

## Report on an Intervention Experiment from the Perspective of Social Cognitive Career Theory

Marilda Aparecida Dantas<sup>1,\*</sup>

Orcid.org/0000-0001-6858-6421

Roberta Gurgel Azzi<sup>1</sup>

Orcid.org/0000-0003-0971-7852

<sup>1</sup>*Universidade Estadual de Campinas, Campinas, SP, Brasil*

### Abstract

This quasi-experimental designed work investigated the effects of an intervention focused on the exploration and planning of the professional/academic future of public high school students. This intervention was based on Social Cognitive Theory of Career and intermediated by the book *O Futuro está Logo Ali, Elpidio – Entre nesta Conversa sobre Pensar o que Vem Adiante*. The investigation happened through analyses of occupational self-efficacy of formation, and students occupational interests. There were a pre and a post-test. One hundred sixty-six students participated. They go to the second year of high school in two public schools in São Paulo State. The materials used were the instruments: (a) characterization questionnaire and (b) the Occupational Self-Efficacy of formation and occupational interests Scale. It was conducted in a collective way, through periodic meetings at the schools and with the teachers' support. The results of the correlations analyses (Spearman) between occupational self-efficacy of formation and occupational interests indicated similarities between the categorizations of occupations for both groups, having the experimental group presented more correlations. The results brought contributions to support life projects as to career planning of public high school students, guided by the Social Cognitive Theory of Career.

**Keywords:** Career, intervention, high school.

### Relato de uma Experiência de Intervenção na Perspectiva da Teoria Social Cognitiva de Carreira

#### Resumo

O presente trabalho, de delineamento quase-experimental, investigou os efeitos de uma intervenção sobre exploração e planejamento quanto ao futuro acadêmico/carreira em estudantes do ensino médio público. A intervenção foi pautada na Teoria Social Cognitiva de Carreira e intermediada pelo livro *O Futuro está Logo Ali, Elpidio – Entre nesta Conversa sobre Pensar o que Vem Adiante*. Foram verificadas as percepções de autoeficácia ocupacional de formação e interesses ocupacionais dos estudantes no

\* Mailing address: Rua Agostinho Rossi, 139, Parque Bela Vista, Pedreira, SP, Brazil 13920-000. E-mail: marildapsi@uol.com.br

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pré e pós-teste. Participaram 166 estudantes do ensino médio de duas escolas públicas paulistas, divididos em grupo experimental e grupo controle. Foram utilizados um questionário de caracterização e a escala de autoeficácia ocupacional de formação e interesses ocupacionais. A intervenção ocorreu em encontros periódicos nas salas de aula da própria escola e com apoio de professores facilitadores. Os resultados das análises de correlações entre as crenças de autoeficácia ocupacional de formação e interesses ocupacionais indicaram convergências entre as categorizações de ocupações para ambos os grupos, sendo que o GE apresentou um maior número de correlações entre as variáveis no pós-teste. Identificaram-se contribuições da teoria para embasar perspectivas quanto aos projetos de vida no que tange ao planejamento de carreira de estudantes do ensino médio de escolas públicas.

**Palavras-chave:** Carreira, intervenção, ensino médio.

## Informe de una Experiencia de Intervención desde la Perspectiva de la Teoría Cognitiva Social de Carrera

### Resumen

Este trabajo, de diseño cuasi-experimental, investigó los efectos de una intervención sobre exploración y planificación del futuro académico/carrera de estudiantes de enseñanza secundaria pública. La intervención se basa en la Teoría Cognitiva Social de Carrera, intermediada por el libro *O Futuro está Logo Ali, Elpidio – Entre nesta Conversa sobre Pensar o que Vem Adiante*. Se verificaron las percepciones de autoeficacia ocupacional de formación e intereses ocupacionales de estudiantes en el pre y post-test. Participaron 166 estudiantes de enseñanza secundaria de dos escuelas públicas de São Paulo, divididos en grupo experimental y grupo control. Se utilizaron un cuestionario de caracterización y una escala de autoeficacia ocupacional de formación e intereses ocupacionales. La intervención ocurrió en reuniones periódicas en aulas de la escuela con apoyo de maestros facilitadores. Los resultados del análisis de correlación entre creencias de autoeficacia ocupacional de formación e intereses ocupacionales indicaron convergencias entre las categorizaciones de ocupaciones de ambos grupos, y el grupo experimental presentó un número mayor de correlaciones entre las variables en el post-test. Se identificaron contribuciones de la teoría para apoyar las perspectivas de los proyectos de vida en relación con la planificación de la carrera de estudiantes de enseñanza secundaria de escuelas públicas.

**Palabras clave:** Carrera, intervención, enseñanza secundaria.

Career counseling practices have been guided by diverse theories of psychological science (Melo-Silva, Bonfim, Esbrogeo, & Soares, 2003; Teixeira, 2007). Among such theories, the one that forms the basis for the present study is the Social Cognitive Career Theory (SCCT), which emphasizes the role of self-referential thinking in human motivation and behavior, in processes aimed at developing interests, and in one's choices of occupational and academic fields (Lent, Brown, & Hackett, 1994). Within the scope of the SCCT, there is the construct of self-efficacy beliefs, which are "*beliefs concerning one's ability to plan and implement a certain course of action in order to realize achieve-*

*ments*" (Bandura, 1997, p. 3) and which are considered fundamental mechanisms of human agency. According to Bandura (2008), acting as an agent means intentionally making something happen, by way of the very acts that incorporate the belief system. Beliefs can affect people's motivation, wellbeing and accomplishments because, when individuals doubt their ability to achieve desired results through their actions, they tend to lack motivation to act or persevere when they face problems (Bandura, 1997, 2008).

Self-efficacy beliefs are defined by various fields and are typified by specific activities that are necessary to achieve a specific result within a specific context, since the areas in which, and the

extent to which, individuals cultivate their perception of self-efficacy differ (Bandura, 1997, 2006; Polydoro, Vieira, Azzi, & Dantas, 2012). This is a significant factor, for it indicates that people can have different perceptions of self-efficacy, in accordance with their specific field.

Personal self-efficacy beliefs can be modified to a certain extent via one's sources of information regarding the establishment, fortification or weakening of such beliefs, potentially influencing one's performance. Bandura (1997, 2008) indicates four self-efficacy information sources that contribute to perceiving such beliefs: (a) direct experiences of the consequences of acts that serve as indicators of ability; (b) vicarious experiences that alter beliefs through the observation and comparison of others' skills and achievements in attaining objectives; (c) social persuasion, which refers to other people's opinions concerning an individual's abilities; and (d) physical and emotional states, whereby what and how individuals feel influence their self-perceptions regarding their abilities. The formation and modification of perceptions can arise by way of experiencing one information source alone or a group of them.

In addition to self-efficacy, other constructs such as *intention/objective* and *expected result* can also influence mental performance. *Expected result* refers to one's beliefs and expectations concerning the probable outcome of one's performance (Bandura, 1997). *Objective* denotes "determination to engage in a specific course of action in order to achieve a certain performance level" (Bandura, 1986, p. 467). One observes that self-efficacy perceptions do not act independently and that objectives and expected results – as a group of mental processes – contribute to attaining individuals' achievements.

Betz and Hackett (1981) began research focusing Social Cognitive Theory's self-referential aspects on careers, spurring further studies that were analyzed by Lent et al. (1994), by which they formulated various theoretical models concerning career development. The first model centers on *interests*, the present study's focal point, and it explains the manner in which individuals develop their fondness or dislike for

academic and career pursuits. The cognitive and behavioral influences undergone by individuals, even when such persons do not engage in occupational endeavors, but rather in diverse scholastic, social or domestic pursuits, can serve as aids. The fact is that individuals are exposed to a wide range of activities that they do or do not engage in themselves; (i.e., they experience situations in which they observe other people engaging in – occupational - activities; Brown & Lent, 2006). The explanation of this theoretical model of interests infers that, although subjective and not necessarily planned deliberately, such experiences serve as self-efficacy information sources.

From a contextual standpoint such as social cognitive theory, activities experienced or observed by individuals can be perceived differently due to, for example, such individuals' culture or socioeconomic status, or even because of distinctions between activities that are traditionally performed either by men or by women. The theoretical model makes it clear that individuals customarily receive incentives to pursue activities that they consider feasible for themselves. Feedback offered by other people concerning such individuals' performance of such activities can improve their abilities, determine their performance standards, develop their sense of self-efficacy in terms of carrying out such tasks, and lead them to adopt certain expectations concerning the results of their endeavors, even in opposite directions (Brown & Lent, 2006).

Individuals tend to develop an interest for activities in which they feel they are more effective (Coimbra & Fontaine, 2010; Dantas & Azzi, 2015; Lent, Brown, & Larkin, 1986; Lent et al., 2001; Lent, Brown, Nota, & Soresi, 2003; Lent, Paixão, Silva, & Leitão, 2010; Lopez, Lent, Brow, & Gore, 1997; Nunes & Noronha, 2009, 2011). In turn, such an interest leads people to more clearly define their intentions/objectives in relation to activities that increase their subsequent tendency toward choosing specific tasks. Engaging in specific tasks or practices leads to achievements that can be successes or failures, in turn occasioning a reassessment of one's perception of self-efficacy and of one's

expectations as to outcomes anticipated for oneself. Individuals establish objectives along the lines of engaging in activities that are guided mostly by their interests and partly by the results they expect, directly affecting their selection of activities. Perceived self-efficacy and expectations as to outcomes directly influence one's objectives and choices in relation to activities, which occurs due to their role of aiding individuals to interpret, organize and apply their abilities (Brown & Lent, 2006; Lent et al., 1994).

Although they tend to remain stable, interests can change, for one's perceptions of self-efficacy beliefs and of expectations of outcomes are variable, not unchanging. Such changes can be caused by exposure to new learning experiences or new observations (such as technological advances, training courses or job restructuring), which cause impacts by providing self-efficacy belief feedback (Brown & Lent, 2006).

Surveys of students have shown that those who perceived themselves to be more self-effective also perceived a wider range of career options (Lent, Brown, & Larkin, 1984, 1986, 1987). SCCT-based career development interventions involving students have been implemented in various nations, such as the United States (Betz & Shifano, 2000), Spain (Martin & Tejedor, 2004) and China (Wang, Zhang, & Chao, 2010). Such interventions' results have generally indicated a strengthening of self-efficacy perceptions in various areas.

One perceives that career-development interventions involving students are stipulated for the scholastic context, although indirectly. According to Brazil's National Curricular Parameters (*Ministério da Educação*, 2000), in addition to furthering scholastic achievement, schools must monitor students' integration into present-day society in terms of both active citizenship and occupational issues. With respect to students' awareness of the contribution schools make to the career selection process, one gets the impression that such a contribution sometimes goes unacknowledged or remains relatively unrecognized, or even that it can transpire in a relative and indirect manner, simply because the students are attending school, as was pointed

out in research conducted by Valore and Cavallet (2012). Other studies propose interventions in schools as a way of achieving occupational crossover and completeness in elementary school education (Aguiar & Conceição, 2011; Aita, Ricci, & Tuleski, 2012; Lamas, Pereira, & Barbosa, 2008). There is no lack of arguments for acknowledging the contribution that schools (as social groups made up of young people) make to developing students' life projects and to providing students with career-decision fundamentals, as was stated by Kober (2008).

Expectations concerning the school context as an environment that contributes to contemplating one's career and the SCCT's theoretical perspective inspired the intervention implemented in the present study, whose aim was to check for correlations between the education-based occupational self-efficacy beliefs and occupational interests of high school students before and after the intervention.

## Method

The present study's proposal is characterized by quasi-experimental, longitudinal delimitation (Campos, 2004), whose intervention was mediated by the book *O Futuro está Logo Ali, Elpidio* ["The Future is Near at Hand, Elpidio"] (Azzi, Dantas, Benassi, & Guerreiro-Casanova, 2013).

### Participants

The present study enjoyed the participation of 166 students from two public high schools (School 1 and School 2) in the state of São Paulo. The students were subdivided into two groups: an experimental group (EG), which participated in the intervention; and a control group (CG) consisting of students who merely answered the questionnaires during the pre-test and post-test. The criterion employed to organize the groups was based on the facilitating teacher's available time in the respective class. The participants' personal-characterization data is presented below.

*Experimental Group (EG).* The EG consisted of 103 students in all, 62 of whom (60.19%)

were from School 1; and 41 (39.81%), from School 2. Of the 103 students, there were 64 females (62.14%) and 39 males (37.86%), with an overall mean age of 15.7 years; 56 students (54.90%) were attending morning classes; and 46 (45.10%), night classes. One student did not reply. School 1 was made up of two classes: Class B, with 32 students (31.07%); and Class E, with 30 (29.13%). School 2 consisted of Class A, with 24 students (23.30%), and Class C, with 17 (16.50%). All of the students were residing in São Paulo's metropolitan region. According to what the students self-declared, their racial distribution was as follows: 53 white (51.46%), 37 mulatto (35.92%), 7 black (6.80%), 3 oriental (2.91%), and 3 indigenous students (2.91%).

*Control Group (CG).* The CG consisted of 63 students in all, 58 of whom (92.06%) were from School 1; and 5 (7.94%), from School 2. Of the 63 students, there were 40 females (63.49%) and 23 males (36.51%), with an overall mean age of 15.5 years; 35 students (55.56%) were attending morning classes; and 28 (44.44%), night classes. Class C, with 28 students (44.44%), and Class D, with 30 (47.62%), came from School 1; and Class B, with 5 students (7.94%), came from School 2. Only 5 students (8.06%) were residing in a rural area. The CG participants' self-reports exhibited the following racial distribution: 49 white (77.78%), 9 mulatto (14.29%) and 5 black students (7.94%).

### Instruments

In order to conduct the intervention, we employed the book *O Futuro está Logo Ali, Elpidio – Entre nesta Conversa sobre Pensar o que Vem Adiante* [roughly translated as “The Future is Near at Hand, Elpidio – Get into this Conversation about Considering what Lies Ahead”] (Azzi et al., 2013), from the *Elpidio's Conversations* collection, a series of books aimed at high school students. The book's protagonist is Elpidio, a young student who, throughout the book's 14 chapters, chats with the readers about their path in high school and their reflections concerning the future in terms of academic and career choices. Further details concerning the material we employed can be found in Dantas (2015). The

book's aim is to encourage readers to reflect on their academic and career plans by way of activities involving discussions, question-and-answer sessions, and information searches on websites and in interviews.

For data collection, we employed the following instruments: (a) Sociodemographic Characterization Questionnaire (Guerreiro-Casanova, Azzi, & Dantas, 2010); and (b) Occupational Self-Efficacy Scale as to Education and Interests (Coimbra, 2000), which was adapted for Brazil, based on the Portuguese version, in which it exhibited validity evidence (Dantas, Azzi, & Noronha, n.d.). The adapted version consists of 2 subscales with 51 items (occupations) each. The first subscale measures the examinees' self-efficacy beliefs in relation to their ability to successfully complete the schooling necessary for each occupation. Examinees must check mark one of two options (“yes” or “no”) for each occupation. Examinees that check mark “yes” must then specify the degree of certainty of their perception of self-efficacy according to a 10-point Likert scale ranging from 1 (“absolute uncertainty”) to 10 (“absolute certainty”). In the second subscale, examinees rate their interest in each occupation according to a 3-item scale (“don't like,” “indifferent” or “like”).

### Data Collection Procedures

Participation in the survey was voluntary. Parents/guardians of students under 18 years of age signed informed consent forms. □ We contacted the high schools' administrations to inform them of the survey's objectives and of the preparations necessary for both the intervention and data collection. The project was presented to teachers at a meeting in which they were invited to apply the intervention to high school juniors. Data collection was conducted collectively in the classrooms, with the questionnaires acting as pre- and post-intervention surveys. There was no time limit for filling out the questionnaires, which took an average of 50 minutes. Each EG participant received a book (Azzi et al., 2013), □ which they referred to during classroom activities supervised by facilitating teachers as described below.

### *Intervention Procedures*

The intervention's aim was to encourage EG students to think about academic/career assessment and planning. The intervention process took place during the course of 4 months (April-August 2013), with an average of 12 classroom meetings, one a week, on different days of the week, in accordance with the teacher's time slot in the class. Facilitating teachers received the book and a notebook, and another meeting was held with them to share impressions and explanations concerning the book's structure. Facilitating teachers employed the following methodologies: (a) The intervention commenced after the researcher administered the pre-test (pre-intervention survey), on the day and at the time predetermined; at the end of the intervention, the researcher administered the post-test. (b) A pedagogical agreement was made with the students to the effect that their participation in the intervention would compensate for missed lessons in the respective subject, as there was no increase in the students' academic load. (c) Facilitating teachers employed strategies autonomously, with an emphasis on individual reading, shared reading, debates, records of reflections, and tasks. (d) No grade was given to students of the respective subject, and no other benefits or losses were incurred by the teachers or students.

The book recommends that it be used independently by individual students or collectively in a group conducted by a facilitator, thus not requiring the teachers to receive specific training.

### *Data Analysis Procedures*

We employed SAS software (Statistical Analysis System, v. 9.2) to analyze the collected data. Twenty percent of the participants' responses were randomly selected for verification, which revealed no discrepancies.

The items of the Occupational Self-Efficacy Scale as to Education and Interests were classified according to the occupations' characteristics and correlated with the Brazilian Economic Activity Classification System (CNAE, in Portuguese), whose categorization is supervised by the Brazilian Institute of Geography and Statis-

tics (IBGE). The CNAE is a standardized instrument employed for researching data according to the economic activity type at a national and international level. We employed version 2.0, a 2007 version of the United Nations Statistics Division's International Standard Industrial Classification of All Economic Activities (ISIC), which is employed as a reference tool for economic and socioeconomic statistical data. In order to classify the present study's items, we opted for using the first hierarchical level of classification by categories that represent various general areas of economic activities (IBGE, 2007).

In order to perform the above classification, we enjoyed the collaboration of three specialists with knowledge and experience in the field of occupational and career counseling. Their collaboration involved classifying each occupation according to its characteristics, assigning it to one or more of the CNAE's economic activity categories. Additionally, we employed a fourth criterion, namely that of locating and classifying the occupations in accordance with the standards of Brazil's National Classification Commission (Concla, in Portuguese), which entailed locating each occupation on the Concla website ([www.concla.ibge.gov.br](http://www.concla.ibge.gov.br)) and determining whether it fit into the CNAE's categories.

The specialists completely concurred as to 27 of the 51 occupations, all three evaluators identifying those 27 with the same categories of economic activity. With respect to 20 other of the 51 occupations, the judges partially concurred, assigning those 20 to two different areas of economic activity. There was also partial concurrence in relation to the remaining 4 occupations, with the specialists identifying those 4 with three or more economic activity categories. Although complete concurrence as to all 51 occupations was not observed, the evaluators' allocations of the occupations to different categories is acceptable because the same occupation can often fit into different economic areas.

The results we obtained for each category's grouping (IBGE, 2007) revealed that various groups exhibited negligible alpha coefficients ( $< 0.60$ ). In light of such results, we revised the groupings, combining similar groups of eco-

**Table 1**  
**Groupings of CNAE Version 2.0 Categories (Brazilian Economic Activity Classification System – Final Version)**

Category – Description
Occupations
A Farming, cattle raising, forest production, fishing and aquaculture (Farmer, Fisher, Agronomist, Biologist, Veterinarian, Engineer)
B Mining Industries (Factory Worker, Engineer)
C Manufacturing Industries (Factory Worker, Engineer)
D Electricity and gas (Electrician, Engineer)
E Water, sewage, waste management and decontamination activities (Engineer)
F Construction (Construction Worker, Architect, Engineer)
G Commerce; automobile and motorcycle repair (Merchant, Shop Employee [store clerk, cashier], Mechanic)
H Transport, warehousing and mail delivery (Professional Driver, Engineer)
I Lodging and food (Cook/Baker/Pastry-Maker, Specialist in Tourism)
J Information and communication (Journalist, IT Specialist, Writer)
K Financial, insurance and service related activities (Accountant)
M Professional, scientific and technical activities (Biologist, Attorney, Engineer, Judge, Veterinarian, Merchant, Psychologist, Sociologist, IT Specialist, Tourism Specialist, Musician, Director/Manager, Agronomist, Electrician, Writer, Fashion Designer, Physician, Literary Critic)
N Administrative activities and related services (Administrative Assistant, Director/Manager, Receptionist/Telephone Operator/Porter, Secretary)
O Public administration, safety and social security (Politician, Diplomat, Fireman, Police Officer, Attorney, Judge)
U International organizations and other overseas institutions (Diplomat)
P Education (Preschool, Elementary, Junior High or High School Teacher,)
Q Public health and social services (Social Worker, Physiotherapist, Psychologist, Sociologist, Healthcare Agent, Physician, Nurse, Fireman, Beautician, Biologist)
R Art, culture, sports and recreation (Professional Athlete or Sportsperson, Actor/Actress, Tourism Specialist, Musician, Fashion Designer, Student Monitors, Writer, Literary Critic, Photographer)
S Other activities and services (Hairstylist, Barber, Beautician, Photographer, Receptionist/Telephone Operator/Porter)
T Domestic services (Domestic Servant)

*Note.* Brazilian Economic Activity Classification (CNAE).

conomic activities (Categories) – and thus their items (occupations) – to form new groupings. Table 1 displays the final groupings.

The alpha coefficients we obtained for the final groupings were considered satisfactory, varying between 0.62 and 0.86. Having completed the above classification of items, we were then able to proceed with our analysis of the occupations in terms of the CNAE.

## Results

We subjected the data to the Shapiro-Wilk test for normality ( $p < 5\%$ ), which revealed abnormal distribution, calling for the application of the Spearman correlation test. We thus checked for correlations between the students' perceptions of occupational self-efficacy in relation to schooling and interests (Lent et al., 1994) in each

group (EG and CG) and in the pre-test and post-test. The CG's results for the pre-test and post-test are presented below, followed by the EG's results for those tests. In each group's table, correlations with a value of  $\rho < .0001$  are highlighted in bold type. We employed the term "corresponding" to refer to occupations in the same CNAE categories in relation to the comparison between self-efficacy beliefs and interests; and "non-corresponding," to designate occupations in different categories.

With respect to the CG pre-test's CNAE categories of self-efficacy beliefs relating to occupational training and interests, we observed significant positive correlations for all corre-

sponding categories. One can perceive that the students who firmly believed in their self-efficacy to successfully complete the training necessary to engage in CNAE Category A occupations (farming, cattle raising, forest production, fishing and aquaculture), for example, also displayed an interest in the respective occupations. The correlations were medium to high, ranging between 0.61 and 0.74 (Dancey & Reidy, 2006). Significant positive correlations between non-corresponding CNAE categories were also observed in eight cases, in which the coefficients displayed intermediate magnitude, varying between 0.47 and 0.62, as one observes in Table 2.

**Table 2**  
**Spearman Correlations between Occupational Self-Efficacy (education) and Occupational Interests via the CNAE – CG (pretest) – (N = 63)**

	Inter A**	Inter BCDEF	Inter GHI	Inter JK	Inter M	Inter N	Inter OU	Inter P	Inter Q	Inter R	Inter ST
FormA*	$r=0.74$ $p<.0001$	0.40 .0011	0.46 .0001	0.29 .017	0.60 <.0001	0.27 .028	0.24 .052	0.18 .157	0.54 <.0001	0.23 .068	0.08 .501
Form BCDEF	0.36 .003	0.68 <.0001	0.46 .0001	0.28 .022	0.25 .043	0.15 .240	0.03 .784	-0.06 .604	0.11 .385	-0.19 .131	-0.23 .059
FormGHI	0.43 .0004	0.38 .001	0.61 <.0001	0.42 .0005	0.47 .0001	0.42 .0004	0.25 .042	0.25 .047	0.39 .001	0.19 .121	0.17 .161
FormJK	0.13 .277	0.30 .015	0.29 .019	0.68 <.0001	0.38 .002	0.30 .0140	0.28 .021	0.01 .902	0.29 .017	0.17 .169	0.05 .678
FormM	0.47 <.0001	0.24 .048	0.40 .001	0.42 .001	0.63 <.0001	0.35 .0042	0.44 .001	0.26 .032	0.61 <.0001	0.41 .0008	0.25 .041
FormN	0.14 .271	0.04 .722	0.33 .007	0.41 .0006	0.32 .010	0.71 <.0001	0.04 .716	0.38 .001	0.33 .007	0.24 .054	0.45 .0002
FormOU	0.22 .074	0.23 .066	0.24 .057	0.41 .0007	0.44 .0002	0.24 .049	0.63 <.0001	0.11 .369	0.38 .001	0.29 .019	0.12 .318
FormP	0.14 .252	-0.01 .884	0.18 .141	0.19 .120	0.18 .146	0.42 .0005	0.04 .708	0.67 <.0001	0.25 .041	0.35 .004	0.43 .0003
FormQ	0.47 <.0001	0.09 .481	0.32 .009	0.33 .008	0.58 <.0001	0.34 .0063	0.31 .013	0.33 .007	0.74 <.0001	0.40 .001	0.42 .0005
FormR	0.18 .150	-0.06 .625	0.13 .302	0.33 .007	0.30 .015	0.33 .333	0.22 .070	0.35 .004	0.33 .007	0.47 .001	0.32 .010
FormST	0.05 .682	-0.22 .071	0.12 .335	0.19 .125	0.12 .341	0.48 <.0001	0.05 .680	0.46 .001	0.25 .040	0.33 .006	0.62 <.0001

Note. \* Occupational self-efficacy to complete training in CNAE Category A; \*\* Occupational Interests in CNAE Category A.

Based on the results of the CG post-test, we discovered that the positive correlations between schooling-based occupational self-efficacy and occupational interests continued for corresponding CNAE categories. All such correlations were of intermediate magnitude, varying between 0.50 and 0.65. Only two instances of relatively significant positive correlations were detected for non-corresponding CNAE categories; such correlations occurred between CNAE Category JK interests (Journalist, IT Specialist, Writer/Accountant) and CNAE Category Q self-efficacy

(Social Worker, Physiotherapist, Psychologist, Sociologist, Health Agent, Physician, Nurse, Fireman, Beautician, Biologist) [0.62], and between CNAE Category ST interests (Hairstylist, Barber, Beautician, Photographer, Receptionist/Telephone Operator/Porter, Domestic Servant) and CNAE Category N self-efficacy (Administrative Assistant, Director or Manager, Receptionist/Telephone Operator/Porter, Secretary) [0.48], as shown below in Table 3. A slight reduction was detected between the CG's pre-test and post-test for all corresponding categories' correlation coefficients.

**Table 3**  
**Spearman Correlations between Occupational Self-Efficacy (education) and Occupational Interests via the CNAE – CG (post-test) – (N = 63)**

	Inter A**	Inter BCDEF	Inter GHI	Inter JK	Inter M	Inter N	Inter OU	Inter P	Inter Q	Inter R	Inter ST
Form A*	<b>0.56</b> <.0001	0.40 .0011	0.22 .0731	0.16 .1871	0.36 .0030	0.30 .0153	0.33 .0082	0.34 .0054	0.40 .0010	0.1350 .2914	0.27 .0322
Form BCDEF	0.34 .0063	<b>0.60</b> <.0001	0.28 .0251	0.24 .0595	0.23 .0661	0.16 .1891	0.23 .0663	0.14 .2452	0.07 .5502	-0.03 .8081	0.003 .9809
FormGHI	0.27 .0332	0.39 .0016	<b>0.57</b> <.0001	0.32 .0103	0.36 .0034	0.41 .0006	0.20 .1033	0.18 .1476	0.31 .0111	0.20 .1066	0.31 .0120
FormJK	0.07 .5562	0.14 .2691	0.08 .52	<b>0.59</b> <.0001	0.27 .0303	0.11 .3619	0.22 .0769	0.15 .2306	0.19 .1189	0.17 .1736	0.12 .3466
FormM	0.39 .0014	0.26 .0363	0.25 .0459	0.44 .0003	<b>0.51</b> <.0001	0.30 .0168	0.37 .0027	0.15 .2127	0.45 .0002	0.28 .0243	0.27 .0319
FormN	0.27 .0309	0.18 .1399	0.30 .01	0.25 .0465	0.35 .0045	<b>0.62</b> <.0001	0.20 .1122	0.22 .0764	0.36 .0031	0.29 .0172	<b>0.48</b> <.0001
FormOU	0.27 .0307	0.23 .0619	0.07 .5817	0.27 .0281	0.33 .0079	0.04 .7033	<b>0.52</b> <.0001	0.06 .5863	0.25 .0435	0.07 .5749	0.11 .3521
FormP	0.16 .1999	0.28 .0237	0.24 .0489	0.31 .0127	0.18 .1416	0.23 .0623	0.07 .5543	<b>0.65</b> <.0001	0.12 .3202	0.23 .0659	0.11 .3882
FormQ	0.42 .0006	0.32 .0095	0.30 .0157	<b>0.62</b> <.0001	0.31 .0129	0.40 .0011	0.32 .0095	0.30 .0157	<b>0.62</b> <.0001	0.31 .0129	0.40 .0011
FormR	0.05 .6585	0.06 .6276	0.01 .8855	0.36 .0033	0.24 .0549	0.19 .1319	0.15 .2222	0.24 .0517	0.14 .2583	<b>0.50</b> <.0001	0.28 .0213
FormST	0.11 .3936	-0.03 .7637	0.11 .3520	0.21 .0992	0.21 .0843	0.38 .001	0.08 .5032	0.19 .1190	0.30 .0141	0.30 .0160	<b>0.59</b> <.0001

Note. \* Occupational self-efficacy to complete training in CNAE Category A; \*\* Occupational Interests in CNAE Category A. Significant values in bold.

The EG pre-test results revealed significant positive correlations between education-based occupational self-efficacy and occupational interests for all CNAE categories. The correlations we found exhibited medium-to-high values, ranging between 0.60 and 0.74. Other significant positive correlations between non-

corresponding categories were detected in 26 instances, with values that varied from low to medium (0.38-0.56), as is shown below in Table 4. Accordingly, the students firmly believed in their self-efficacy to successfully complete the training necessary to engage in certain CNAE-category occupations, and they displayed interest in other categories' occupations as well.

**Table 4**  
**Spearman Correlations between Occupational Self-Efficacy (education) and Occupational Interests via the CNAE – EG (pretest) – (N = 103)**

	Inter A**	Inter BCDEF	Inter GHI	Inter JK	Inter M	Inter N	Inter OU	Inter P	Inter Q	Inter R	Inter ST
FormA*	<b>0.67</b> <.0001	<b>0.53</b> <.0001	<b>0.45</b> <.0001	0.22 .0222	0.35 .0002	0.10 .2985	0.21 .0277	0.18 .0569	0.26 .0075	0.01 .8507	0.09 .3210
Form BCDEF	0.37 .0001	<b>0.72</b> <.0001	<b>0.50</b> <.0001	0.31 .0011	0.35 .0003	0.20 .03	0.22 .0207	0.10 .3060	0.17 .0835	-0.04 .6269	0.01 .9130
Form GHI	0.35 .0002	<b>0.56</b> <.0001	<b>0.68</b> <.0001	0.27 .004	0.34 .0004	0.30 .0018	0.17 .0690	0.27 .0059	0.14 .1387	0.12 .2090	0.16 .1062
FormJK	0.22 .0205	<b>0.38</b> <.0001	0.37 .001	<b>0.69</b> <.0001	<b>0.41</b> <.0001	<b>0.40</b> <.0001	0.18 .0598	0.21 .0309	0.25 .0085	0.30 .0015	0.22 .0245
FormM	0.36 .0002	<b>0.50</b> <.0001	<b>0.49</b> <.0001	<b>0.42</b> <.0001	<b>0.60</b> <.0001	<b>0.39</b> <.0001	<b>0.37</b> <.0001	0.28 .0041	<b>0.41</b> <.0001	0.31 .0013	0.23 .0178
FormN	0.08 .3954	0.24 .0125	0.29 .0022	0.36 .0002	0.33 .0005	<b>0.74</b> <.0001	0.12 .2121	0.34 .0004	0.24 .0120	0.19 .0472	0.28 .0038
FormOU	0.23 .0188	<b>0.38</b> <.0001	0.34 .0004	0.29 .0029	<b>0.51</b> <.0001	0.32 .0009	<b>0.65</b> <.0001	0.19 .0441	<b>0.39</b> <.0001	0.23 .0150	0.13 .1726
FormP	0.22 .0229	0.22 .0196	0.37 .0001	0.24 .0129	0.27 .0047	<b>0.40</b> <.0001	0.23 .0159	<b>0.69</b> <.0001	0.31 .0014	0.22 .0197	0.24 .0109
FormQ	0.32 .0009	0.27 .0044	0.30 .0020	0.21 .0261	<b>0.44</b> <.0001	0.34 .0003	0.26 .0069	<b>0.39</b> <.0001	<b>0.64</b> <.0001	0.21 .0300	0.32 .0008
FormR	0.14 .1548	0.14 .1398	0.34 .0004	<b>0.39</b> <.0001	<b>0.41</b> <.0001	0.25 .0087	0.25 .0108	0.34 .0004	0.30 .0018	<b>0.60</b> <.0001	0.36 .0001
FormST	0.29 .0028	0.13 .1636	<b>0.40</b> <.0001	0.24 .0132	0.32 .0007	<b>0.38</b> <.0001	0.11 .2330	<b>0.53</b> <.0001	<b>0.44</b> <.0001	<b>0.49</b> <.0001	<b>0.69</b> <.0001

Note. \* Occupational self-efficacy to complete training in CNAE Category A; \*\* Occupational Interests in CNAE Category A. Significant values in bold.

The EG post-test results revealed significant positive correlations between schooling-based occupational self-efficacy beliefs and occupational interests for all corresponding CNAE categories. Such correlations exhibited medium-to-high values, mostly high, varying between

0.60 and 0.77. In thirty-four instances, non-corresponding categories also displayed significant positive correlations, featuring low-to-moderate values (mostly moderate) ranging between 0.37 and 0.61, as is shown below in Table 5.

**Table 5**  
**Spearman Correlations between Occupational Self-Efficacy (education) and Occupational Interests via the CNAE – EG (post-test) – (N = 103)**

	Inter A**	Inter BCDEF	Inter GHI	Inter JK	Inter M	Inter N	Inter OU	Inter P	Inter Q	Inter R	Inter ST
FormA*	<b>0.60</b> <.0001	<b>0.39</b> <.0001	<b>0.38</b> <.0001	0.18 .0588	<b>0.37</b> <.0001	0.21 .0287	0.14 .1360	0.21 .0308	0.33 .0005	0.30 .0019	0.32 .0007
Form BCDEF	<b>0.44</b> <.0001	<b>0.75</b> <.0001	<b>0.47</b> <.0001	0.27 .0052	0.36 .0002	0.22 .0209	0.15 .1244	0.06 .4853	0.13 .1682	0.11 .2496	0.11 .2284
FormGHI	<b>0.57</b> <.0001	<b>0.52</b> <.0001	<b>0.73</b> <.0001	0.32 .0008	<b>0.42</b> <.0001	0.31 .0012	0.14 .1508	0.34 .0003	0.25 .0091	0.30 .0020	0.33 .0005
FormJK	0.24 .0111	0.33 .0005	0.32 .0009	<b>0.73</b> <.0001	<b>0.49</b> <.0001	<b>0.41</b> <.0001	0.23 .0161	0.08 .4025	0.20 .0414	0.36 .0001	0.24 .0143
FormM	<b>0.44</b> <.0001	<b>0.39</b> <.0001	0.35 .0002	<b>0.39</b> <.0001	<b>0.61</b> <.0001	0.34 .0004	0.31 .0011	0.26 .0060	<b>0.45</b> <.0001	<b>0.46</b> <.0001	<b>0.39</b> <.0001
FormN	0.25 .0087	0.27 .0046	<b>0.37</b> <.0001	<b>0.38</b> <.0001	<b>0.51</b> <.0001	<b>0.76</b> <.0001	0.26 .0072	0.36 .0001	<b>0.43</b> <.0001	0.33 .0005	<b>0.46</b> <.0001
FormOU	0.19 .0508	0.23 .0188	0.24 .0126	0.18 .0582	<b>0.45</b> <.0001	0.31 .0013	<b>0.70</b> <.0001	0.24 .0123	0.32 .0009	0.27 .0053	0.16 .1030
FormP	0.23 .0185	0.10 .2798	0.32 .0008	0.03 .7449	0.27 .0049	0.27 .0050	0.18 .0582	<b>0.70</b> <.0001	<b>0.38</b> <.0001	<b>0.42</b> <.0001	0.35 .0002
FormQ	0.21 .0279	0.04 .6202	0.06 .4978	0.08 .4072	<b>0.40</b> <.0001	0.25 .0101	0.23 .0180	0.36 .0001	<b>0.67</b> <.0001	<b>0.45</b> <.0001	<b>0.45</b> <.0001
FormR	0.34 .004	0.14 .1488	0.28 .0040	0.37 .0001	<b>0.52</b> <.0001	0.22 .0218	0.13 .1703	0.36 .0002	<b>0.42</b> <.0001	<b>0.74</b> <.0001	<b>0.50</b> <.0001
FormST	0.34 .0003	0.08 .3925	0.34 .0004	0.22 .0231	<b>0.48</b> <.0001	0.36 .0002	0.11 .2370	<b>0.37</b> <.0001	<b>0.51</b> <.0001	<b>0.61</b> <.0001	<b>0.77</b> <.0001

Note. \* Occupational self-efficacy to complete training in CNAE Category A (applies to the sequence of the column for the various categories); \*\* Occupational Interests in CNAE Category A (applies to the sequence of the line for the various categories). Significant values in bold.

Comparing the values of the coefficients of correlation between the EG's pre-test and post-test for corresponding CNAE categories, one notices a slight increase. It is noteworthy that, with respect to the post-test, CNAE Category M (professional, scientific and technical activities) exhibited the highest number of correlations with other categories, seven in all. Comparing the pre-test with the post-test, we observed that the values of the correlations identified in the CG data tended to decrease, whereas, for the EG, the correlations' values increased over time.

## Discussion

For both groups and both assessments (pre-test and post-test), our results evidence significant positive correlations between the participants' schooling-based occupational self-efficacy perceptions and their occupational interests. No significant negative correlations were observed. The theoretical SCCT model focusing on interests indicates that one's perceptions of self-efficacy and expectations of results in a specific domain tend to influence one's develop-

ment of interests. Accordingly, individuals tend to develop preferences and tastes for activities in which they perceive themselves to be effective (Brown & Lent, 2006; Lent et al., 1994), a fact that is corroborated by the literature on the subject (Coimbra & Fontaine, 2010; Lent et al., 1986; Lent et al., 2001; Lent, Brown, Nota et al., 2003; Lent, Brown, Schimidt et al., 2003; Lent, Paixão, Silva, & Leitão, 2010; Lopez et al., 1997; Nunes & Noronha, 2009, 2011).

The significant positive correlations that were identified in corresponding categories occurred in the pre-test; for both groups, such correlations can be explained by the fact that individuals are exposed to a series of activities that they engage in and that they observe other people engaging in, and they receive other people's feedback as to whether or not to engage in such activities (Brown & Lent, 2006), which could signify different information sources concerning efficacy, whether for its development, strengthening or weakening (experience in the field, vicarious experience, social persuasion; Bandura, 1997). People thus tend to pursue activities that they consider feasible for themselves and that they expect to perform satisfactorily. It is accepted that one's environment can contribute directly or indirectly to forming one's occupational self-efficacy beliefs, which implies that, regardless of the intervention that is made, students remain exposed to information sources that can influence the development of their professional interests.

We acknowledge that the students' personal experiences in school and other contexts could have contributed to the correlations we identified, agreeing with Kober's comments (2008) regarding schooling and careers. Nevertheless, it is still worthwhile to consider the possibility that the development of the planned career experience for the students somehow influenced their perceptions of self-efficacy beliefs and their interests (Betz, 2004; Brown & Lent, 2006; Lent, Hackett, & Brown, 2004). In light of the fact that the correlations we detected also occurred prior to the intervention, it is worth considering the information sources to which the students were/are exposed because, from the perspective of the

SCCT, perceptions of self-efficacy beliefs contribute to either avoiding or engaging in the behavior at issue, and when individuals avoid certain things, they are unwilling to learn or master such things (Bandura 1997; Betz, 2004).

On the whole, the CG's post-test correlations tended to be limited to corresponding categories alone, and their values were lower than those of the EG's post-test correlations. In contrast, the EG's post-test data tended to be more wide-ranging, not being limited to the correlations of the same occupations alone, a fact that was already observed in the pre-test, which indicates that the EG's students believed in their self-efficacy to successfully complete the training necessary to engage in both corresponding and non-corresponding occupations. It is worth emphasizing that such a phenomenon in the EG increased subsequent to the intervention, which implies that the EG's students experienced a greater diversity of academic and career aspirations afterwards, substantiating the findings of the literature on the subject, which indicates that students who believe in their self-efficacy also believe they have a wider range of career options (Lent et al., 1984, 1986, 1987).

It is noteworthy that a portion of the content of the proposed intervention that the EG was subjected to had to do with self-regulating learning, setting academic and career goals, seeking out information concerning the various types of university courses and technical training programs, and reflecting on the facets of such choices (Azzi et al., 2013). It is possible that the experience of reflecting on such matters in the classroom has somehow influenced the EG's members and improved their perceptions. Furthermore, although Brown and Lent (2006) claim that interests tend to remain stable, our results reveal that interests undergo changes.

Analyzing the EG's results, we perceived that CNAE Category M (professional, scientific and technical activities) exhibited the highest number of significant positive correlations (Tables 3 and 4). One should bear in mind that a university education is indispensable for most of the occupations that make up this category, a fact that could have acted as a filter, as Coimbra

(2000) pointed out, which is consistent with the expectations of around 65% of the students, who reported (in the post-test) their intention of pursuing a university education.

The tendency we detected in the correlations with respect to the occupation categories indicated that changes did in fact occur both in the groups and over time, which is expected in the literature when one considers that self-efficacy belief perceptions are not unchanging (Bandura, 1997). Nonetheless, one must still be careful, for information sources can also have the opposite effect; that is, they can weaken one's perceptions of self-efficacy by somehow suggesting that one is incapable of achieving something, thus influencing one's interests, goals and actions in relation to such an occupation (Bandura, 1997; Lent et al., 1994). It is worth underscoring that the students' perceptions could have been affected by their job possibilities in economic activities that are proximate or distant for the environment they live in.

With the broadening of the EG students' perceptions, one would expect them to make better choices taking into consideration their assessment of the occupations, even though those students were still high school juniors and their actual choices would potentially only be made after one year. One must bear in mind that not all of the occupations that one could possibly engage in in Brazil were considered for this scale, as that appears to be a practically impossible task, and perhaps unnecessary for the purposes of the present study. Taking into consideration that self-efficacy beliefs act as a predictor of one's motivation (Bandura, 1997) and that interests, in turn, influence one's aims/goals in relation to choosing activities and tasks (Brown & Lent, 2006; Lent et al., 1994), upon detecting a reduction in the values of the correlations identified in the present survey, we became somewhat concerned about the need for further research aimed at identifying the possible reasons for such a finding, especially with regard to the CG. Along these lines, it would be worthwhile to analyze the information the students received to guide their aspirations as to the range of occupa-

tions they can engage in and their possibilities of achieving their educational targets. Do they tend to take a deterministic stance with respect to occupations? In relation to future interventions, we recommend both specialized training for the facilitators who will be conducting such interventions and the inclusion of other SCCT constructs in the surveys, preferably those of a longitudinal nature, as a possible way of monitoring the students.

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