

Adherence and Performance on the Progress Test in a Brazilian School

Adesão e desempenho no teste de progresso em escolas brasileiras

Adherencia y desempeño en la prueba de progreso en la escuela brasileña

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Abstract

The progress test provides the students the capacity to know their evolution following the teaching-learning progress, identifying their problems. It is believed that adherence to this test will depend on how the student understands its benefits in the learning. The aim of this study was to evaluate students' knowledge about the progress test and to evaluate the association between adherence and performance in progress test with sociodemographic and academic factors. The methodology was a cross-sectional study, by applying a structural questionnaire, evaluating the variables of students' socio-demographic, academic factors and assessing the students' knowledge about the test, through a questionnaire in Likert model. The study population consisted of students of four health courses of Faculdade Pernambucana de Saúde. Adherence to progress test was 84,9%, being higher among medical students. Variable "working beside studying" was associated with lower adherence to the test. Students agreed with most of the benefits statements relating to progress tests. Good adherence was identified to progress test, being higher among medical students and those who did not have a job. Therefore, students showed a positive view of the test, identifying its benefits. The variable "working beside studying" was associated with lower adherence to the test.

Keywords: Evaluation; Progress test; Progressive test.

Resumo

O teste de progresso proporciona ao aluno a capacidade de conhecer sua evolução acompanhando o andamento do ensino-aprendizagem, identificando seus problemas. Acredita-se que a adesão a esse teste dependerá de como o aluno compreende seus benefícios no aprendizado. O objetivo desse estudo foi avaliar o conhecimento dos alunos sobre o teste de progresso e avaliar a associação entre adesão e desempenho no teste de progresso com fatores sociodemográficos e acadêmicos. A metodologia foi um estudo transversal, através da aplicação de um questionário estrutural, avaliando as variáveis sociodemográficas, acadêmicas dos alunos e avaliando o conhecimento dos alunos sobre a prova, através de um questionário em modelo Likert. A população do estudo foi composta por estudantes de quatro cursos da área da saúde da Faculdade Pernambucana de Saúde. A adesão ao teste de progresso foi de 84,9%, sendo maior entre os estudantes de medicina. A variável "trabalhar além de estudar" esteve associada à menor adesão ao teste. Os alunos concordaram com a maioria das declarações de benefícios relacionadas aos testes de progresso. Foi

identificada boa adesão ao teste de progresso, sendo maior entre os estudantes de medicina e os que não trabalhavam. Portanto, os alunos demonstraram uma visão positiva do teste, identificando seus benefícios. A variável “trabajar além de estudar” foi associada à menor adesão ao teste.

Palavras-chave: Avaliação; Teste de progresso; Teste progressivo.

Resumen

La prueba de progreso proporciona a los estudiantes la capacidad de conocer su evolución siguiendo el progreso de la enseñanza y el aprendizaje, identificando sus problemas. Se cree que la adherencia a esta prueba dependerá de cómo el estudiante comprenda sus beneficios en el aprendizaje. El objetivo de este estudio fue evaluar el conocimiento de los estudiantes sobre la prueba de progreso y evaluar la asociación entre la adherencia y el rendimiento en la prueba de progreso con factores sociodemográficos y académicos. La metodología fue un estudio transversal, mediante la aplicación de un cuestionario estructural, evaluando las variables sociodemográficas y académicas de los estudiantes y evaluando el conocimiento de los estudiantes sobre la prueba, a través de un cuestionario en el modelo Likert. La población de estudio estuvo compuesta por estudiantes de cuatro cursos del área de salud de la Faculdade Pernambucana de Saúde. La adherencia a la prueba de progreso fue del 84,9%, siendo mayor entre los estudiantes de medicina. La variable “trabajar además de estudiar” se asoció con menor adherencia a la prueba. Los estudiantes estuvieron de acuerdo con la mayoría de las declaraciones de beneficios relacionadas con las pruebas de progreso. Se identificó buena adherencia a la prueba de progreso, siendo mayor entre los estudiantes de medicina y los que no trabajaban. Por lo tanto, los estudiantes demostraron una visión positiva de la prueba, identificando sus beneficios. La variable “trabajar además de estudiar” se asoció con menor adherencia a la prueba.

Palabras clave: Evaluación; Evaluación del progreso; Prueba progresiva.

1. Introduction

Gradually, self-directed learning has been intensively incorporated in health education practice. This change brings a new reality to the educational context, where students come to present more meaningful and high-quality learning, which significantly contributed to the continued professional development (Wade et al. 2012). The introduction of PBL (Problem-Based Learning) in mid-1970 brought with it the need for a type of evaluation coherent with the principles and methodology used (Freeman et al. 2010; Wrigley et al. 2012). The Maastricht and Missouri schools independently set up a multiple choice test called a progress test (Freeman et al. 2010).

The progress test is an assessment where groups of students from different periods in the course receive the same written test at the same time. Since it is a comprehensive test in which all subjects considered relevant to the curriculum, it is regularly repeated within a time-space (Freeman et al. 2010).

It is a test considered comprehensive, as it presents many areas of contents, it has cross-section design compared to the performance of different groups of capabilities or levels of the same course (Verhoeven et al. 2005) and is longitudinal when performance is compared over time (Freeman et al. 2010). With a deep learning philosophy, the progress test is characterized by preventing the student to prepare for the exam (Wade et al. 2012; Verhoeven et al., 2005), as preparation is often impractical due to the comprehensive content of the test. This aspect should be considered and the student needs to be clear about the true meaning of his performance on the progress test, thus proving meaningful learning (Van de Vleuten et al. 1996).

The progress test can take a formative or summative approach (Ricketts et al. 2010; Schuwirth et al., 2010; Muijtjens et al., 2008) and this will vary according to the understanding of each institution adopting the test. When it takes a summative approach, it requires the student to pass on the test to obtain level progression. When it takes a formative approach, the main focus is on results that provide feedback to student learning (Wrigley et al 2012; Verhoeven et al 2005; Schuwirth et al 2010; Lulu Zhang & Ying Zheng 2018). It is believed that there are differences in the test effect as a summative or formative assessment, which may influence the student's attitude towards the performance of the test (Verhoeven et al. 2005).

The progress test is an essay that occurs in intervals that may result from 4 (Muijtjens et al 2008) to 6 episodes per year (Schuwirth et al. 2012; Wrigley et al. 2012; Verhoeven et al. 2005; Ricketts et al. 2010; Schuwirth et al. 2010; Van der

Vleuten et al. 2004) and is composed of a large number of multiple choice questions or true and false alternatives. This number of questions may vary from 100 to 250 per test (Wrigley et al. 2012; Ricketts et al. 2010; Schuwirth et al. 2010; Muijtjens et al. 2008), reaching up to 400 questions (Rademakers et al., 2005).

Some health schools using the progress test adopt the response option "do not know" (Muijtjens et al. 2008). This option provides a knowledge limit measure and allows showing what the student still does not know and will discourage the practice of trying to guess the correct answer (Burton 2002; 2004). It is known, however, that this option introduces error in the measurement of the mathematical analysis, in addition to other disadvantage such as the very high frequency of choosing this option by beginners, which generates lack of motivation and unwanted negative feeling in the progress test result (Wrigley et al., 2012).

An item that still needs further development and understanding in this context is the progress test feedback, defined as the information that describes and discusses student performance (Zeferino 2007). For being essential in the development of reflective practice, it may have a negative effect when improperly performed (Schuwirth et al. 2010). Feedback should be seen as something inherent to the test (Ricketts et al. 2010; Lulu Zhang & Ying Zheng 2018), and its importance is recognized in medical schools (Coombes et al. 2010).

Feedback generated after the progress test may provide information to the student about what he does not know, allowing evaluating the database of his knowledge and his state of development in relation to what is needed to reach at the end of the course (Van der Vleuten et al. 1996; Swanson et al. 2010). When properly used, the progress test may provide various types of feedback: individual; of that test; of skills; and the performance of a curriculum and its changes. This feedback can show the panorama of a moment or longitudinally (McHarg et al 2005; Coombes et al 2010).

Used as a comparative assessment tool, the progress test should be seen as a valuable tool in the teaching – learning process in health schools (Wrigley et al 2012; Ricketts et al 2010) regardless of curriculum (Schuwirth et. al 2012), allowing predictions about the skills and future performance, although it has some disadvantages such as cost and operation (McHarg et al 2005; Verhoeven et al 2005; Van der Vleuten et al 1996). Another point considered by many as negative is the expectation created by the progress test in novice students due to the limited number of questions regarding the first year of the curriculum (Freeman et al 2010; Van der Vleuten et al 1996, Swanson et al. 2010).

Assessing should be a reflective practice to aid the teaching – learning process, being an important step in this process and, like any evaluation process, the progress test should provide some features that make it reliable, valid, acceptable, low-cost, and with educational impact (Ricketts 2014). Adhesion and acceptance of evaluative tests may be influenced by factors related to those involved in this process and this involvement will occur through the information of the assessment purpose and knowledge about the objectives of this test, making it clear its purpose and importance (Van der Vleuten et al. 1996).

Concerned with this point of great importance in the learning process, the School of Health of the state of Pernambuco, which is specialized in courses in the health area and uses learning methodology based on problems, includes the progress test in its evaluation system as one of the training instruments. The test has been conducted twice a year in all courses since its inception, in person, and from the year 2012, the medical course began participating in a pool with six other medical schools in other states of the federation. Thus, the college follows a natural tendency to make the progress test with more and more credibility and influences the acceptance of an auxiliary tool in the educational process of students. This study aimed to assess the knowledge of undergraduate students at the School of Health of Pernambuco on the progress test and the factors associated with their adherence and performance on this test.

2. Methodology

A quantitative cross-sectional study (Esteiter,2015) was conducted by applying questionnaire developed and validated for this research. This study took place in Faculdade Pernambucana de Saúde - FPS, located in the city of Recife, state of Pernambuco. The institution uses PBL (Problem-Based Learning) as teaching methodology and performs the progress test in all its courses since its foundation. The progress test is part of the institution Evaluation System with a training character, applied twice a year. For this study, student who performed two or more progress tests was considered as adherence to the progress test.

The study took place from February 2014 to February 2015 with undergraduate students of Medical, Nursing, Physiotherapy and Pharmacy courses as population, and the non-probabilistic convenience sample was composed of students of the second and last years of these courses. Students under 18 years were excluded from the study.

The data collection instrument consisted of three sections: 1) sociodemographic information: age, gender, marital stage, academic degree, job; 2) academic profile: course and year enrolled, academic failure, progress test preparation, daily hours of study; and 3) a section with a 5-point Likert type questionnaire with 27 items to assess the opinion on the progress test. A pilot sample of 11 psychology students contributed to semantic validation of the data collect instrument. The results of the Likert type questionnaire were evaluated by Medium Ranking analysis (MR). The Medium Ranking is calculated by dividing the weighted average of each item's response by the number of students who responded to the questionnaire. (Severo, 2014).

This research was approved by the Ethics Research Committee of the School of Health of Pernambuco in accordance with Resolution 466/2012, protocol number 556. 167 of February 13th, 2014.

3. Results

Overall, 288 students enrolled in the second and last years of Medicine, Nursing, Physiotherapy, and Pharmacy courses were evaluated. Adherence to the progress test, considered as those who were submitted to two or more progress tests, was identified in 84.9% (243) of students. With respect to the amount of progress test made, 4.2% (12) had never been tested, 10.8% (31) made the test only once.

Association between adherence to the progress test and sociodemographic characteristics was not observed in relation to age, sex and marital status of students. However, adherence to the test was higher among students who did not work ($p = 0.002$). The sample age average was 23.7 (SD 2.12) years, and the students were mostly female, 78.8% (227), and single, 86% (247). About 10% (30) had other academic degree and 16.1% (46) in addition to studying, also worked. (Table 1).

Table 1 – Association between adherence to the progress test and the sociodemographic characteristics. FPS, 2014.

Variables	Adherence*		No		Statistical analysis** P
	N	Yes %	N	%	
Gender					
Male	51	83,6	10	16,4	0,44
Female	192	85,3	33	14,7	
Marital Status					
Single	212	86,2	34	13,8	0,12
Married	20	71,4	8	28,6	
Others	10	90,9	1	9,0	
Age					
18 to 20 yearsold	65	79,3	17	20,7	0,18
21 to30 yearsold	154	88,0	21	12,0	
>30 yearsold	23	85,2	4	14,8	
Besides studying also have a job					
Yes	31	68,9	14	31,1	0,002
No	209	87,8	29	12,2	

* Total of 286 students answered the question about adherence ; ** Chi square test. Source: Authors.

Regarding the academic profile, there were 49.6% (143) of the students enrolled in Medical course, 27.4% (79) in the Nursing course, 13.1% (38) in the Physiotherapy course and 9.7% (28) in the Pharmacy course. There was an association among course enrolled and adherence ($p = 0.02$), emphasizing that medical students had greater adherence to the test among courses. On routine studies and academic performance, the number of daily hours devoted to studies was on average 3.9 hours (SD 2.52). About 3% (8) mentioned period failure and 13.9% (40), on module failure. Additionally, the total students who participated in the survey, 57.2% (165) were enrolled in the second year and 42.1% (123) were enrolled in the final year. (Table 2).

Table 2 - Association between the adherence progress test and academic characteristics. FPS, 2014.

Variables	Adherence*		No		Statistical analysis** P
	N	Yes %	N	%	
Course					
Medical	127	89,4	15	10,6	0,02
Nursing	68	87,2	10	12,8	
Physiotherapy	28	73,7	10	26,3	
Pharmacy	20	71,4	8	28,6	
Have other academic degree					
Yes	24	80,0	6	20,0	0,42 ¹
No	219	85,5	37	14,6	
Module failure					
Yes	30	75,0	10	25,0	0,08
No	212	86,9	32	13,1	
Period failure					
Yes	675,0		225,0		0,34 ¹
No	237	85,2	41	14,7	
Progress test preparation					
Yes	20	90,9		29,1	0,75 ¹
No	222	85,1	39	14,9	
Year Enrolled					
Second year	136	82,9	28	17,1	0,34
Last year	107	87,7	15	12,3	

*Total of 286 students answered the question about adherence ; ** Chi-square¹Fisher exact test. Source: Authors.

The opinion of students on the progress test was evaluated by Medium Ranking analysis (MR) with a Likert type questionnaire and it was observed that students agreed with most of the statements that pointed to the benefits of the test (Table 3). In relation to the items on the test presentation, they agreed with the statement that “it is a long and tiring test” (MR 3.64),

“has a high number of questions” (MR 3.68), but the “time given to answer them is sufficient” (MR 3.98), and that “alternative *do not know*, would make the test fairer” (MR 3.35).

About the relationship between test and learning, despite agreeing that “the test is useful for identifying what one needs to study” (MR 3.21), which “shows areas that have to be improved” (MR 3.71), that “the test is a way to identify how much has been learned” (MR 3.28), students agreed with limiting MR with the statement that “the test does not allow showing knowledge” (MR 3.09). Regarding the feedback, despite agreeing that “the test can help identifying what needs to be improved” (MR 3.99) and “is able to change performance” (MR 3.13), they did not agree with the assertion that “feedback is used to regulate the learning process” (MR 2.87). (Table 3)

Table 3 - Medium Ranking for Likert scale - feedback from students on the Progress Test. FPS, 2014.

Questions	MR-group/(SD)
Progresstestisuseful	3,86 (1,01)
Test is unfair because it has content that has not studied	2,79 (1,34)
Have important content for my profession	4,43 (0,84)
The test is important for my academic life	3,70 (1,11)
It is an engaging and enjoyable test	2,81 (1,25)
It is long and tiring	3,64 (1,17)
It is an important tool to become a good professional	3,25 (1,24)
It is discouraging because it has content that I do not know	2,97 (1,31)
Contributestomylearning	3,76 (1,19)
It is an elaborate evaluation	3,60 (1,08)
The test does not show my knowledge	3,09 (1,24)
Allows articulate previous knowledge to answer it	3,77 (1,09)
I need my memory capacity to answer it	3,56 (1,15)
Alternative "do not know" leave the fairest test	3,35 (1,46)
I use the test results to focus on what I can improve	3,47 (1,34)
It is a way to determine how much I learned	3,28 (1,38)
I use the test to identify studying needs	3,21 (1,35)
The test has a small impact on my learning	3,04 (1,18)
I use the feedback to adjust my learning process	2,87 (1,28)
I consider the feedback is able to change my performance	3,13 (1,30)
Feedback can help identify learning needs	3,99 (1,06)
The test shows areas that I have trouble and that I need to dedicate myself	3,71 (1,19)
Studying a week before help improve test performance	2,55 (1,37)
The time to answer the test is enough	3,98 (1,10)
It has a lot of questions	3,68 (1,21)
The test has a high level of difficulty	2,95 (1,12)
Comprehension is required to respond to the test	3,56 (1,15)

MR – Medium Ranking; SD - Standard Deviation; MR<3 – disagree; MR=3 – not agree nor disagree; > 3- agree. Source: Authors.

4. Discussion

The present study showed predominance of women in the student sample, following a gradual increase of females in health area courses over the years (Baldissera et al, 2010), and it is known that this predominance is also present in the Brazilian population (IBGE, 2011). This gender feature in medical, nursing, physiotherapy and pharmacy schools is a finding

that agrees with data obtained from the National Survey of Student Performance in 2013 (INEPEAT 2013a, INEPEAT 2013b, INEPEAT 2013c, INEPEAT 2013d), although some specific studies can differ, as in the cross-sectional study with 370 medical students conducted in Pernambuco in 2006 and 2007, which found percentage of 57.0% of females (Alves et al, 2010).

Regarding the average age, data show students at a young age range, which is similar to data found in a study conducted in Higher Education Federal Institutions in Brazil in 2010 that found a rate of 75% of young college students aged up to 24 years. In this universe, 86.6% were single (Andifes 2011), which is a finding with equal representation in our study and in line with those found in literature (Alves et al, 2010; Nakamae, 1997).

In an assessment of the socio-economic and cultural profile conducted in 2010 with undergraduate students of Federal Brazilian Universities, more than one third of students worked, with a representative percentage of 37.6% (Andifes 2011). This information was collected with students from different areas, but this circumstance is very different from the reality of our study, which found a percentage of only 16.1%. This scenario may be the reflection of a particularity of health area courses.

It was possible to observed attendance in the progress test when our results point to a percentage of 68.8% of respondents claiming to have carried out 2-4 tests. From those enrolled in the second year, 82.9% took two or more progress tests and in the last year, this value increased to 87.7%. Since it is a test offered by the School of Health of Pernambuco twice a year, second-year students may have had at least three opportunities to take the progress test, and a maximum of four. In the last year, students had the opportunity to take the progress test at least nine and no more than twelve times, according to the course duration. There was no association between year and adherence to the progress test.

However, this finding may represent a characteristic of students of this institution, who use an active teaching and learning methodology that is the PBL (Problem-Based Learning), which makes participants self-directed in their learning. No evaluation process can alone exert any influence on student learning; however it became clear that when the progress test was introduced at the University of Maastricht, students changed their focus to self-directed and continuous learning (Schuwirth et al. 2012). This panorama shows similarity to the study group because the progress test in FPS has this educational feature.

The self-directed feature of students including planning, monitoring and even evaluation of the learning process can be expressed in this research for their dedication in daily hours to studies, which was above the national average of 2013 (INEPEAT 2013).

Adherence to the test, observed in this study, becomes even more relevant, considering that it is formative assessment with voluntary participation. Participation in the progress test had a percentage of 84.9%. Similar or higher percentage was only observed in a Brazilian study on ten years of progress testing experience made by Sakai et al (2008) after the mandatory participation in the test (Sakai et al. 2008).

The candidate's motivation to conduct the progress test was mentioned in the study by Nouns and Georg (2010), who reported the experience of a pool of 13 medical schools in German-speaking countries. Together, they elaborated the progress test and applied it twice a year, with mandatory participation of students, although with a purely educational character. This educational aspect was considered as a disadvantage due to the wide variation of motivation of candidates taking the test (Nouns & Georg, 2010).

Considering adherence by course, it was observed that it was higher in the Medical students, followed by Nursing, Physiotherapy and then Pharmacy. Although progress test has been set up in FPS since the creation of courses, this difference may be related to the fact that the medical course is a member of a pool with six other medical schools in the country, generating a different motivation to the test, in addition to the longer duration of medical courses, which provides more opportunities for taking the test. However, for Van de Vleuten and colleagues, the acceptability of an evaluation procedure is critical and reinforces that a test may be feasible, reliable and valid, but will be short lived if not accepted by anyone (Van Vleuten et al, 1996).

In the present study, there was no association between adherence to the progress test and age, sex and marital status, but it was evident that working and studying was associated with lower adherence to the test, which is an important finding as it reflects a reality of the student who needs to work and finds difficulty in conciliating professional and academic activities.

A striking feature of the progress test is the broad content of the cognitive knowledge field of an entire curriculum, which makes the student's preparation for the test difficult, but this test was specifically designed to avoid preparation for the exam. This principle is represented in this study, where 91.7% of students who adhered to the progress test said they did not prepare for the exam. A study conducted in 1996 at the University of McMaster in Canada, where progress test is applied three times a year, found a percentage of 73% of students who did not prepare for the progress test (Blake et al. 1996).

How the progress test is considered in curricula and how it affects the perception that students have about this type of evaluation is not researched. Louise Wade, et al in 2012, through a comparative study among medical schools that evaluated the progress test and its impact on learning, found results confirming that the feelings of students regarding the progress test help improve their learning and in identifying their own strengths and weaknesses in this process (Wade et al. 2012).

When considering the progress test a useful and important tool for academic and professional life, students seem to recognize the role of this test as a learning tool, and this understanding is well represented when they agree that the progress test contributes to learning. However, there is impartiality in this thought when Medium Ranking of 3.04 for the assertion that the progress test has a small impact on learning is found. This may be a reflection of the paradigm that evaluation is hierarchical and classifies a student as good or bad. The understanding on the selective characteristic for evaluation is still remarkable, when they agree that the progress test does not allow showing the students' knowledge.

The concept of evaluation needs to be understood as an essential guide instrument for continuous monitoring of student progress. This definition needs to be linked to variations in the process of developing skills and knowledge that will serve as a guide for self-regulation of student learning (Carvalho & Matinez 2005). Using the results of the progress test to focus on what can improved in the dedication of studies; using the test to identify areas that students need to dedicate more deeply; as well as realizing that the test can show how much has been learned; are striking features of a type of learning regulation that was evident in this study.

The information provided to students describing and discussing performance on the progress test can generate a valuable awareness for learning, as it will highlight what is in disharmony between the expected and the reality of the result. If this feedback causes change in performance standard, we will have a learning process (Zeferino et al. 2007). By agreeing that the feedback can influence performance and that it can help identifying what one needs to learn, students show a reflective, self-directed and active practice, while not agreeing that the feedback should be used to regulate their learning process. This contradiction can be understood as a possible flaw in the way this feedback has been provided.

5. Conclusion

The progress test is an assessment of increasing use in the health area in Brazil and worldwide and further studies are needed for the deepening of the knowledge of the characteristics and experiences of participants. Giving meaning to the evaluation process itself will give the progress test more prominence in its formative and guiding function in the learning process.

The sample presented adhesion of 84.9% to the progress test that recognized it as an important tool in the learning process, and it is important to monitor students who need to work so that the adherence of this group can be improved. Contradictions about the perception of students about the importance of feedback can point to the need for a broader discussion about how this feedback is obtained.

When considering the progress test a useful and important tool in the learning process, the student demonstrates his ability to identify the benefits that this tool can bring to assist in his process of knowledge construction.

Further studies on the knowledge of students about the progress test and the factors that favor adherence should be carried out. Qualitative analyses can contribute to a better understanding of these aspects.

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