

# Effectiveness of education at work in a health program: a strategy for vocational training and lifelong learning

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## Abstract

A cross-sectional study investigated the effectiveness of an education at work in health program in a Brazilian federal university, by sending an electronic questionnaire to 553 active and former participants (80.5% participation). Means of approximately 3.00 (scale from zero to 4.00) for program's clarity of purpose, suitability of process, and impact, indicated that the program was largely effective. Clarity of purpose was greater among preceptors and mentors when compared to students. The program's impact was perceived as greater by the students when compared to the lifelong learning of preceptors and mentors, and by females. Building the capacity of preceptors and mentors for education at work in the Brazil's national health system could advance the effectiveness of the program.

**Keywords:** education; learning; health education.

## 1 Introdução

The concept of continuing education in health is defined as learning at work, a process in which learning and teaching are incorporated into the organizations' daily life. Regarding health and education sectors, continuing education processes involve health workers being positively engaged in influencing the quality of care provided (FENTAHUN; MOLLA, 2012).

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Recebido em: 08 nov. 2017

Aceito em: 09 mai. 2018

The improvement of undergraduate courses in the area of health and continuing education for the Brazilian National Health System (SUS) through the teaching-service interaction has been considered as individuals' social right and duty of the State, as expressed by the Brazilian 8<sup>th</sup> National Conference on Health and I National Conference on Human Resources for Health (BRASIL, 1986). Since then, the major challenge has been the training of health workers for the SUS, a kind of initiative that fully addresses the health needs of the Brazilian population. Such training is intended to promote social determination of the health-disease process, predominantly stressing primary health care needs of the population, as opposed to a kind of health care which is predominantly private, curative, strongly specialized and hospital-centered (CECCIM; FEUERWERKER, 2004; SCHERER; MARINO; RAMOS, 2005; SILVA; SCAPIN; BATISTA, 2011). Deficiencies in the technical, ethical and social awareness aspects of this training process are the weaknesses in the formation of human resources and possibly responsible for the inefficiency of the Brazilian public health sector. In order to reduce the impact of these deficiencies, continuing health education programs have been conceived for the production and systematization of knowledge related to training and development of health-related work, involving joint teaching practices, didactic guidelines and curricular orientation (BRASIL, 2013; FALKENBERG et al., 2014).

The value of the workforce within an educational environment has already been demonstrated, since such initiative has the potential to generate useful knowledge able to connect two important areas: universities and working-places (CHIAPPE; RODRIGUEZ, 2017). The Education at Work in Health Program (PET-Health Program) is an initiative carried out by the Brazilian government ever since 2008 (Ministry of Health in partnership with the Ministry of Education). It intends to integrate teaching, service, and community. Its objective is to qualify the academic professional training and the lifelong learning of the professionals of the Brazilian National Health System (SUS) and Universities for comprehensive health care. The PET-Health program is implemented through education at work projects in areas of interest for public health policies, as specified in call notices: projects in the areas of Primary Health, Health Surveillance, and Health Care Networks. The projects are conceived and put into practice for two years in partnership between a University and public health services, through scholarships for participants and resources for pedagogical activities funded by the Ministry of Health. Participants are undergraduate students from the University who carry out work initiation activities at PET-Health program (20 hours/week), under the guidance of SUS health professionals (8 hours/week), both under the mentorship of a professor of the coordinating University (10 hours/week).

In the 21<sup>st</sup> century, the necessary changes in educational models are beyond formal education, aiming at the training of efficient and creative individuals with skills at

solving problems in their own work environment (CARVALHO; BOAS, 2018). Thus, there is great interest in knowing the effectiveness of PET-Health programs as an education strategy for the SUS, thus enabling managers, areas involved in the process, and governmental bodies to foster improvement, expansion and incentives for the continuity of the program. Several topics have been studied, including (a) the definition of the impact of the PET-Health program from the perspective of students, preceptors and mentors (GUSMÃO; CECCIM; DRACHLER, 2015), (b) the description of structural aspects, as well as operational, pedagogical, and of interpersonal interaction that preclude or facilitate education at work (Ferraz, 2012), and (c) the impact of the program in professional training and lifelong education (CHAVES; TANAKA, 2012; LIMA; ROZENDO, 2015). Nevertheless, few studies analyze simultaneously the perspective of students, preceptors and mentors on the effectiveness of the program (BATISTA et al. 2015; GUSMÃO; CECCIM; DRACHLER, 2015; PEREIRA et al., 2015). None of these studies contemplates participants in the call notices of several health-related programs; there is, therefore, a need for more comprehensive studies. Furthermore, there is a predominance of studies based in qualitative methodology, which allow respondents to describe their experience in detail but do not allow for the quantification of the distribution of experiences between groups defined by individual characteristics and programs. The few quantitative studies have relatively small samples ( $n < 130$ ), and focus only on students (CALDAS et al., 2012). Therefore, the effectiveness of the PET-Health program is still poorly understood.

It has been a challenge for governments to implement teaching and learning initiatives involving continuing education in health with the participation of health professionals, teachers and educational institutions. The present study evaluates such health programs as a strategy of professional training and lifelong education for the SUS from the perspective of University students, preceptors and mentors, within six years of experience in the program. It is expected that the knowledge produced gives support to advances in the effectiveness of PET-Health programs and other teaching-service integration initiatives committed to professional training and lifelong education for the Brazilian SUS.

## 2 Methodology

### 2.1 Design

This is a cross-sectional study with individual-level data analysis and quantitative methodology. It is part of a mixed-design research project called "Impact of the PET-Health program as a strategy of lifelong learning at work." The research was approved by the Internal Review Board under n. 562,811, according to the

recommendations of Resolution n. 466/2012 of the National Health Council on Ethical Norms of Research in Humans and was funded by the National Council of Scientific and Technological Development (CNPq).

## 2.2 Setting, target population and participants

The PET-Health program took place at the Federal University of Rio Grande do Sul – UFRGS. The target population of the study were the participants of *PET-Health projects related to the UFRGS* (PET-Health-UFRGS). These projects were carried out since 2008, through a partnership between the Health Coordination Department of the University and the Health Department of the city of Porto Alegre. The SUS practice scenarios were the municipal health services of 4 districts of Porto Alegre. The PET-Health-UFRGS participants were (a) undergraduate students of UFRGS, acting as scholarship students, (b) professionals of the Health Department of Porto Alegre city working at the participant health districts, acting as preceptors, and (c) University professors of UFRGS acting as mentors dedicated to each project (UFRGS, 2016). Active and former students, preceptors and mentors ( $n = 553$ ) of every finished or ongoing PET-Health-UFRGS projects were selected for the study from the program registry at the Health Coordination Department of UFRGS, updated on July 31<sup>st</sup>, 2014 (thus including 6 years in the University's PET-Health program involvement).

## 2.3 Variables and measures

The outcome variable – *PET-Health Evaluation Questionnaire*: The outcome variable of this study is the effectiveness of PET-Health-UFRGS, measured by three indicators: clarity of purpose; suitability of the process; impact of the program on the participants, investigated by the three subscales of the Clinical Supervision Evaluation Questionnaire (CSEQ) (HORTON ET AL., 2008). This is a self-completion questionnaire, developed and validated for a lifelong education program of the British Health System. The questionnaire contains 14 questions that investigate how much the respondent disagrees or agrees with the statement, based on a Likert scale coded as 0 = Totally disagree; 1 = Strongly disagree; 2 = Do not or did not answer 3 = Strongly agree; 4 = Totally agree. Unanswered questions were coded as I-do-not-know. The questionnaire was translated into Portuguese by a researcher who participated in its validation in England (items in Table 2). It was subsequently applied in a pilot study in the UFRGS PET-Tutorial, which is a PET in the area of Education. From September 2014 to August 16, 2015, this questionnaire was sent via the Electronic Platform of UFRGS to the active and former participants of PET-Health-UFRGS, using the Service Line program UFRGS-2014 from the Data Processing Center of the University. The former participants of the program

were also asked the reasons to interrupt their activities at PET-Health-UFRGS. The non-respondents of the electronic questionnaire were contacted in social networks and by telephone, and the questionnaire was re-sent electronically or handed in to be answered and deposited in a sealed box. The database with the responses was created on the electronic platform of the University. The variables of clarity of purpose, process suitability, and program impact were estimated by the mean score of the participant in each subscale of the questionnaire, dividing the sum of points by the number of subscale items. The mean score allows us to compare results between subscales that differ in number of items.

The exposure variables – The exposure variables were as follows: gender; age at admission to the program, calculated using dates of birth and admission; area of the undergraduate course; position in the project (students, preceptors, mentors); year of publication and subject of the call notice of the PET-Health program; and the situation of the participant in the program (active or not). Data coherence and consistency provided by the Health Coordination Department of UFRGS were examined in contingency tables and errors were corrected with information provided by the participants via phone call or email. Age was grouped into quartiles, calculated separately for students, preceptors, and mentors. The areas of the undergraduate course were grouped into three categories: Biomedical (Pharmacy, Physiotherapy, Speech Therapy, Medicine, Nutrition, and Dentistry); Management and Care (Nursing and Collective Health); Psychosocial (Psychology, Social Work, Occupational Therapy, Physical Education, and Communication). The University participated in five notices: Health in Primary Care – 2008, Mental Health – 2010, Pro-Health and PET-Health – 2011, Health Surveillance – 2012, and Health Care Networks – 2013. The notices were organized in three groups: 2008-2010, 2011, 2012-2013, considering the number of participants in each. Participants' duration of activity in the PET-Health-UFRGS was calculated as the time interval between the date of entry and the date of exit from the program. For active participants, the duration of such activity was considered as the time interval between the dates of admission and response to the electronic questionnaire.

## 2.4 Data analysis

Data analysis was conducted using the SPSS version 20.0 statistical package. The sample description was summarized by absolute and relative frequencies. The acceptance of the Clinical Supervision Evaluation Questionnaire (HORTON et al., 2008) was measured by the percentage of non-response, or answered as "I do not know"; less than 5% was acceptable for each item. The Chronbach- $\alpha$  internal consistency index (indexes higher than 0.70 suggest good reliability) indicated reliability of the three measures of effectiveness of the PET-Health-UFRGS

program in the study population (clarity of purpose, suitability of the process, and impact of the program on the participants). The distribution of the participants who agreed partially or totally with the statement in each item of the questionnaire was presented in percentages. Means and standard deviations of clarity of purpose, suitability of the process, and program impact were presented for groups as defined by the exposure variables. Analysis of variance was used to test the association between these three measures of program effectiveness and the exposure variables, establishing a statistical significance of 5%.

## **3 Results**

### **3.1 Sample description**

A total of 286 students, 134 preceptors and 25 mentors participated in this research, corresponding to 95.2% of the total number of preceptors and mentors, and 74.1% of the students in the PET-Health-UFRGS. The most frequent course area was Biomedical (49.9%;  $n = 222/445$ ). The call notice with the greatest number of participants was the PET-Health edition of 2011 (44.5%;  $n = 198/445$ ). The majority of the participants were women (82.7%;  $n = 368/445$ ). Age varied; the first quartile ranged from 17.0 to 22.0 years, second and third quartiles from 22.0 to 24.4 years, and the fourth quartile from 24.4 to 49.0 years. For preceptors and mentors, the first quartile ranged from 24.0 to 33.0 years, the second and third from 33.0 to 48.0 years, and the fourth from 48.0 to 59.0 years. Table 1 shows the distribution of the PET-Health-UFRGS participants according to the characteristics of the subjects, PET-Health projects and programs.

#### Acceptability and reliability of the PET-Health Evaluation Questionnaire

All items of the questionnaire were widely accepted, as indicated by  $< 1\%$  of unanswered or I-don't-know responses. The Chronbach- $\alpha$  internal consistency index for the subscales of the process adequacy and of program impact was 0.80 and 0.82 among students = 0.85, and 0.87 among preceptors and mentors, reaching 0.81 and 0.85 for the whole sample, suggesting good reliability of these measures in the population studied. The internal consistency index of the clarity of purpose subscale was 0.64 among students, and 0.50 among preceptors-mentors; 0.60 for the whole sample, indicating low reliability of this subscale in the population studied (Data not shown as table).

### **3.2 PET-Health UFRGS effectiveness and associated factors**

Table 2 shows the percentage of participants who partially or fully agree with statements in the items of the Clinical Supervision Evaluation Questionnaire.

**Table 1.** Distribution of the PET-Health-UFRGS participants according to characteristics of the subjects, program, and PET-Health projects.

	Students		Preceptors Mentors		Total	
	n	(%)	n	(%)	n	(%)
Gender						
Female	239	(83.6)	129	(81.3)	368	(82.7)
Male	47	(16.4)	30	(18.7)	77	(17.3)
Age at entry						
1 <sup>st</sup> quartile	83	(29.0)	41	(25.8)	124	(27.9)
Median	132	(46.2)	78	(49.1)	210	(47.2)
2 <sup>nd</sup> quartile	71	(24.8)	40	(25.2)	111	(24.9)
Undergraduate area*						
Biomedical	155	(54.2)	66	(41.8)	222	(49.9)
Management and care	84	(29.4)	66	(41.8)	151	(33.9)
Psychosocial	47	(16.4)	26	(16.4)	72	(16.2)
Focus of PET project						
Primary care	129	(45.1)	78	(49.1)	207	(46.5)
Care Management, Surveillance, Organization	157	(54.9)	81	(50.9)	238	(53.5)
Year of Notice and PET-Health-UFRGS program						
Health in primary care - 2008						
Mental health - 2010	66	(23.0)	40	(25.1)	106	(23.8)
Pro-Health & PET-Health - 2011	128	(44.8)	70	(44.0)	198	(44.5)
Health surveillance - 2012						
Health care networks - 2013	92	(33.1)	49	(30.9)	141	(31.6)
<b>Total</b>	<b>286</b>		<b>159</b>		<b>445</b>	

(\*) The number of preceptors/mentors by undergraduate area was 158 due to the loss of information on one subject.

Source: Own elaboration (2017).

Over 75% of the participants agreed partially or totally that there was clarity in the purpose of PET-Health (items 1, 2 and 3), and that the program had an impact on self-knowledge and new ideas about the SUS (items 9, 10, 11). On the other hand, less than 75% of the preceptors and mentors agreed that the program helped them cope with stress at work, increase confidence in dealing with work issues, and work in a multidisciplinary team. Among the students, less than 75% agreed that there was clarity in the operating rules, and trust among the group (items 5 and 7), and that the program impacted on managing work stress (item 13) (Table 2).

**Table 2.** Percentage of participants who partially or fully agree with statements in the items of the Clinical Supervision Evaluation Questionnaire.

	Students n = 286	Preceptors and mentors n = 159
Questionnaire items	%	%
PET purpose		
1. PET purpose is to improve care for individuals.	95.2	94.3
2. PET purpose is to enable participants to feel confident in their own professional practice.	89.5	92.5
3. I am clear about what I wanted to get out of my participation in the PET program. <sup>a</sup>	76.2	89.9
Implementation process		
4. I felt safe sharing PET issues regarding health care practices. <sup>b</sup>	81.5	80.5
5. The operating rules of my PET group were clear and well established. <sup>c</sup>	59.8	81.8
6. I believe that any confidences I share were respected.	86.7	81.1
7. There was mutual trust among the members of my PET group.	73.8	80.5
8. I felt confident about bringing issues on teaching-learning to my PET group. <sup>d</sup>	86.7	76.8
PET impact		
9. Being part of a PET group helped me to develop my self-awareness. <sup>e</sup>	88.2	76.1
10. I got new ideas through PET group participation.	92.0	81.7
11. Participating in my PET group raised my awareness regarding skills I had to improve.	87.7	81.1
12. My PET group had a positive impact on the quality of my work in a multidisciplinary team. <sup>f</sup>	88.1	73.6
13. Participating in my PET group helped me cope with stress at work.	58.4	61.6
14. The experience in my PET group helped me feel more confident about dealing with issues of my health-related work. <sup>g</sup>	89.5	70.4

Did not respond: a = 1 student; b = 2 students; c = 1 student; d = 3 students; e = 3 students; f = 1 student; g = 2 preceptors-mentors

Source: Own elaboration (2017).

Table 3 shows the extreme values of the three measures of perception of PET-UFRGS effectiveness, as measured by the Clinical Supervision Evaluation Questionnaire. The scores of purpose and process varied from 0.04 to 4.00; impact from zero to 4.00, where zero implies total disagreement with the statements of all items of the scale, and 4.00, full agreement with all of them (Table 3).

**Table 3.** Extreme values of the three measures of perception of PET-UFRGS effectiveness, as measured by the Clinical Supervision Evaluation Questionnaire.

Position in PET n = 445	Score of perception of PET effectiveness					
	Purpose		Process		Impact	
	Lowest value	Highest value	Lowest value	Highest value	Lowest value	Highest value
Student	0.00	4.00	0.00	4.00	0.50	4.00
Preceptor	1.33	4.00	0.40	4.00	0.00	4.00
Mentor	2.33	4.00	1.40	4.00	1.50	3.83
All	0.04	4.00	0.04	4.00	0.00	4.00

Source: Own elaboration (2017).

The mean score was approximately 3.00 for the three subscales of the questionnaire (Data not shown as table). There was evidence of an association between the perceived clarity of purpose and the participant's position in the PET. The program's clarity, on average, was higher among preceptors and mentors (90%) when compared to students (76.2%) (ANOVA -  $p = 0.026$ ). There was no evidence of association between process suitability and position hierarchy in the program (ANOVA -  $p = 0.097$ ). The impact of the program decreased in parallel with position hierarchy from students to preceptors and mentors (ANOVA -  $p < 0.001$ ), and was higher among women (ANOVA -  $p = 0.024$ ). There was a positive linear association between the year of the call notice and the three aspects of PET effectiveness, with increasing effectiveness from the first notices (years 2008–2010) to the most recent ones (2012–2013) (ANOVA -  $p < 0.001$ ). The association between the area of the course and the process was not statistically significant (ANOVA -  $p < 0.057$ ). There was no evidence of association between age at entry in the program and the three types of effectiveness measures (ANOVA -  $p \geq 0.398$  for the three measures) (Table 4).

When they answered the questionnaire, 51.0% of the students ( $n = 147/286$ ) and 48.0% of the preceptors and mentors ( $n = 77/159$ ) were former participants of the program. The former students and mentors participated on average 16 months in the program and the preceptors, 19 months. About 36.0% of former participants (53 students and 25 preceptors and mentors) had completed the PET project. Of the 94 students who did not complete the project, 36.1% had graduated from the undergraduate course and were legally barred from participating. Of the 52 preceptors and mentors who did not complete it, 57.7% could not continue in the project because they stopped working in the PET practice scenario or in the University (Data not shown in table).

**Table 4.** Means for the three measures of perception of PET-UFRGS effectiveness, according to individual-level variables and PET year of notice.

Participants*	Score of perception of PET effectiveness		
	Purpose	Process	Impact
	Mean (sd)*	Mean (sd)*	Mean (sd)*
Position in PET			
Student	3.19 (0.73)	2.96 (0.87)	3.16 (0.72)
Preceptor	3.38 (0.64)	3.04 (0.98)	2.80 (1.02)
Mentor	3.36 (0.50)	3.35 (0.67)	2.92 (0.65)
ANOVA, p =	0.026	0.097	<0.001
Gender			
Female	3.28 (0.66)	3.01(0.90)	3.08 (0.79)
Male	3.16 (0.83)	2.96 (0.90)	2.84 (0.99)
ANOVA, p=	0.183	0.637	0.024
Age at entry			
1 <sup>st</sup> quartile	3.20 (0.74)	3.03 (0.83)	3.08 (0.82)
Median	3.30 (0.66)	2.97 (0.95)	3.04 (0.83)
3 <sup>rd</sup> quartile	3.23 (0.71)	3.03 (0.88)	2.99 (0.86)
ANOVA, p =	0.398	0.848	0.736
Course area			
Biomedical	3.24 (0.67)	2.90 0.92	2.98 0.85
Management and care	3.30 (0.72)	3.12 0.90	3.11 0.84
Psychosocial	3.22 (0.710)	3.09 (0.77)	3.07 (0.79)
ANOVA, p =	0.652	0.057	0.297
Year of PET notice			
2008 and 2010	3.03 (0.71)	2.62 (0.86)	2.68 (0.78)
2011	3.30 (0.72)	3.10 (0.88)	3.14 (0.82)
2012 and 2013	3.36 (0.61)	3.16 (0.87)	3.16 (0.82)
ANOVA, p =	<0.01	<0.01	<0.001
<b>TOTAL</b>	<b>3.26 (0.70)</b>	<b>3.00 (0.90)</b>	<b>3.04 (0.83)</b>

\*n = 445

Source: Own elaboration (2017).

## 4 Discussion

This research investigated the effectiveness of PET-Health-UFRGS using a standardized questionnaire, validated in similar contexts in England. Nevertheless, it was done in an original fashion in Brazil, some of the items having been analyzed in Brazilian studies on the topic (FERRAZ, 2012).

The questionnaire can be self-administered and answered electronically in, approximately, one and a half minute. In this cross-sectional six-year study of the program, there was excellent participation of the subjects selected (80.5%), and a low number of unanswered items or no opinion (< 1%). The fact that the questionnaire is easy to apply, coupled with the active search of non-respondents in social media and by telephone, probably contributed to this result. The questionnaire has proven validity in other contexts of teaching-service integration in health in England (HORTON et al., 2008). Similar to the abovementioned study, in the population of PET-Health-UFRGS, the measures of process adequacy and program impact had good reliability (Cronbach  $\alpha > 0.8$ ), being adequate as scales separated from the rest of the questionnaire; the measure of purpose, however, had low reliability (Cronbach  $\alpha = 0.6$ ), probably because this subscale contains only three items. Future studies should consider the possibility of combining the items of purpose and process in a single scale with greater reliability.

Participants considered the purposes of the program reasonably clear (mean 3.26 = largely agree). The analysis of variance suggests that students had less clarity of purpose than preceptors and mentors. Almost all students realized that PET has the objective of qualifying health care and giving confidence in professional practice, as observed in previous studies (BUFFON et al., 2011; FAÉ et al., 2016; RODRIGUES et al., 2012). However, many students did not recognize the purpose of their personal involvement in PET, an aspect not identified in the literature approach to the program evaluation.

Preceptors and mentors have greater clarity about the purposes of PET most likely because they are responsible for designing and conducting the teaching-learning process. These results suggest the importance of giving students more opportunities for discussion and understanding their personal experience in PET. The teaching-learning process also seemed reasonably adequate, suggested by the mean of 3.00 in this subscale of the questionnaire. Inaccurate operating rules and lack of trust among members of the group were the most frequent restrictions on the PET-Health process in this study and in other contexts (BATISTA et al., 2015; CYRINO et al., 2012; RODRIGUES et al., 2012). These PET-Health-UFRGS organizational problems may be better managed in the next editions of the program through psycho-pedagogical support and training of preceptors, who are responsible for implementing the program in the practice scenario. The effect of these interventions on program effectiveness should be investigated in qualitative and quantitative studies especially designed to evaluate such interventions.

The impact of PET-Health-UFRGS seems to have been reasonable (mean score 3.04), and varied according to the position hierarchy in the program. There was

evidence of greater impact on the professional training of students than on the lifelong education of mentors and preceptors. Such finding may be associated with the novelty of including students in the SUS practice scenario, a kind of initiative already stressed in other studies (FERRAZ, 2012; FORTUNA et al, 2011; SOUZA et al., 2012; VENDRUSCOLO; PRADO; KLEBA, 2016 ). About 87% of the students agreed that there was impact on self-knowledge, thinking and acting in the SUS and in a multidisciplinary team, as found in other studies (CALDAS et al. 2012; RODRIGUES et al. 2012). Preceptors and mentors had greater impact on their attitudes than on their professional practice, which was also seen previously (BATISTA et al. 2015; PIZZINATO et al. 2012). Half of them did not notice any impact on their performance or quality of their practice in a multidisciplinary team. Future studies may examine the effect of interventions on pedagogical qualification for preceptors over the effectiveness of PET in the professional practice of preceptors, mentors and students, especially regarding coping with stress at work, which was a problem noticed by the three groups of participants. The female gender was also associated with greater impact (ANOVA -  $p = 0.024$ ), perhaps reflecting the greater interest in the program by women, as suggested by the preponderance of women (82.7%), also seen in other studies (CALDAS et al. 2012; FONSÊCA; JUNQUEIRA, 2014).

This study compared the effectiveness of the program in different periods. Projects of call notices prior to 2011 seem to have been less effective than the most recent ones (ANOVA -  $p < 0.001$ ). In those notices, the means of 2.6 for suitability of the process and 2.7 for impact indicate that most participants disagreed that the process was adequate and impacting as an education strategy for health-related work. Participants in post-2011 projects tended to agree that PET was effective, as indicated by the means of approximately 3.00 for purpose, process, and impact. The association between the notice year and effectiveness indicates the improvement of the program over time, associated with the learning curve. The fact that the majority of former participants no longer participate in PET-Health for reasons unrelated to the program (closure of the project, graduation or transference from the practice scenario) is another result that suggests the participants' satisfaction. The greater number of projects and participants also reflects the growing interest of the academic community and services in the program, as well as the recognition of its importance by the government. The limitations of the cross-sectional design and the greater loss of participants from older projects suggest that the differences in effectiveness over time are greater than those found in this study. Cohort studies are needed to confirm such associations.

There was no evidence of association between age and the three types of effectiveness measures (ANOVA -  $p \geq 0.398$  for the three measures); therefore,

the hypothesis that the impact of PET could be greater for the younger subjects because they are in the initial stages of university or of their professional activity was not confirmed. The association between the area of the undergraduate course and the effectiveness of PET was not statistically significant. As PET groups tend to be multi professional, it is likely that variation in effectiveness of PET between courses, if any, will be small and studies with larger samples are still needed in order to investigate such differences.

## 5 Conclusions

Therefore, this study on the PET-Health program shows that the Supervision Evaluation Questionnaire is a valid measure of the effectiveness of the program. PET-Health was perceived by the participants as effective, despite some restrictions on the professional training of students and on the permanent education of preceptors and tutors, which suggests the importance of its continuity and improvement. Improvement should include activities of pedagogical training for preceptors and psychological support for conflict resolution, which frequently occurs in groups. Also important is the greater appreciation of the program by the teaching and research bodies, recognizing that both, the permanent learning and the research activities, have equal academic value.

Although the limitations of a quantitative cross-sectional study and the lack of previous studies demand confirming our results in future studies, it is possible to conclude that PET-Health-UFRGS has been largely effective, indicating the importance of its continuity and improvement as a qualification strategy to work in the SUS. Pedagogical improvement for preceptors and psychological support for conflict resolution in the groups were some interventions suggested, but the effects of these initiatives should be further examined in intervention studies.

## **Efetividade da educação no trabalho em um programa de saúde: uma estratégia para a formação profissional e a aprendizagem ao longo da vida**

### **Resumo**

*Estudo transversal investigou a efetividade do programa de educação pelo trabalho para a saúde em uma universidade federal brasileira, enviando questionário a 553 participantes ativos e egressos (participação 80,5%). Médias de aproximadamente 3,00 para clareza do propósito, adequação do processo e impacto (escala de zero a 4,00) indicaram que o programa foi em grande parte efetivo. A clareza do propósito foi maior entre preceptores e tutores comparados a alunos. O impacto foi maior entre alunos comparada à educação permanente de preceptores e tutores e para o sexo feminino. Capacitar preceptores e tutores para a educação pelo trabalho no sistema único de saúde poderá avançar a efetividade do programa.*

**Palavras-chave:** Educação. Aprendizagem. Educação em saúde.

## **Efectividad de la educación en el trabajo en un programa de salud: una estrategia para la formación profesional y el aprendizaje a lo largo de toda la vida**

### **Resumen**

*El estudio transversal investigó la efectividad del programa de educación por el trabajo para la salud en una universidad federal brasileña, enviando cuestionario a 553 participantes activos y egresados (participación 80,5%). Las medias de aproximadamente 3,00 para la claridad del propósito, la adecuación del proceso e impacto (escala de cero a 4,00) indicaron que el programa fue en gran parte efectivo. La claridad del propósito fue mayor entre preceptores y tutores comparados a alumnos. El impacto fue mayor entre alumnos comparados a la educación permanente de preceptores y tutores y para el sexo femenino. Capacitación preceptores y tutores para la educación por el trabajo en el sistema único de salud podrá avanzar la efectividad del programa.*

**Palabras clave:** Educación. Aprendizaje. Educación en salud.

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