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## Evaluation of the Young Apprentice Program through a Quasi-Experimental Study

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### Abstract

In Brazil, the youth workforce presents an exploratory relationship, without focus on the quality of professional training. This study aimed to evaluate the contribution of the Young Apprentice Program in the life of adolescents, 15 to 18 years of age, in terms of professional development, employability, and self-efficacy. A quasi-experimental study was carried out, with two data collection moments - at the start of the training and six months later. A total of 250 adolescents from the program (experimental group) and 259 non-participants (control group) were studied. The professional development, employability, and self-efficacy scales presented evidence of psychometric validity. To compare the research groups, mixed ANOVA, 2 (group) X 2 (time), with repeated measures (intra-subject), was used. The results indicated that the program aids professional development, employability and self-efficacy. Suggestions for improving the program and reflections regarding public policies aimed at High School Education are presented.

**Keywords:** Young apprentice, professional training, professional development, employability, self-efficacy.

### Avaliação do Programa Jovem Aprendiz a partir de um Estudo Quase-Experimental

### Resumo

No Brasil a mão de obra juvenil apresenta uma relação exploratória e sem foco na qualidade da formação profissional. Esta pesquisa objetivou avaliar a contribuição do Programa Jovem Aprendiz na vida de adolescentes de 15 a 18 anos, em termos de desenvolvimento profissional, empregabilidade e autoeficácia. Foi realizado um estudo quase-experimental, com dois momentos de coleta de dados – no início da formação e seis meses depois. Foram pesquisados 250 adolescentes participantes do programa (grupo experimental) e 259 não participantes (grupo controle). As escalas de desenvolvimento profissional, empregabilidade e autoeficácia apresentavam evidências de validade psicométrica. Para

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comparar os grupos de pesquisa, utilizou-se a ANOVA mista 2 (grupo) X 2 (tempo) com medidas repetidas (intra-sujeitos). Os resultados indicaram que o programa favorece o desenvolvimento profissional, a empregabilidade e a autoeficácia. São apresentadas sugestões para melhoria do Programa Jovem Aprendiz e reflexões para as políticas públicas voltadas para a formação profissional e para o Ensino Médio.

**Palavras-chave:** Jovem aprendiz, formação profissional, desenvolvimento profissional, empregabilidade, autoeficácia.

## Evaluación del Programa Joven Aprendiz a partir de un Estudio Casi-Experimental

### Resumen

En Brasil la mano de obra juvenil tiene una relación de explotación y no enfoca la calidad de la formación profesional. Esta investigación objetivó evaluar la contribución del Programa Joven Aprendiz en la vida de adolescentes de 15 a 18 años, en los términos del Desarrollo Profesional, Empleabilidad y Autoeficacia. Se realizó un estudio casi-experimental, con dos momentos de recolección de datos – al inicio de la formación y seis meses después. Se investigaron a 250 adolescentes participantes del programa (grupo experimental) y 259 no participantes (grupo control). Las escalas de desarrollo profesional, empleabilidad y autoeficacia presentaban evidencias de validez psicométrica. Para comparar los grupos de estudio, se utilizó la ANOVA mixta 2 (grupo) X 2 (tiempo) con medidas repetidas (intra-sujetos). Los resultados indicaron que el programa favorece el desarrollo profesional, la empleabilidad y la autoeficacia. Se presentan sugerencias para mejorar el Programa y reflexiones dirigidas a las políticas públicas de la Enseñanza Secundaria.

**Palabras clave:** Joven aprendiz, formación profesional, desarrollo profesional, empleabilidad, autoeficacia.

Approximately 30% of the world population is composed of adolescents and approximately 80% live in developing countries - these numbers indicate the importance of understanding aspects related to this target population, including education and the challenges for the professional practice (Cerqueira-Santos, Melo, & Koller, 2014). Specifically with regard to the participation of the adolescent in the labor market, a high participation in Brazil is observed when compared to other countries, which is due to the abundance of this group, as well as to the exploratory character still existing in them (Oliveira, 2009).

The inappropriate use of child labor cannot be disregarded, as it is a phenomenon that persists despite the legal precepts that regulate the area - Brazilian Institute of Geography and Statistics (IBGE) data indicate two million Brazilians between 14 and 17 years of age work-

ing irregularly (2016). Only half of the young people aged between 18 and 24 years complete high school (IBGE, 2013) and there is a high age-grade distortion with a significant number of students in the 18 to 19 years age group. In addition, 49% of young people aged 15 to 17 are out of High School Education and 18% out of schools (Schwartzman & Castro, 2013).

In fact, in national and international studies, the work of adolescents has a direct relationship with the socioeconomic level and with school abandonment or academic performance. Studies highlight that while adolescent work is seen as detrimental to youths of the middle and upper socioeconomic levels, it is considered beneficial for low-income youth (Amazarray, Thomé, Souza, Poletto, & Koller, 2009; Kingston & Rose, 2015; Leventhal, Graber, & Brooks-Gunn, 2001; Purtell & McLoyd, 2013). However, there are studies that show that intense work (more than 20 hours a week) can be harmful to young peo-

ple of any social class (Purtell & McLoyd, 2013) and that poor adolescents who are in work of this nature tend to present harmful behaviors in the near future - such as cigarette smoking, alcohol use and a diversity of sexual partners (Kingston & Rose, 2015) or problems in academic life, health, and in the formation of identity (Amazar-ray et al., 2009).

This early insertion into the world of work therefore reflects a social reproduction of poverty, widely discussed in the national and international literature as an intergenerational phenomenon (Landstedt, Brydsten, Hammarström, Virtanen, & Almquist, 2016; Naiff, 2014). In several countries, the youth segment with socioeconomic problems is inserted in the labor market early, aiming to support themselves and their families (Pais, 2016). In the Brazilian urban centers, young people with greater social vulnerability (black people, females, those with low schooling and those from poor families) are more likely to be in very precarious and low paid work situations (Oliveira, 2009), as well as being a population that suffers from a lack of opportunities aimed at young people and from a lack of qualifications (Calazans, de Sousa, & Fischer, 2014).

Studies in Brazil show that it is common for adolescents to abandon school, due to the need to work or because of the difficulty of reconciling work and study (Schwartzman & Castro, 2013). Half of the Brazilians who complete high school present a age-grade distortion (IBGE, 2016), which is not only associated with early work, but also with the low capacity of the educational system to attract, retain and qualify students. In this sense, public policies aimed at the entrance of adolescents into the world of work must take into account the incentive to continue studying.

The Law of Learning Program, known as the Young Apprentice Program - YAP, which is the study subject of this article, is characterized by promoting the insertion of adolescents and young people into the world of work, with the participant required to continue at school. The Program is linked to the Ministry of Labor and Employment (MLE), which establishes legal relationships, including the provision of services

and the learning contract. The YAP considers the provisions of the Consolidation of Labor Laws - CLL (Decree-law No. 5452, 1943; MLE, 2014) and the Child and Adolescent Statute - CAS (Law No. 8069, 1990) to guarantee the right of young people to professionalization and provides work with technical-professional training compatible with the physical, moral and psychological development of the adolescent (MLE, 2014; Oliveira, 2009).

The characteristics and objectives of the Program – aimed at work insertion supported by the education-work binomial – relate its results to the professional development, the increase in employability and the perception of self-efficacy of the adolescent and youth participants. Thus, the present study aimed to evaluate the effectiveness of this Program in the lives of adolescents. Accordingly, the guiding question defined for the study was: To what extent does participation in the YAP contribute to a more positive perception of self-efficacy, professional development and employability on the part of the adolescents? The study therefore aimed to evaluate the contribution of the Young Apprentice Program in the life of adolescents aged 15 to 18 years in terms of professional development, employability and self-efficacy. Table 1 presents a synthesis of the Young Apprentice Program.

Thus, the learning contract goes beyond employment and paying the salary, as it also involves aspects of professional training (Oliveira, 2009). Professional training refers to educational processes in schools or companies in order to absorb and develop knowledge, emphasizing its procedural nature (Cattani, 2002; Mourão & Puente-Palacios, 2006). The professional training theme, besides having multiple concepts, is present in the different moments of Brazilian history, linked to the capitalist economic character (Frigotto, Ciavatta, & Ramos, 2014) and requiring reflections regarding the traditional education systems of urban-industrial society (Pochmann, 2012).

Some studies on the YAP are useful to better understand the program and its results. The study by Pessoa, Alberto, Máximo, and Souza

**Table 1**  
**Synthesis of the Young Apprentice Program**

Legal devices	Decree-law No. 5452/1943 - CLT, chap. IV, art. 402 to 441; Law No. 10.097/2000; Decree No. 5598/2005
Procedure	Methodical technical-professional training of adolescents and young people, developed through theoretical and practical activities, with progressive complexity.
Target public	Young people between the ages of 14 and 24 who are attending regular school.
Learning contract	Special written agreement, with a maximum period of two years (except for young people with disabilities), in which the employer ensures professional technical training compatible with the physical, moral and psychological development of the learner.
Basic assumption	Registration in the Labor and Social Security card - <i>Carteira de Trabalho e Previdência Social</i> [CTPS], all labor and social security rights being assured.
Termination of contract	Insufficient or inadequate performance of the learner, serious disciplinary offense, unexcused absence or at the request of the learner.
Functioning of the training	The YAP foresees a maximum number of 20 to 30 hours per week, with 4 to 6 hours of that workload being allocated to professional training.
Types of courses	There are several professional training courses in which the adolescent can participate in the YAP (e.g. administrative occupations, banking practices, industrial production assistant, telematics, teleservices, tourism and hospitality).
Training institution	S System Institutions ( <i>Serviço Nacional de Aprendizagem Industrial</i> [Senai], <i>Serviço Nacional de Aprendizagem Comercial</i> [Senac], <i>Serviço Nacional de Aprendizagem do Transporte</i> [Senat], <i>Serviço Nacional de Aprendizagem Rural</i> [Senar], <i>Serviço Nacional de Aprendizagem do Cooperativismo</i> [Sescoop]); Technical schools, including agriculture and livestock; Non-profit entities registered in the <i>Conselho Municipal dos Direitos da Criança e do Adolescente</i> (CMDCA's)
Contractor company	Obligation to be contracted in establishments of any nature, including small businesses and non-profit organizations; contracting quota from 5% to 15% of the total number of employees; receives tax incentives (2% of <i>Fundo de Garantia do Tempo de Serviço</i> [FGTS], exemption notice and fine rescission).
Selection, remuneration and journey	Freedom of selection by the employer, respecting constitutional principles; Minimum wage / hour, computing hours for theoretical and practical activities, in training institutions and companies, with a limit of up to six hours a day for young people attending Elementary Education and up to eight for young people in High School Education.
Rights	13 <sup>th</sup> salary, transportation voucher, vacations, FGTS, social security ( <i>Instituto Nacional do Seguro Social</i> [INSS]).
Control	Secretariat of Public Policies for Employment - SPPE and the coordination of learning supervision of each Regional Superintendence of Labor and Employment (SRTE).
Training Design	The Program provides for the execution of theoretical and practical activities, having the professional training of the apprentice as the main objective. The program should consider the target public (learners by class and socioeconomic profile), the content to be developed in terms of knowledge, skills and attitudes and the structure of the learning program according to the Brazilian Occupation Code (CBO), the occupational sector, or at an average technical level.

Source: Adapted from Calazans et al. (2014) and from MLE (2014).

(2014) shows that adolescents perceive a gap between the professional training content and the practice in the companies, with a process that favors the framing of young people in the organizational profile. Similarly, Macêdo and Alberto (2012) confirmed the disciplinary character of the Young Apprentice training, with the graduates emphasizing the evidence of professional experience and the remuneration that allows the acquisition of consumer goods, with low appreciation of learning as a result of the participation in the program.

Something similar occurred in the study by Mattos and Chaves (2010), in which the young people studied, despite recognizing that they had developed new skills and abilities, experienced the contexts of school and work as two distinct worlds with tensions and contradictions. However, there were studies, such as the one carried out by Amazarray et al. (2009), in which, as well as the valorization of the remuneration, the adolescents also made an association with the acquisition of lifelong knowledge and the valorization of the professional qualification as a means to achieve good insertion into the market.

In the study by Sousa, Frozzi, and Bardagi (2013), the experience of the adolescents in the YAP resulted in a positive evaluation of the opportunity to enter the labor market; and a negative evaluation of the theoretical part, although they recognized that the program increased the motivation to study. Finally, the study by Silva and Trindade (2013) identified that the girls participating in the YAP valued the preparation for life more in terms of professional and personal growth, while the boys predominantly had expectations of financial order to help the family and to obtain independence.

Considering the objectives established for the YAP, its relationship with the CLL and its professional training characteristics, the present study considered three possible variables as a consequence of the YAP, namely: professional development, employability and self-efficacy. Each of these, therefore, gave rise to a hypothesis for the present study.

Professional development refers to a work-related learning process through training or edu-

cation, considering what people expect from their professions (VandenBos, 2010). Professional development is therefore a process of continuous growth in the cognitive, affective and behavioral domains, which favors work performance and individual career growth (Mourão, Porto, & Puente-Palacios, 2014). Thus, actions related to professional development stem from both formal and informal learning, fostering the acquisition of skills (Mourão, Monteiro, & Viana, 2014). In the case of the YAP, the adolescent apprentice is able to experience these two types of learning, which in its broader concept can be understood as an existential phenomenon and a process of the human essence, shaped by the person's interaction with the world, throughout life (Jarvis, 2013). Therefore, it is believed that the adolescent who participates in the YAP perceives a development in their preparation for the work in the labor market and, therefore, **Hypothesis 1** was formulated - Adolescents participating in the YAP perceive themselves to have greater professional development than adolescents who have not participated in the program.

Employability, in turn, is a much debated topic in international academic circles and has a trajectory since the beginning of the 20th century, with the articles of Bernard Gazier. At that time, the term encompassed the condition of a person to be employable or not according to their immediate availability for the labor market, their desire to work and a lack of physical impediments or excessive family obligations (Hirata, 1997). In the 1990s, the concept of employability took a more systematic form, with empirical investigation of its meaning (Forrier & Sels, 2003) and its inclusion in the organizational vocabulary (Rueda, Martins, & Campos, 2004). In this new context, employability becomes a concept with a place in government policies, understood as a construct that interests society as a whole and which composes social welfare policies (Adam, Atfield, & Green, 2017). Employability as the possibility of acquiring a job is therefore understood as a consequence of the investments of different actors, namely: Individuals, with the assumption of responsibility for their own careers; organizations, with the pro-

motion of professional development possibilities for their employees; and the State, with public policies that contribute to professional training and qualification (Peixoto, Janissek, & Aguiar, 2015). Considering the above, it is believed that the initial experience in the world of work provided by the YAP, as well as the training that complements this experience, could generate an increase in the perception of employability in the young participants. Thus, **Hypothesis 2** was established for the study – After a period of participation in the YAP, adolescents perceive themselves to be more employable than those who have not participated in the program.

Finally, the concept of self-efficacy is presented by Albert Bandura, being based on the perspective that the person would be an “agent” of himself, in the sense of intentionally influencing his own functioning and his life circumstances, on the path of change and self-development. From this concept, people are self-regulated and self-reflective, with the ability to organize and execute the actions necessary to achieve and produce a certain performance (Bandura, 2008). Self-efficacy beliefs therefore influence people’s behaviors (Pei, Pei, Cheng-Hao, & Peng-Cheng, 2017) and are related to professional career decisions (Kim, Rhee, Ha, Yang, & Lee, 2016). In adolescence, given the new responsibilities assumed, self-efficacy is in the process of development and can act as a facilitator in the many pressures experienced, so that adolescents’ perceptions of such pressures - seen as threats or opportunities - depend on how they exercise their role of agent (Fontes & Azzi, 2012). Thus, it is believed that successful work experiences from the YAP may increase the adolescent’s belief in his or her own ability. As a result, **Hypothesis 3** was established: Adolescents participating in the YAP perceive themselves to be more self-efficacious than adolescents who have not participated in the program.

## Method

A quasi-experimental study design was used, with data collection at the start and six months after initiating the intervention, consid-

ering that this time would be sufficient for the results of the program to have an effect in terms of professional development, self-efficacy and perception of employability. There was an intention to carry out an experiment, which was not feasible due to the selection of the participants of the YAP through a profile desired by the contracting organizations.

In order for the control group to maintain similar characteristics to the YAP participants, adolescents in the same age group (15 to 18 years old) and who were attending High School Education in public schools were included. To compose the experimental group, information was collected in four training institutions; while the control group originated from two public schools. In the experimental group, the first collection occurred at the beginning of the formation of the classes, and the second was performed, with the same adolescents, six months after the beginning of participation in the work and training activities of the YAP. In the control group, the same interval between the first and the second collection was respected.

## Participants

The criteria for inclusion in the experimental group were enrollment and effective participation in the Program for at least six months. For the participants in the control group, the inclusion criteria were to be a student who was regularly enrolled in high school and aged 15 to 18 years. The exclusion criteria for both groups was the existence of 30% or more blank questions in the respective questionnaires or withdrawal from the Program or school by the second point of data collection.

The total sample consisted of 509 young people, of both sexes, 250 participants of the YAP and 259 adolescents who composed the control group. The sample distribution was 51.3% women and the age ranged from 15 years (10%) to 18 years (27.3%), with a concentration between 16 and 17 years of age (62.7%). The highest percentage of respondents were concentrated in the first and second years of High School Education (77.2%) and family education levels indicated a predominance of at least one

member of the family with complete (43.5%) or incomplete (20.1%) High School Education.

The comparison of the two groups (experimental and control) showed similar data in terms of sex (Table 2). The other variables showed some differences between the groups. The experimental group had a slightly higher level of family education than the control group and there was also a difference in family income, especially in the higher strata, as, when comparing those who earned more than three minimum wages, the percentage in the experimental group was 21.6%, compared to 11.6% in the control group.

The sample loss between the first and the second data collection was 107 subjects, with a lower incidence of withdrawal from the YAP (32 participants) when compared to cases of school withdrawal (75 in the control group). This result can be explained by the fact that the data collection of the second moment was carried out at the end of the school year, when many students already knew that they would not pass and stopped attending school. In the analyses, therefore, only adolescents who participated in the two collections were considered, with 218 of the experimental group and 184 of the control group, the losses of which were more pronounced.

### Data Collection Instruments

In the present study, it was chosen to work with instruments that already presented evidence of psychometric validity. Thus, the perception of professional development was measured from the Current Perception of Professional Development Scale (*Escala de Percepção Atual do Desenvolvimento Profissional* [EPADP]) developed by Mourão, Porto, et al. (2014), a unifactorial instrument, composed of eight items, ranging from 0 (totally disagree) to 10 (totally agree), with an accuracy degree of 0.82 (Cronbach's Alpha). The scale items were slightly adapted to suit the reality of the YAP, for example: "I have had considerable professional development since I started working" was modified to "I have had considerable professional development since I started in the YAP".

For self-efficacy, a reduced version of the General Perceived Self-Efficacy Scale (EAGP) of Nunes, Schwarzer, and Jerusalém (1999) was used, adapted for Brazilian samples by Martins and Onça (2011). The scale is a unifactorial, consisting of 5 items, ranging from 0 (totally disagree) to 10 (totally agree). Item example: "I believe I can effectively accomplish many different tasks". The consistency index (Cronbach's Alpha) obtained in the initial study was 0.81.

Finally, the Employability Self-Perception Scale (*Escala de Autopercepção de Empregabilidade* [EAE]), developed by Peixoto, Janissek and Aguiar (2015), was also used to assess the individuals' perceptions regarding their employability. It is composed of two factors - Maintenance (of current employment) and Acquisition (of a new job) - with 10 items, answered based on a six-point Likert-type scale, ranging from 0 (totally disagree) to 10 (totally agree). Considering that the Maintenance Dimension refers to people who already have a job - which does not apply to the young apprentices, in this study only the Acquisition dimension was used, with four items and a consistency index (Cronbach's Alpha) of 0.75. Item example: "I think another company has an interest in hiring me".

### Ethical Procedures

The study was registered in the *Plataforma Brasil* and previously approved by an ethics committee (CAEE 47586215.7.0000.5289). The participants over the age of 18 and those responsible for the participants under the age of 18 signed the consent form and the participants were guaranteed the right to know the objectives and results of the study, with an individualized return of the results made available to all the adolescents interested. The confidentiality of the information obtained during the data collection was preserved. The application of the questionnaires was performed by the researcher herself, without the participation of other people in the data collection process.



**Table 2**  
**Description of the Sample According to the Experimental Groups and Control and Remaining in the Study**

Variables	Categories	Experimental Group	Control Group	Total	Left the School or the Program	Participants of the two collections	Absent in 2 <sup>nd</sup> application	Total
Sex	Female	121(48.4%)	140 (54.1%)	261 (51.3%)	21 (50.0%)	199 (49.5%)	41 (63.1%)	261 (51.3%)
	Male	129 (51.6%)	119 (45.9%)	248 (48.7%)	21 (50.0%)	203 (50.5%)	24 (36.9%)	248 (48.7%)
Age	15 years	20 (8.0%)	31 (12.0%)	51 (10.0%)	3 (7.1%)	36 (9.0%)	12 (18.5%)	51 (10.0%)
	16 years	86 (34.4%)	58 (22.4%)	144 (28.3%)	5 (11.9%)	128 (31.8%)	11 (16.9%)	144 (28.3%)
	17 years	87(34.8%)	88 (34%)	175 (34.4%)	15 (35.7%)	142 (35.3%)	18 (27.7%)	175 (34.4%)
	18 years	57(22.8%)	82 (31.7%)	139 (27.3%)	19 (45.2%)	96 (23.9%)	24 (36.9%)	139 (27.3%)
Family schooling (member who studied most in the family)	Never studied	2 (8.0%)	1 (4.0%)	3 (6.0%)	0 (0.0%)	3 (8.0%)	0 (0.0%)	3 (6.0%)
	Incomplete FE	29 (11.6%)	33 (13.3%)	62 (12.5%)	6 (14.6%)	49 (12.3%)	7 (11.9%)	62 (12.5%)
	Complete FE	17(6.8%)	31 (12.5%)	48 (9.7%)	2 (4.9%)	42 (10.6%)	4 (6.8%)	48 (9.7%)
	Incomplete HSE	40(16.1%)	60 (24.2%)	100 (20.1%)	6 (14.6%)	78 (19.6%)	16 (27.1%)	100 (20.1%)
	Complete HSE	127 (51.0%)	89 (35.9%)	216 (43.5%)	20 (48.8%)	172 (43.3%)	24 (40.7%)	216 (43.5%)
	Incomplete HE	17(6.8%)	17 (6.9%)	34 (6.8%)	4 (9.8%)	26 (6.5%)	4 (6.8%)	34 (6.8%)
Family income	Complete HE	17 (6.8%)	17 (6.9%)	34 (6.8%)	3 (7.3%)	27 (6.8%)	4 (6.8%)	34 (6.8%)
	Up to 1 MW	25 (10%)	53 (21.1%)	78 (15.6%)	8 (19.5%)	61 (15.2%)	9 (15.5%)	78 (15.6%)
	From 1 to 2 MW	98 (39.2%)	114 (45.4%)	212 (42.3%)	14 (34.1%)	172 (42.8%)	26 (44.8%)	212 (42.3%)
	From 2 to 3 MW	73 (29.2%)	55 (21.9%)	128 (25.5%)	7 (17.1%)	108 (26.9%)	13 (22.4%)	128 (25.5%)
	From 3 to 5 MW	42 (16.8%)	23 (9.2%)	65 (13%)	8 (19.5%)	50 (12.4%)	7 (12.1%)	65 (13.0%)
	More than 2 MW	12(4.8%)	6 (2.4%)	18 (3.6%)	4 (9.8%)	11 (2.7%)	3 (5.2%)	18 (3.6%)
School year	1 <sup>st</sup> HSE	91 (36.4%)	99 (38.4%)	190 (37.4%)	9 (21.4%)	153 (38.1%)	28 (43.8%)	190 (37.4%)
	2 <sup>nd</sup> HSE	77(30.8%)	125 (48.4%)	202 (39.8%)	21 (50.0%)	153 (38.1%)	28 (43.8%)	202 (39.8%)
	3 <sup>rd</sup> HSE	82 (32.8%)	34 (13.2%)	116 (22.8%)	12 (28.6%)	96 (23.9%)	8 (12.5%)	116 (22.8%)
	Total	250 (49.1%)	259 (50.9%)	509 (100%)	42 (8.3%)	402 (79.0%)	65 (12.8%)	509 (100%)

### Data Collection Procedures

The average time for each application was 40 minutes. Participating institutions had access to the research project and to the approval result of the ethics committee, with the representatives of these institutions explicitly agreeing to collaborate in the study.

As planned, the study included two groups of adolescents: YAP participants (experimental group) and non-participants (control group). For both groups, the data collection occurred in two distinct moments, with a six-month interval between them. The first moment of collection was defined as the initial week of participation in the YAP, respecting the same calendar of applications for the students in the public school network who did not participate in the program (control group).

### Data Analysis Procedures

The tabulation and analysis of the quantitative data were performed with the aid of the Statistical Package for the Social Science - SPSS, version 21.0. To verify the existence of differences between the measures of professional development, employability and self-efficacy used in the pre- and post-test, a mixed ANOVA 2 (group) X 2 (time) was performed. Before analyzing the ANOVA itself, the examination of the assumptions for this type of test was performed. In this sense, it was initially found that the dependent variables (professional development, employability and self-efficacy) were normally distributed, that the group variances were homogeneous and that there were no outliers in any of the distributions, the relevance evidence for the ANOVA was adopted in the comparison between the means of the experimental and control groups.

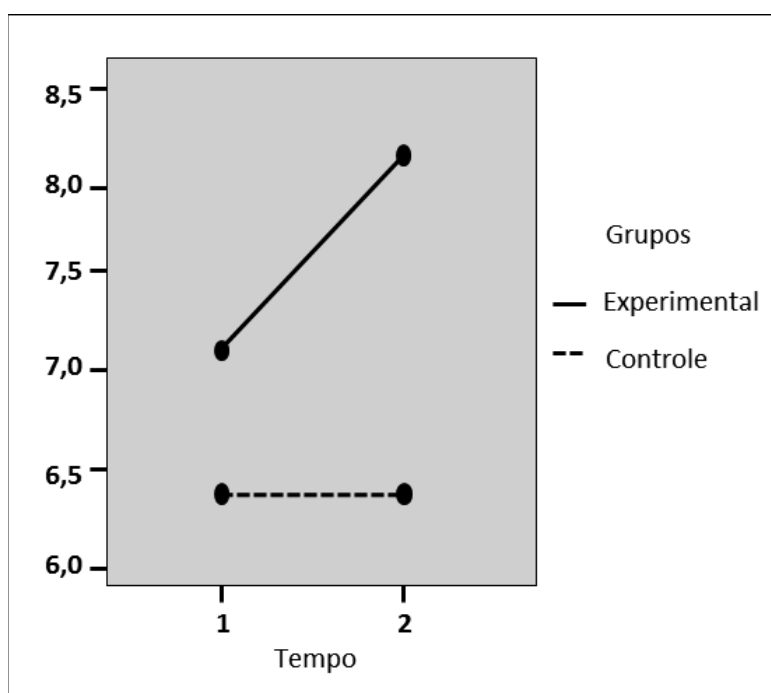
**Table 3**  
**Results of the ANOVA for the Variables Professional Development, Self-Efficacy and Employability**

Variables/Source of variance	Sum of the squares	DF	Square of the mean	F	P
Professional development					
Group	157.96	1	157.96	67.68	0.01
Error (Group)	926.53	397	2.33		
Time	64.23	1	64.23	45.86	0.01
Error (Time)	556.11	397	1.40		
Group X Time	58.93	1	58.93	42.07	0.01
Self-efficacy					
Group	0.27	1	0.27	0.18	0.67
Error (Group)	586.71	396	1.48		
Time	17.95	1	17.95	15.98	0.01
Error (Time)	444.70	396	1.12		
Group X Time	12.30	1	12.30	10.95	0.01
Employability					
Group	1.13	1	1.13	0.76	0.38
Error (Group)	591.95	399	1.48		
Time	6.90	1	6.90	0.02	5.86
Error (Time)	469.61	399	1.18		
Group X Time	22.77	1	22.77	19.35	0.01

## Results

Concerning the perception of professional development, the ANOVA indicated that the interaction between group and time was significant, with the scores of the YAP participants greater after six months in the Program, when compared to the scores of the control group after the same time interval (Table 3). A significant difference was observed between the experimental and

control groups in the pre- and post-test,  $F(1) = 42.07$ ;  $p < .01$ . Although an initial difference was observed between the professional development scores of the experimental and control groups, the results indicated a significant accentuation of these differences after six months of participation or not in the Program (Figure 1), with the control group scores remaining stable, while the experimental group presented an increase in professional development scores.

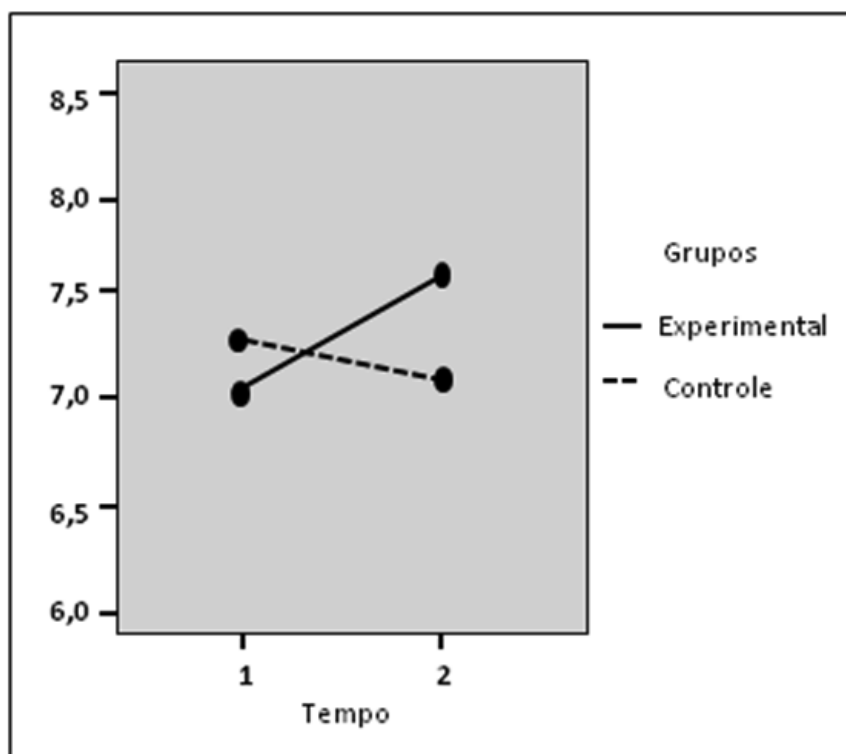


**Figure 1. Interaction between group and time regarding professional development.**

*Note.* Grupos = Groups; Experimental = Experimental; Controle = Control; Tempo = Time

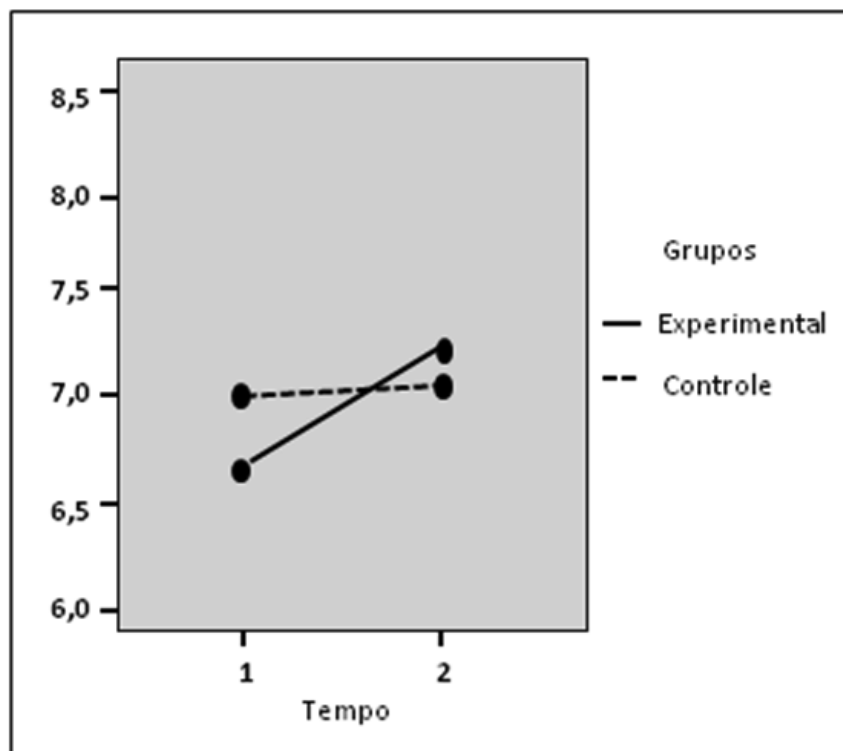
Regarding the self-perception of employability, the interaction between group and time was significant, with the perceived employability scores of the YAP participants being greater after six months in the Program, when compared to the scores of the control group over the same period,  $F(1) = 19.35$ ;  $p < .01$ . The data show statistically equivalent scores in the pre-test (Table 3), however, after six months of the initial application, the experimental group started to present higher scores of perceived employability than the control group, indicating that the six months of participation in YAP favored an improvement in the perception of employability in the adolescents (Figure 2).

Regarding self-efficacy, the interaction between group and time was significant, confirming that the self-efficacy scores of the YAP participants were higher after six months in the Program, when compared to the values obtained by the control group. The ANOVA result comparing the difference between the pre and post-test in both groups (experimental and control) was therefore significant ( $F(1) = 10.95$ ;  $p < 0.01$ ). It should be noted that, as with employability, there was also no significant difference in the initial scores of the two groups (Table 3). Accordingly, the six months of participation in the YAP favored the improvement of self-efficacy in the adolescents (Figure 3).



**Figure 2.** Interaction between group and time regarding employability.

Note. Grupos = Groups; Experimental = Experimental; Controle = Control; Tempo = Time.



**Figure 3.** Interaction between group and time regarding self-efficacy.

Note. Grupos = Groups; Experimental = Experimental; Controle = Control; Tempo = Time.

## Discussion

The present study evaluated the YAP from the comparison of the perceptions of professional development, employability and self efficacy of a group of adolescents participating in the program and a control group of high school students who did not participate in the YAP.

Hypothesis 1 (“Adolescents participating in the YAP perceive themselves to have greater professional development than non-participating adolescents”) was confirmed, as after six months of participation in the Program, the adolescents perceived themselves to have more professional growth. Considering the breadth and complexity of the concept of professional training (Cattani, 2002; Mourão & Puente-Palacios, 2006), the result indicates the occurrence of an educational process that is having an effect possibly due to the experience in the companies and in the course that occurs in the training institutions. Apparently, the School-Work combination allowed the adolescents to absorb theoretical, technical and operational knowledge aimed at the production of goods and services, allowing them to more positively evaluate their professional development. This development may also be associated with remaining in school, since the present study indicated greater school dropout among participants in the control group. This result may be due to the requirement of the YAP that the adolescent remain in school in order to continue participating in the program (MLE, 2014), in addition to confirming earlier studies that indicated lower school dropout among working adolescents (Leventhal et al., 2001).

This result also indicates that participation in formal and informal learning processes favors the acquisition of skills and constitutes important actions for the professional development (Mourão, Monteiro, et al., 2014), since the adolescent participant of the program experiences the learning process in both the training institutions and the work activities. It is believed, therefore, that the articulation between the educational and the business environments leads to the development of theoretical and practical learning, favoring the educational process

and the personal fulfillment of the participants (Frigotto et al., 2014).

The fact that the experimental group started the study with scores of professional development slightly lower than the scores of the control group and, after six months, this result was reversed, with a significant difference between the groups, confirms the transformation capacity of the educational process (Jarvis, 2013) associated with the YAP. In addition, the present study confirms the findings of Mattos and Chaves (2010), who identified that, although the YAP graduates perceive a distance between theory and practice, they recognize that the Program leads to the development of new skills and abilities. In the present study, even considering that the data collection occurred only six months after the beginning of participation in the Program, the results regarding professional development are visible.

The second hypothesis that considers that the adolescents participating in the YAP would have a greater perception of employability than the non-participants was confirmed. After the first six months of training, the participants of the Program showed a significant increase in this perception. This result is supported by concepts of the area that link the perception of employability to the acquisition of individual skills and abilities to perform tasks and functions (Peixoto et al., 2015). As the adolescent enrolled in the Program has opportunities to experience the labor market and to perform professional training, there is a probable gain of skills (Mourão, Porto, et al., 2014) that contributes to the perception of having more conditions to be employed.

Considering that the participants are in the phase of adolescence, of transformation, self-affirmation and seeking autonomy (Cerqueira-Santos et al., 2014), professional experience contributes to the realization of this independence movement (Silva & Trindade, 2013). Thus, being selected to participate in the YAP and having the first experience of the world of work helps adolescents to perceive themselves as more independent and autonomous in their development process and with more chances of permanent inclusion in the labor market (Sousa et al., 2013).

From another perspective, considering that employability is not exclusively characterized as an individual variable (Adam et al., 2017; Peixoto et al., 2015; Rueda et al., 2004), it is necessary to reflect on the risk of participation in the YAP creating illusions that it will be easy to get a job after the program ends. The economic momentum of the country and other macro-level variables may make it difficult for these young people to get a job after the Program contract ends, especially considering that young people suffer the most from rising unemployment in Brazil (IBGE, 2016).

In the confirmation of the hypothesis regarding employability, other aspects can be discussed. While on the one hand, the YAP participants perceive an increase in their employability; on the other, adolescents who attend high school in public schools and do not participate in the Program present the opposite result. Over time, they start to consider themselves less employable. Such a result possibly confirms the analysis by Calazans et al. (2014) that a large number of the youth population, especially those of greater social vulnerability, seek to enter the labor market and are faced with the unavailability of opportunities and with the lack of qualification. Thus, frustrated attempts to get a job can contribute to these adolescents having a decrease in their perception of employability as time passes. Furthermore, the result also indicates a failure of basic education with regards to preparation for work, even among young people from lower social classes, for whom there would be an expectation that High School Education would contribute to professional training (Frigotto et al., 2014).

Regarding the third hypothesis of the study, the adolescents participating in the YAP developed a better perception of self-efficacy than the non-participants, confirming the hypothesis. This result probably relates to the theory of Bandura (1977) that successful experiences are central to the development of a sense of self-efficacy. Considering that self-efficacy refers to beliefs in one's ability to produce certain levels of performance (Bandura, 1977), the higher the level of self-efficacy, the greater the tendency to

choose challenging activities (Kim et al., 2016). Accordingly, this can be seen as a feedback process and, as self-efficacy is in the process of development during adolescence, this can act as a facilitator for the beginning of the working life. Thus, the gain in terms of self-efficacy indicates a more positive personal assessment of one's achievement capacity, acting on the stereotype of activation (Pei et al., 2017).

In summary, the main conclusions of this study are: (a) the YAP, by carrying out a selection process, ends up including those that are perceived as more professionally developed, maintaining the inequality of offers in society; (b) the YAP allows the adolescents to perceive themselves as having growing professional development, which does not occur with those who are in High School and do not participate in the Program; (c) the adolescents, when they acquire a professional apprenticeship through the YAP, develop a better perception of their employability, which does not happen with those who are in public schools and not in the Program; (d) the experiences of adolescents in the YAP contribute to promoting the development of beliefs in their capacity to achieve favorable outcomes for their lives, while perception of self-efficacy of youths in public high schools will, over a period of time, decrease.

Based on these conclusions, it can be affirmed that the YAP positively contributes to the fact that the adolescents perceive, in a short period of time, more favorable conditions than when they joined the Program in relation to the variables of professional development, employability and self-efficacy. Thus, it is possible to highlight some theoretical contributions of the study that should be mentioned, such as: (a) the identification of a relationship between work experience and professional training in adolescence and the perception of professional development; (b) confirmation that work and learning experiences can contribute to the development of the self-efficacy of adolescents; and (c) evidence that young people are able to assess their employability and perceive differences in it, by participating in a training course that involves contact with the organizational world.

In addition to the theoretical contributions, there are also practical implications of the present study, with recommendations both for the managers of the YAP and for the educators who work in High School Education management. For these actors, it is recommended that they develop solutions that allow what was established in the Federal Constitution and LDB, in terms of preparing students for the world of work, to be complied with. This recommendation becomes relevant considering that the majority of Brazilian workers have an average level of schooling. For these people, Basic Education is the last training received, which increases the responsibility of the preparation that is offered in this educational stage.

In spite of the conclusions reached and the achievement of the aim of evaluating the contribution of the Young Apprentice Program in the life of adolescents from 15 to 18 years of age, in terms of professional development, employability and self-efficacy, this study presents some limitations. Data were collected with a 6-month interval, which is shorter than the duration of the program (18 to 24 months). Another limitation is the geographical delimitation restricted to the state of Rio de Janeiro, as it is possible that the results of the YAPs in other locations are different from those obtained in the present study.

In spite of these limitations, the study presents contributions. Even without evaluating the program in its entirety, the fact that a quasi-experimental study (with a control group and two moments of data collection) was performed allowed the demonstration that the experiences of the YAP provided positive results for the adolescents, although some inequality was identified in the program selection process.

In order to continue the research in the area, it would be important for future studies to investigate the adolescent at the beginning and at the end of the program, considering the maximum period of training. In addition, the development of qualitative studies would contribute to evaluate the personal development of the adolescent, with the identification of the meanings and significance attributed by them from this early experience in the world of work. Finally, larger

studies, with national samples to identify the results of YAPs in other Brazilian states, are also recommended.

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