results when compared to the respective standardized mean scores in four subscales (external search instrumentality:  $Z= -2.99$ ,  $p=.003$ ; internal search instrumentality:  $Z= -2.95$ ,  $p=.003$ ; amount of acquired information:  $Z= -3.33$ ,  $p=.001$ ; and, satisfaction with information:  $Z= -3.22$ ,  $p=.001$ ). Again they obtained lower results when compared to the respective standardized mean scores in the exploration stress ( $Z= -3.11$ ,  $p=.002$ ) and, in the decision stress subscales ( $Z= -3.33$ ,  $p=.001$ ), but also in the self-exploration subscale ( $Z= -3.22$ ,  $p=.001$ ).

In regard to the career concern subscales, participants had, at pre-test, mean scores that differed in a statically significant way from the standardized mean scores in seven subscale. Of these, all of them registered higher results than their respective the standardized mean scores (implementation:  $Z= -2$ ,  $p=.046$ ; stabilizing:  $Z= -2.98$ ,  $p=.003$ ), consolidating:  $Z= -2.61$ ,  $p=.009$ ; advancing:  $Z= -1.99$ ,  $p=.046$ ; holding  $Z= -2.88$ ,  $p=.004$ ; updating:  $Z= -3.31$ ,  $p=.001$ ; and, innovating:  $Z= -3.18$ ,  $p=.001$ ). Regarding post-test, the results' pattern is very similar, since they obtained statically significant higher results, when compared to the respective standardized mean scores, in the following subscales: stabilizing ( $Z= -2.32$ ,  $p=.02$ ), consolidating ( $Z= -2.76$ ,  $p=.006$ ), advancing ( $Z= -2.014$ ,  $p=.033$ ), holding ( $Z= -2.87$ ,  $p=.004$ ), updating ( $Z= -3.08$ ,  $p=.002$ ; and, innovating ( $Z= -3.19$ ,  $p=.001$ ). Finally, with regard to follow-up, participants' results remained above to the respective standardized mean scores in the implementation ( $Z= -3.2$ ,  $p=.001$ ), stabilizing ( $Z= -3.33$ ,  $p=.001$ ), consolidating ( $Z= -3.33$ ,  $p=.001$ ), advancing ( $Z= -2.58$ ,  $p=.01$ ), holding ( $Z= -3.22$ ,  $p=.001$ ), updating ( $Z= -3.33$ ,  $p=.001$ ), and, innovating ( $Z= -3.26$ ,  $p=.001$ ) subscales.



Table 2. Career Self-Management Seminar: career exploration and career concern frequencies at three different moments in time

Measures	Scales	Subscales	Standardized Mean Scores (Theoretical midpoint)	Theoretical range (Min-Max)	Experimental Group (n=49)									Wilcoxon (difference between group mean and standardized mean)		
					Pre-test			Post-test			Follow – up			Pre-test	Post-test	Follow – up
					Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max			
CES	Beliefs about Career Exploration	Employment Outlook	9	3-15	8.73	2.54	3-14	9.91	2.24	3-15	9.86	2.02	4-15	-0.782 (n.s.)	-2.93**	-2.89***
		Certainty of Exploration Outcomes	9	3-15	7.22	2.82	3-13	8.29	2.89	3-14	8.65	2.73	3-15	-3.8***	-1.51 (n.s.)	-0.695 (n.s.)
		External Search Instrumentality	12	4-20	15.37	3.28	6-20	16.34	3.07	8-20	16.02	2.52	9-20	-4.95***	-5.6***	-5.79***
		Internal Search Instrumentality	30	10-50	36.53	6.06	22-50	42.99	5.81	31-55	37.84	4.67	25-50	-5.18***	-6.1***	-5.93***
		Importance of Preferred Position	9	3-15	9.98	2.54	4-15	10.42	2.34	5-15	10.28	2.3	3-15	-2.62**	-3.77***	-3.58***
	Behaviors of Career Exploration	Self-Exploration	12	4-20	10.96	4.03	4-18	12.98	3.43	4-19	12.87	3.23	5-20	-3.47***	-6.03***	-5.27***
		Environment Exploration	15	5-25	14.82	4.96	5-24	17.98	3.46	10-25	16.06	3.6	8-25	-5.07***	-3.72***	-4.07***
		Intended-Systematic Exploration	6	2-10	5.49	2.1	2-10	5.49	1.77	2-8	5.87	1.77	2-10	-1.46 (n.s.)	-1.65 (n.s.)	-1 (n.s.)
		Amount of acquired Information	9	3-15	10.13	2.07	4-13	10.72	1.8	6-15	11.23	1.71	7-15	-3.53***	-4.82***	-5.55***
		Satisfaction with Information	9	3-15	9.57	1.89	5-13	11.1	4.39	6-38	10.48	1.51	7-15	-1.97*	-4.06***	-5.02***
Reactions to Career Exploration	Exploration Stress	16	4-28	12.04	4.46	6-23	14.1	4	7-22	13.66	3.43	7-21	-4.7***	-2.87***	-4.07***	
	Decision Stress	20	5-35	17.55	7.42	5-30	18.86	6.64	5-32	18.23	5.47	7-30	-5.97***	-6.07***	-6.04***	
	Crystallization	15	5-25	15.74	4.38	5-22	15.24	4.61	5-25	14.91	3.9	5-23	-1.57 (n.s.)	-0.498 (n.s.)	-3.51 (n.s.)	
ACCI	Exploration	Specification	15	5-25	16.88	4.47	7-24	16.59	4.65	7-25	16.74	4.84	6-25	-2.71**	-2.19*	-2.44**
		Implementation	15	5-25	16.88	4.14	7-25	17.15	4.15	9-24	17.14	3.48	8-25	-2.96**	-3.25***	-4***

Establishment	Stabilizing	15	5-25	16.63	4.19	5-25	17.07	4.52	9-25	17.21	4.26	7-25	-2.79**	-2.78**	-3.17**
	Consolidating	15	5-25	18.31	3.9	10-25	18.24	3.54	10-25	19.32	3.19	12-25	-4.52***	-4.76***	-5.68***
	Advancing	15	5-25	17.2	4.41	8-25	16.56	5.01	5-25	16.75	3.79	9-25	-3.16**	-2.03*	-2.8**
Maintenance	Holding	15	5-25	17.06	3.9	9-25	16.81	3.51	10-25	17.91	3.12	11-24	-3.16**	-3.28***	-4.85***
	Updating	15	5-25	20.12	3.01	14-25	19.3	4.45	6-25	19.84	2.83	11-25	-5.98***	-4.95***	-5.84***
	Innovating	15	5-25	20.47	3.06	12-25	19.29	4	6-25	19.88	3.25	13-25	-5.83***	-5.3***	-5.73***
Disengagement	Deceleration	15	5-25	13.02	3.46	6-20	12.86	4.17	5-25	12.77	3.51	7-23	-3.49***	-3.28***	-3.66**
	Retirement Planning	15	5-25	10.92	4.08	5-20	10.97	4.05	5-23	11.19	2.93	5-19	-4.96***	-5.03***	-5.5***
	Retirement Living	15	5-25	12.98	5.5	5-25	13.04	5.19	5-25	13.02	3.67	6-22	-2.46*	-2.54**	-3.11**

\*p<.05; \*\*p<.01; \*\*\*p<.001

Table 2 (continuation). Career Self-Management Seminar: career exploration and career concern frequencies at three different moments in time

Measures	Scales	Subscales	Standardized Mean Scores (Theoretical midpoint)	Theoretical range (Min-Max)	Control Group (n=14)									Wilcoxon (difference between group mean and standardized mean)		
					Pre-test			Post-test			Follow – up					
					Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max	Pre-test	Post-test	Follow – up
CES	Beliefs about Career Exploration	Employment Outlook	9	3-15	7.36	3.05	3-12	9	2.83	4-13	9.63	2.29	5-15	-1.96*	-.035 (n.s.)	-.994 (n.s.)
		Certainty of Exploration Outcomes	9	3-15	8.21	3.96	3-15	7.36	4.52	3-15	8.87	2.75	3-15	-7.91 (n.s.)	-1.28 (n.s.)	-.836 (n.s.)
		External Search	12	4-20	14.57	3.13	8-19	13.79	3.81	8-20	15.45	2.62	11-20	-2.44*	-1.53 (n.s.)	-2.99**

	Instrumentality															
	Internal Instrumentality	Search	30	10-50	35.79	5.74	22-45	39.57	6.35	33-53	33.21	5.23	28-47	-2.68**	-3.3***	-2.95**
	Importance of Preferred Position		9	3-15	10.14	2.63	3-13	10	3.04	3-15	9.79	2.77	3-15	-1.72 (n.s.)	-1.34 (n.s.)	-1.47 (n.s.)
	Self-Exploration		12	4-20	9.36	3.46	4-15	10.86	3.06	6-16	10.11	3.21	4-15	-3.18***	-2.99**	-3.22***
	Environment Exploration		15	5-25	14.21	5.15	5-23	14	4.88	8-24	15.39	4.39	6-24	-1.48 (n.s.)	-1.39 (n.s.)	-1.9 (n.s.)
Behaviors of Career Exploration	Intended-Systematic Exploration		6	2-10	5.43	1.87	2-8	5.36	1.98	2-9	5.79	1.35	3-9	-1.08 (n.s.)	-1.18 (n.s.)	-1.36 (n.s.)
	Amount of acquired Information		9	3-15	10.14	2.11	6-13	10.57	1.74	8-13	11.24	.76	10-13	-1.75 (n.s.)	-2.6**	-3.33***
	Satisfaction with Information		9	3-15	9.71	1.38	8-13	9.71	1.94	6-13	10.81	.99	9-13	-1.81 (n.s.)	-1.27 (n.s.)	-3.22***
Reactions to Career Exploration	Exploration Stress		16	4-28	13.21	3.45	9-20	13.79	4.37	7-19	13.17	2.99	4-18	-2.46**	-1.48 (n.s.)	-3.11**
	Decision Stress		20	5-35	17.57	6.35	7-32	18.43	7.09	5-29	16.9	3.74	7-23	-3.24***	-3.3***	-3.33***
	Crystallization		15	5-25	14.93	4.39	7-22	14.93	3	10-19	14.65	2.75	9-20	.000 (n.s.)	.000 (n.s.)	-1.13 (n.s.)
Exploration	Specification		15	5-25	16	5.17	7-23	16.14	5.39	5-24	16.59	2.96	11-22	-7.24 (n.s.)	-.881 (n.s.)	-1.87 (n.s.)
	Implementation		15	5-25	16.79	3.24	9-22	17.21	4.04	12-24	17.37	1.53	13-20	-2*	-1.79 (n.s.)	-3.2***
	Stabilizing		15	5-25	18.64	2.95	14-23	17.86	3.8	13-24	19.52	2.13	17-24	-2.98**	-2.32*	-3.33***
Establishment	Consolidating		15	5-25	19.79	4.19	9-25	18.71	3.71	13-25	20.93	2.38	17-25	-2.61**	-2.76**	-3.33***
	Advancing		15	5-25	17.93	4.8	9-25	17.79	3.91	14-25	18.25	3.97	12-25	-1.99*	-2.14*	-2.58**
	Holding		15	5-25	19.29	3.6	11-25	18.86	3.53	14-25	19.07	2.42	15-24	-2.88**	-2.87**	-3.22***
Maintenance	Updating		15	5-25	20.21	2.86	16-24	19.86	3.25	13-25	19.7	2.11	14-23	-3.31***	-3.08**	-3.26***
	Innovating		15	5-25	20.36	3.56	14-25	19.86	3.39	15-25	20.04	1.98	16-25	-3.18***	-3.19***	-3.33***
Disengagement	Deceleration		15	5-25	14.36	3.5	7-19	15.5	4.13	7-23	15.13	3.69	12-23	-.491 (n.s.)	-.335 (n.s.)	-.76 (n.s.)

Retirement Planning	15	5-25	11.93	5.64	5-25	13.57	5.87	5-25	12.73	5.68	5-25	-1.76 (n.s.)	-.934 (n.s.)	-1.68 (n.s.)
Retirement Living	15	5-25	14.21	5.62	6-25	15.29	5.81	7-25	15.14	5.87	5-25	-.632 (n.s.)	-.095 (n.s.)	-.412 (n.s.)

\*p≤.05; \*\*p≤.01; \*\*\*p≤.001

Table 3 shows the results of the intra- and inter-group comparisons computed for the career exploration and career concerns subscales.

At an inter-group level, and at the pre-test moment, it was found a statistically significant difference, between the experimental and the control groups, in the holding subscale ( $U=224$ ,  $p=.048$ ) of the career concerns inventory, in favor of the control group. At the post-test moment, several differences were found between both groups, specifically, at the external search instrumentality ( $U=203$ ,  $p=.02$ ), self-exploration ( $U=208$ ,  $p=.025$ ), and environment exploration ( $U=279$ ,  $p=.005$ ) subscales, concerning the career exploration process, in favor of the experimental group, and in the deceleration subscale ( $U=203$ ,  $p=.02$ ) concerning the career concerns, in favor of the control group. Finally, at the follow-up moment, two statistically significant differences were found between groups. One of them is related to the self-exploration subscale ( $U=186.5$ ,  $p=.009$ ) from the career exploration survey, and the other one is related to the deceleration subscale from the career concerns inventory.

At an intra-group level, and considering the three assessment moments, the experimental group presented seven statistically significant differences in the twelve subscales: employment outlook ( $X^2=12.09$ ,  $p=.002$ ), certainty of exploration outcomes ( $X^2=11.49$ ,  $p=.003$ ), internal search instrumentality ( $X^2=48.82$ ,  $p=.000$ ), self-exploration ( $X^2=20.86$ ,  $p=.000$ ), environment exploration ( $X^2=10.4$ ,  $p=.006$ ), amount of acquired information ( $X^2=12.43$ ,  $p=.002$ ), and satisfaction with information ( $X^2=18.04$ ,  $p=.000$ ). Additionally, the control group presented two statistically significant differences at the internal search instrumentality ( $X^2=13.69$ ,  $p=.001$ ) and in the environment exploration ( $X^2=9.69$ ,  $p=.008$ ) subscales, but it didn't indicate any difference with statistical significance any of the career concern subscales.

The Wilcoxon analysis made between the pairs of assessment moments (pre-test – post-test; post-test – follow-up; and, follow-up – pre-test) indicated, regarding the experimental group, that the differences previously mentioned as statistically significant were found in the following subscales, from pre-test to post-test, and also, from the follow-up to the pre-test: certainty of exploration outcomes ( $Z_{pre-pos}=-3.21$ ,  $p=.001$ ;  $Z_{follow-pre}=-3.24$ ,  $p=.001$ ), environment exploration ( $Z_{pre-pos}=-3.63$ ,  $p=.000$ ;  $Z_{follow-pre}=-3.21$ ,  $p=.001$ ), and satisfaction with information ( $Z_{pre-pos}=-3.66$ ,  $p=.000$ ;  $Z_{follow-pre}=-3.28$ ,  $p=.001$ ). The statistically significant differences found in the subscales internal search instrumentality ( $Z_{pre-pos}=-5.42$ ,  $p=.000$ ;  $Z_{pos-follow}=-5.19$ ,  $p=.000$ ) and environment exploration ( $Z_{pre-pos}=-3.79$ ,  $p=.000$ ;  $Z_{pos-follow}=-3.48$ ,  $p=.001$ ) were registered in the pre-test and post-test moments, and also, from the post-test to the



follow-up, respectively. The amount of acquired information ( $Z_{\text{follow-pre}} = -4$ ,  $p = .000$ ) has statistically significant differences between the follow-up and the pre-test moments. In turn the control group had statistically significant differences in the internal search instrumentality subscale ( $Z_{\text{pos-follow}} = -2.42$ ,  $p = .015$ ), from the pos-test to the follow-up moments, and in the environment exploration subscale ( $Z_{\text{pre-pos}} = -2.9$ ,  $p = .01$ ) from the pre-test to the post-test.

Table 3. Career Self-Management Seminar: career exploration and career concern results

Measure s	Scales	Subscales	Mann-Whitney		Friedman	Wilcoxon								
			Experimental	Group –	Experimental	Control	Experimental Group			Control Group				
			Control Group	Follow –	Group	Group	Pre-test –	Post-test –	Follow-up	Pre-test –	Post-test –	Follow-up		
			Pre-test	Post-test	up	X <sup>2</sup> (2)	X <sup>2</sup> (2)	Pre-test –	Post-test –	Follow-up	Pre-test –	Post-test –	Follow-up	
			Post-test	Follow-up	X <sup>2</sup> (2)	X <sup>2</sup> (2)	Post-test	Follow-up	Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up
CES	Beliefs about Career Exploration	Employment Outlook	256	289	296.5	12.09**	5.07	-3.14	-.076	-2.79				
		Certainty of Exploration Outcomes	302.5	277	326	11.49**	2.18	-3.21****	-.74	-3.24****				
		External Search Instrumentality	294.5	203*	278.5	2.92	3.17							
		Internal Search Instrumentality	309	235	300	48.82***	13.69** *	-5.42****	-5.19****	-1.66	-1.96	-2.42****	-.314	
		Importance of Preferred Position	306.5	321.5	326	2.16	.041							
	Behaviors of Career Exploration	Self-Exploration	269	208*	186.5**	20.86***	9.69**	-3.63****	-.192	-3.21****	-2.9****	-1.04	-1.02	
		Environment Exploration	315.5	174* *	330.5	10.4**	1.04	-3.79****	-3.48****	-1.44				
		Intended-Systematic Exploration	338.5	315	340	12.43	1.13							
		Amount of acquired Information	342	326.5	340.5	19.04***	.136	-1.99	-2.25	-4****				
		Satisfaction with Information	338	245.5	298.5	18.04***	2.58	-3.66****	-.167	-3.28****				
Reactions to Career Exploration	Exploration Stress	267.5	339	342	3.84	1.077								
	Decision Stress	332.5	330	285	1.72	4.27								
ACCI	Exploration	Crystallization	299	326	310.5	3.45	.041							
		Specification	309	342	318	1.03	1.09							
		Implementation	333	341	312.5	.078	.471							
	Establishment	Stabilizing	231	310	231	.369	3.36							
		Consolidating	265.5	324	257	3.56	3.8							
		Advancing	312.5	300	262	2.23	1.85							
	Maintenance	Holding	224*	244	279.5	2.59	.731							
		Updating	341.5	325	299	.159	4.42							
		Innovating	342.5	319.5	339.5	1.2	.553							
	Disengagementment	Deceleration	265	203*	207*	.8	1.53							
Retirement Planning		327	253.5	296	.735	4.04								
Retirement Living		306.5	265	284	1.33	1.27								

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$

### 3. Discussion and conclusion

The main purposes of this study were to present and discuss the results of the Career Self-Management Seminar (CSMS; Taveira, et al., 2009), considering the evolution of career exploration and career concern dimensions, amongst an experimental group of 40 young adult PhD students, in comparison with a control group of 14 young adult PhD students, along three different assessment moments.

In general, results indicate that the CSMS-B is effective in the career exploration process activation, and also, in the career concerns maintenance, as measured by the CES and the ACCI, respectively.

The intervention applied to the experimental group was effective in causing statistically significant fluctuations over the three assessment moments in the majority of the cognitive (employment outlook, certainty of exploration outcomes and internal search instrumentality), behavioral (self-exploration, environment exploration and amount of acquired information) and affective subscales (satisfaction with information) related to career exploration. Specifically, these results allow to conclude that the intervention was effective increasing PhD's positive beliefs about their potential for achieving employment in their area of interest, and about the possibility of achieving a favorable labor market position. This goes along with the main goals of the CSMS, which are to promote the development of a sense of hope, and of a positive attitude concerning to participants' self and future (Pinto, 2010; Taveira et al., 2009). Positive beliefs toward the self and the future, that is, the belief that he/she has the ability to cope with personal and professional challenges, and that the future will enable the achievement of their career goals, influence the degree in which individuals proactively engage themselves and persist in exploration behaviors (e.g., Burke, Joyner, Czech, & Wilson, 2000; Dweck, 1975; McElwee & Brittain, 2009; Silva, 2010).

The intervention was also effective in increasing exploration behaviors among participants about occupations, jobs and institutions, and these results remained five weeks after the conclusion of the career intervention. Furthermore, the intervention was effective in improving self-exploration and personal reminiscence behaviors, as well as, in promoting their beliefs that self-exploration could foster the achievement of their career goals. This suggests that the career seminar can contribute to the promotion of participants' engagement in the two key factors of the career self-management cycle – self and environment exploration (e.g., Greenhaus & Callanan, 1994; Greenhaus, Callanan, & Godshalk, 2010; King, 2000 Pinto, 2010). Nevertheless, these results are in line with others previously obtained,

according to which individuals show a strong tendency to overestimate career exploration behaviors oriented to themselves, and a strong tendency to underestimate career exploration behaviors oriented to the educational, formative, and professional world. That is, despite their involvement in self and world of work exploration behaviors, they believe that the first ones are the most important contributors to the attainment of their career goals (Rowold & Staufienbiel, 2010; Silva, 2010).

However, a detailed analysis of these results allows one to observe that five career exploration subscales did not change in a statistically significant way over the evaluation period, namely, external search instrumentality, importance of preferred position, intended systematic exploration, explorational and decisional anticipatory stress. These results suggest that, despite the CSMS-B having caused slight variations in these dimensions over the three assessment phases, by the end of this research they had not altered, in a statistically relevant way, (a) their beliefs that the exploration of the professional world could foster the achievement of their vocational goals or the degree of importance attributed to the achievement of those goals, (b) their intentional and systematic exploration behavior about themselves and the environment or (c) their stress reactions related to the exploration and decision processes. Considering that one of the purposes of this specialized program is to encourage the autonomy of the individuals in the career exploration behaviors, it would be expected more favorable results regarding intended systematic exploration subscale. However, authors like Zikic and Hall (2008) and Jordaan (1963), state that the participants' non-involvement, in an intensive, persistent, conscientious, and proactive way in career exploration can be a defensive strategy. That is, individuals do not engage themselves in systematic and intentional exploratory behaviors to avoid getting information which isn't confirmatory of their previous career decision (Silva, 2010). Nevertheless, it is important to note that these results should be interpreted according to the initial situation of the PhD students, that is, it must be taken into account the results that these participants' presented previously to their enrolment in the CSMS (Taveira et al., 2009). In this sense, the comparison between the obtained mean scores for pre-test and the standardized mean scores indicates that these participants already had optimal results regarding the cognitive, behavioral, and affective components of career exploration. Also, five weeks after the intervention's conclusion some of the results obtained at the different CES subscales maintained themselves, but others regressed to very similar levels to those detected at pre-test. This means that the CSMS-B produces higher beliefs about the possibility to achieve a favorable position in the labor market, more career exploration behaviors oriented to the self, and also more satisfaction with the quantity and quality of the explored information. However, these results also demonstrate that

the program is not stimulating, in a continuous way, the development of the career exploration behaviors, oriented to the world of work, as well as, the beliefs that the self exploration can increase the possibility to achieve their career goals, which may indicate the need of a career intervention more expanded in time. This contradicts the findings in the literature according to which interventions with four or five career sessions are those that produce more effective results (Brown & Krane, 2000).

As for career concern subscales, the CSMS-B caused no statistically significant changes in the experimental group. However, it is important to interpret these results with some caution. Savickas (2005) considers that career concerns constitute one of the most important dimensions when developing programs to help career design, construction, development, and management. Individuals need to engage themselves properly in the construction of their best possible future (Pinto, 2010; Savickas, 2008), but for that they should have optimal levels of career concerns. Thus, the results from the comparison between the obtained mean scores and the standardized mean scores indicated moderate levels of career concerns. This demonstrates that participants' career concerns remained stable throughout the program, and didn't approach either extreme of the theoretical range. That is, participants' career concerns were neither excessive, generating feelings of pessimism, stress or anxiety, nor reduced, generating feelings of apathy and indifference about career (Savickas, 2005). And in this sense, CSMS (Taveira et al., 2009) can be considered a highly effective career intervention.

The comparison between the results obtained by the experimental and the control groups, at three different moments in time, indicate the need for some caution in assuming the effectiveness of this career intervention program. Before the intervention, both groups were equivalent in all the career variables, excepting the need to explore and do different things or to do those things differently than usual, in favor of the control group. At post-test, it appears that the program was effective in the production of higher beliefs about the way environment exploration can facilitate the achievement of their career goals, of more self and environment exploration behaviors, and of less concerns related to the eventual need to reduce the current professional role, in favor of the experimental group, and by comparison with the control group. However, at follow-up, the experimental group results are similar to the control group results, distinguished only at the amount of self-exploration behaviors, and at the concern degree about the reduction of their professional role, in favor of the experimental group.

These results encourage future investigations. Therefore, in future studies it would be appropriate to develop a career self-management questionnaire, which would allow a direct evaluation of the career

self-management behaviors. Greenhaus and Callanan (1994), for example, made an important contribution in this field, when they presented a taxonomy for evaluating the effectiveness of these interventions, according to their career self-management cycle. Also, King (2000) invested in the development of measures that allowed an assessment of some of the influence and positioning strategies people use to control their career outcomes. But, in fact, none of these contributions spawned the construction of a career self-management questionnaire. Moreover, in future studies it would also be appropriate to continue to invest in the development of interventions targeted to the higher education. Nowadays, having a higher education diploma is no longer a guarantee to have a job with social recognition, with professional status, or financially rewarding, or to have a job at all (Azevedo & Fonseca, 2007). In Portugal, for example, there is an increasingly tendency that the higher the educational attainment, the greater the insertion and integration difficulty into the labor market. One way of getting this career management intervention to an increasing number of students, who invest in their postgraduate studies, would be through the development of an electronic version. Several authors (e.g., Venable, 2011) have advocated that college students may be very receptive to this type of intervention through the application of Information and Communication Technology. Thus, studies such as that presented here can establish as a first attempt to validate the intervention strategy on the development of career self-management skills. Thus, societies can benefit from investing in the development of programs and services aimed to support individuals to combine their personal career plans and goals, with the actual labor market trends (Nyquist & Wulff, 2000).

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