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STUDY OF MOTIVATION IN PORTUGUESE STUDENTS

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Abstract

In adolescence, motivation is a predictive factor in academic success. Motivated students have higher levels of satisfaction in school, mobilizing interests and skills in various domains (Galinha, 2006). This study aimed to assess the existence of improvements in motivational dynamics in Portuguese adolescents by investigating if students who participated in the P-DMAR Programme displayed higher motivation levels relative to the control group in the domains present in the QME questionnaire. The School Motivation Questionnaire - QME (Cordeiro, 2010) was administered to two groups (experimental vs control) at two different phases, before and after participation in the P-DMAR. A sample of 86 students (n = 43 experimental group, n = 43 control group) were involved in the study. The statistical methodology consisted of a quantitative analysis of the QME using hypothesis tests for independent and paired samples. An $\alpha = 5\%$ was set. The results showed that males were predominant (51.2%) with 29.1% of the respondents repeating. There was a statistically significant improvement in the six dimensions evaluated in the QME in the experimental group as opposed to the control group (p values < 0.01). It was verified that the P-DMAR is a valuable programme with statistical significance ($p < 0.01$) because the students participating in it saw their motivational capacities enhanced in the following six domains measured in the QME: strategies, extrinsic objectives of the teacher, extrinsic objectives of the student with external regulation, intrinsic objectives of the teacher, extrinsic objectives of the student with internal regulation and intrinsic objectives of the student.

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1. Introduction

Since young people spend most of their time in school in order to acquire the skills necessary for their personal fulfillment and school life project, relating motivation to educational contexts is necessary because of the importance they have. Motivation is one of the most predictive factors of school success, and it is increasingly necessary for schools to focus on the implementation of personal and social skills development programs (Galinha, 2006; Jardim, 2007; Lopes, Galinha & Loureiro, 2010). Academic success according to PISA's international statistical data indicate that they must be established in a way which, in addition to essential knowledge, also translates into a better competence for the 21st century. (OECD, 2013; 2015).

Etymologically, the concept of Motivation derives from the Latin *movere* (with movement). A set of physiological and psychological processes in an individual's action is responsible for the process of triggering, maintenance and cessation of a behavior. The concept of motivation tends to include an element of stimulation - the energetic forces responsible for behavior, an element of action and effort, the observed behavior, an element of movement and persistence, and an element of reward. Motivation can be intrinsic and extrinsic. Intrinsic motivation refers to behaviors that are stimulated by self. Extrinsic motivation has the external motivating factor. Intrinsic motivation is the one that, of the two, that tends to remain unchanged with time. Motivation studies the set of factors that control the triggering of behavior covered by hypothetical elements such as instinct, tendency, and appetite. The study of stimuli and responses aims to determine the characteristics of the stimulus that can trigger a response. Due to motivation, needs become goals. The development of motivation implies the learning of the channelling of the needs, the cognitive elaboration of the objectives, the instrumental motivation of means and ends and functional autonomy (Maslow, 1983; Vala & Monteiro, 2000; Galinha, 2006; Pina e Cunha; Rego, Campos e Cunha, & Cabral-Cardoso, 2007)

2. Problem Statement

In adolescence, motivation is a predictive factor in academic success. Motivated students have higher levels of satisfaction in school, mobilizing interests and skills in various domains (Galinha, 2006). The problem lies in determining what kind of programme is suitable to enhance students' motivation. This study was undertaken to investigate the effectiveness of one such programme, the P-DMAR, by identifying if students mobilized interests and skills in the six domains present in the QME questionnaire. The domains measured in the QME questionnaire are: strategies (F1), extrinsic objectives of the teacher (F2), extrinsic objectives of the student with external regulation (F3), intrinsic objectives of the teacher (F4), extrinsic objectives of the student with internal regulation (F5) and intrinsic objectives of the student (F6).

3. Research Questions

Do students who participated in the P-DMAR Programme display higher motivation levels relative to the control group in the six domains present in the QME questionnaire?

Are there statistically significant differences in motivation values after the P-DMAR program, relative to gender, in each of the six domains present in the QME questionnaire?

4. Purpose of the Study

This study aims to assess the existence of improvements in motivational dynamics among Portuguese adolescents before and after participation in the P-DMAR programme in order to determine if the programme is beneficial in enhancing students' motivation.

5. Research Methods

A sample of 86 students (n = 43 experimental group, n = 43 control group) was considered. The School Motivation Questionnaire - QME (Cordeiro, 2010) was administered to these two groups (experimental vs control) at two different phases, before and after participation in the P-DMAR (Fonseca, Galinha & Loureiro, 2017).

A descriptive analysis of the QME values was performed before and after the P-DMAR program, based on the main statistical measures of location and dispersion. The statistical methodology consisted of a quantitative analysis of the QME using hypothesis tests for independent and paired samples. The following tests were used in independent samples: Mann Whitney U Test (non-parametric test) and Two Sample t-Test. In the case of paired samples was used: t-Paired Test (parametric test). An $\alpha = 5\%$ was set. The statistical analysis was performed in R software (R Core Team, 2016).

6. Findings

6.1. QME results: before and after P-DMAR program

Males were predominant (51.2%) with 29.1% of respondents repeating. Before applying the P-DMAR program to the 86 students (44 males and 42 females) the overall results considering the six dimensions (F1 to F6) were: the mean value of school motivation in the six dimensions under analysis was 37.45 (sd 8.48). Based on the whisker box chart below, Figure 1 (a), there was a high range (38.67) in the QME values, resulting from a minimum and maximum value of respectively 15.67 and 54.33. It is verified that 50% of the students interviewed had a score in the QME equal to or lower than 36.42 (median value). With respect to quartiles, it was found that: (i) 25% of the respondents presented a value equal to or less than 32.25 (Q1); (ii) 75% of the respondents presented a value equal to or less than 43.54 (Q3).

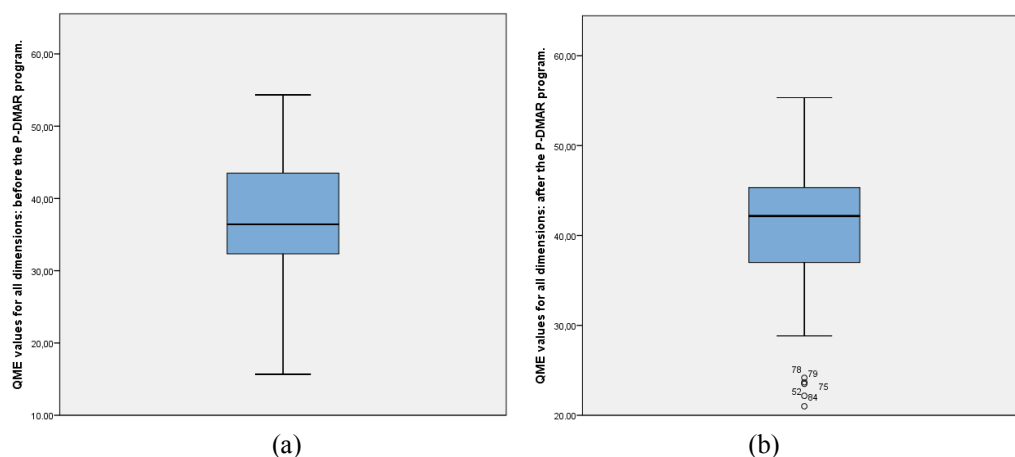


Figure 01. Illustration of the distribution of QME values, referring to 86 students, before (a) and after (b) the P-DMAR program.

If the gender were considered, the overall mean value of the QME in the males was 37.93 (sd 9.88), being higher than the overall mean value for the females, 36.94 (sd 6.81).

After the students had participated in the P-DMAR programme, the overall results considering the six dimensions (F1 to F6) were: the mean value of the school motivation in the six dimensions under analysis after the program was 40.92 (sd 7.22), a value higher than that obtained before the program. The range (34.33) indicates a smaller dispersion of the QME scores. The minimum and maximum values were respectively 21 and 55.33. It was verified that 50% of the students interviewed had a score in the QME equal to or less than 42.17 (median value). With respect to quartiles, Figure 1 (b), it was found that: (i) 25% of respondents presented a value equal to or less than 36.96 (Q1); (ii) 75% of respondents presented a value equal to or less than 45.46 (Q3). In summary: the scores obtained in the QME after the intervention of the P-DMAR programme were all higher (except for the maximum value) when compared to the pre-program results. Additionally, it was verified that after the P-DMAR programme there was less dispersion in the QME scores. Based on the reading of Figure 1 (b), there were five atypical observations (students 52,75,78,79 and 84), with low scores expected. These five individuals were non-repeating and belonged to the control group.

If the gender were considered, the overall mean value of QME after the program in males was 40.67 (sd 7.59), being lower than the overall mean value among the females, 41.19 (sd 6.89).

The t-Paired Test identified statistically significant differences between the QME values before and after the P-DMAR program (p-value 0.00549) for an $\alpha=5\%$.

6.2. QME domains vs gender

The Motivation values (QME), regarding gender, were compared in the six dimensions (F1 to F6) after the program. The following hypotheses (H0: null hypothesis; H1: alternative hypothesis) of investigation were tested:

- H0: The median Motivation values after the realization of the P-DMAR program in the first domain (F1) – Strategies, were the same for both genders.
H1: The median Motivation values after the realization of the P-DMAR program in the first domain (F1) – Strategies, were different for both genders.

The sample results were: males presented a mean value of 82.57 (sd 17.43) lower than females 87.02 (sd 16.01). Since the values of Motivation in the first domain (F1) among the females were not normally distributed (Shapiro-Wilk normality test: p-value = 0.005), the Mann Whitney U Test test was used. The Mann Whitney U Test did not identify statistically significant differences in median QME values with respect to gender in the first domain (F1) Strategies (p-value=0.141) for an $\alpha=5\%$.

- H0: The median Motivation values after the realization of the P-DMAR program in the second domain (F2) – extrinsic objectives of the teacher, were the same for both genders.
H1: The median Motivation values after the realization of the P-DMAR program in the second domain (F2) – extrinsic objectives of the teacher, were different for both genders.

The sample results were: males presented a mean value of 44.57 (sd 8.84) lower than females 44.95 (sd 7.81). Since the values of Motivation in the second domain (F2) in both genders were not normally distributed (Shapiro-Wilk normality test: p-value = 0.02 (males); p-value<0.001 (females)), the Mann Whitney U Test was used. The Mann Whitney U Test did not identify statistically significant differences in median QME values with respect to gender in the second domain (F2) – extrinsic objectives of the teacher (p-value=0.785) for an $\alpha=5\%$.

- H0: The median Motivation values after the realization of the P-DMAR program in the third domain (F3) – extrinsic objectives of the student with external regulation, were the same for both genders.
H1: The median Motivation values after the realization of the P-DMAR program in the third domain (F3) – extrinsic objectives of the student with external regulation, were different for both genders.

The sample results were: males presented a mean value of 37.57 (sd 8.07) higher than females 35.90 (sd 7.96). Since the values of Motivation in the third domain (F3) in the female were not normally distributed (Shapiro-Wilk normality test: p-value = 0.023), the Mann Whitney U Test was used. The Mann Whitney U Test did not identify statistically significant differences in median QME values with respect to gender in the third domain (F3) – extrinsic objectives of the student with external regulation (p-value=0.601) for an $\alpha=5\%$.

- H0: The mean Motivation values after the realization of the P-DMAR program in the fourth domain (F4) – intrinsic objectives of the teacher, were the same for both genders.
H1: The mean Motivation values after the realization of the P-DMAR program in the fourth domain (F4) – intrinsic objectives of the teacher, were different for both genders.

The sample results were: males presented a mean value of 36.27 (sd 6.75) higher than females 35.67 (sd 6.33). Since the values of Motivation in the fourth domain (F4) were both normally distributed (Shapiro-Wilk normality test: p-value = 0.853 (males), p-value=0.212), and with equal variance (Bartlett test, p-value = 0.678) the Two Sample t-Test was used. The Two Sample t-Test did not identify statistically significant differences in mean QME values with respect to gender in the fourth domain (F4) – intrinsic objectives of the teacher (p-value=0.669) for an $\alpha=5\%$.

- H0: The median Motivation values after the realization of the P-DMAR program in the fifth domain (F5) – extrinsic objectives of the student with internal regulation, were the same for both genders.
H1: The median Motivation values after the realization of the P-DMAR program in the fifth domain (F5) – extrinsic objectives of the student with internal regulation, were different for both genders.

The sample results were: males presented a mean value of 25.09 (sd 5.59) higher than females 24.88 (sd 6.07). Since the values of Motivation in the fifth domain (F5) in the female were not normally distributed (Shapiro-Wilk normality test: $p\text{-value} < 0.001$), the Mann Whitney U Test was used. The Mann Whitney U Test did not identify statistically significant differences in median QME values with respect to gender in the fifth domain (F5) – extrinsic objectives of the student with internal regulation ($p\text{-value}=0.765$) for an $\alpha=5\%$.

- H0: The median Motivation values after the realization of the P-DMAR program in the sixth domain (F6) – intrinsic objectives of the student, were the same for both genders.
H1: The median Motivation value after the realization of the P-DMAR program in the sixth domain (F6) – intrinsic objectives of the student, were different for both genders.

The sample results were: males presented a mean value of 17.98 (sd 4.52) lower than females 18.69 (sd 3.93). Since the values of Motivation in the sixth domain (F6) in both genders were not normally distributed (Shapiro-Wilk normality test: $p\text{-values} < 0.05$), the Mann Whitney U Test was used. The Mann Whitney U Test did not identify statistically significant differences in median QME values with respect to gender in the sixth domain (F6) – intrinsic objectives of the student ($p\text{-value}= 0.513$) for an $\alpha = 5\%$.

Overall, the results confirmed a statistically significant improvement in the six dimensions evaluated in the QME in the experimental group as opposed to the control group ($p\text{-value} < 0.01$) for an $\alpha = 5\%$. Before the P-DMAR program, the overall mean value of the QME was higher for males, which changed after the program. Although QME values in all dimensions after the P-DMAR program increased in the study sample, no statistically significant differences were recorded for gender in the domains under review.

7. Conclusion

This study verifies that the P-DMAR is a valuable programme with statistical significance ($p < 0.01$) because the students participating in it saw their motivational capacities enhanced in the following six domains measured in the QME: strategies, extrinsic objectives of the teacher, extrinsic objectives of the student with external regulation, intrinsic objectives of the teacher, extrinsic objectives of the student with internal regulation and intrinsic objectives of the student.

However, in terms of gender, no statistically significant differences in motivation values were noted after the P-DMAR program, in each of the six domains present in the QME questionnaire. It may be concluded that gender does not play a significant role in determining motivation of students within this programme.

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