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Examining the Internal-school Factors Contributing to Predict the Academic Performance of the High School Students in Hormozgan

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ABSTRACT: The purpose of this research is the recognizing share of the affective of inside school factors (with emphasis on schooling elements) in prospecting of schooling function of governmental excellent third grade high schools in Hormozgan province in final examinations and offering the model of noted elements. For this purpose among 926 students in governmental excellent third grade high school in Hormozgan province in the schooling year 1389-90, a sample around 300 persons consisting of 168 girls and 132 boys were selected by category random with proportionate pickup way. The used tool in this research is the short form of 31 question questionnaire of provocative guidelines for learning that was calculated, provocative score of schooling improvement of students. It is used of statistic descriptive ways such as: frequency, average, standard deviation of deductive statistic ways such as Regression multiple variable analyses for offering the model and the survey of proportion of perspective variables in recognition of criterion variable. The results of Regression analysis showed that perspective variables around 63 percent of criterion variable. For meaningful recognition R^2 is calculated, the magnitude of F is also counted which is 127.936 that is meaningful in the level of 0.05. In general, the students with higher educational progress motivation score (the predictive variable) had higher written GPA in the final exams compared with the students with lower scores of educational progress motivation.

Keywords: inside school factors, schooling function, high school students, Hormozgan province.

ORIGINAL ARTICLE

INTRODUCTION

Educational development can be highly influential in developing human resources in the society and pave the way for social and economic progresses by training an effective generation. At the same time, the progresses of the educational system depend on the efficiency of the activities carried out by the human resources. An internally ineffective educational system can be expected to have effective performance. The internal efficiency of an educational system can be discovered by measuring the phenomena related to the students' achievement and failure in education (Akhawantafti & Valizadeh, 2006). Measurement is a multifaceted term which covers all the processes and products indicating the nature and level of learning by the students (Child, 2004).

Annually, ministry of education and the parents spend considerable sums on the students' educational achievement. Educational achievement prevents the national capital from being wasted and brings about training effective human resources. However, one of the most common problems in the educational systems of many countries, including the developed countries, developing and undeveloped countries, is the phenomenon of educational failure which appears in form of failing, lesson retaking and voluntary or forced dropout. The economic losses resulting from educational failure is striking.

According to the statistics of the ministry of the education in the educational year 2006-2007, over 1 million students in Iran failed at the end of first grade of high school. The students` educational achievement and performance depends on various outer and inner-school interweaved factors which are interacting with one another. Thus, to realize the desire of school efficiency and eliminate the educational deprivations from different educational districts, these factors should be taken into the account and harmonized. When the schools consciously devise and implement appropriate programs for achieving the educational goals, the concern of schools efficiency will be resolved to a great extent.

Examining about 60 types of different researches conducted by Fuller (1987) in the developing countries indicates the fact that the findings of Coleman (1966) and Peaker (1971) is not true about these countries. Namely, school and its related factors, independent from family background, are highly influential on the

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extensive educational achievement in the third world countries. However, in the industrial and developed countries, the factors related to family, economic and social status are more influential on the extensive educational achievement rather than school. The attempts to identify and scrutinize the important factors for predicting the educational performance seems to be crucial. Suggesting practical strategies and taking scientific measures to increase productivity and decrease the considerable economic and cultural losses resulting from educational failure requires extensive works and researches.

In Hormozgan province, the educational performance and achievement of the students of the public exemplary high schools in the final exams of the third grade as well as the number of university acceptance percentage of 16 public exemplary high schools are different considering the heavy costs of administering these high schools which includes providing accommodation services and employing highly skilled and experienced teachers. According to the statistics of the offices of high school education and the assessment office of general education department of the province, the educational efficiency of these schools has been reported to be equal to the efficiency of an ordinary boarding school. This has raised the concerns of the parents and the education authorities. On the other hand, lack of enough number of experienced teachers and competent principals in the province as well as their frequent reshuffles (about 60% of the personnel are non-natives), the issue of enhancing educational quality at public exemplary high schools and the students` educational performance and ensuring their success in the final exams of the 3rd grade of high school (which has 25% effect on public university entrance exam) have been prioritized as the agenda of the education authorities in the province.

With a comprehensive approach, we can examine the factors involved in educational performance in three categories: individual factors, inner-school factors and outer-school factors.

This study focuses on examining the inner-school factors as well as one individual factor which have affected the students` educational performance (motivation). A frequent question in educational contexts concerning the learners` effort and learning is why some of the students are attentive to their lessons while some other are not so interested. The answer to this question to a great extent has to do with the students` motivation and the factors affecting motivation. Motivation refers to the force which creates, maintains and drives behavior. Motivation has been defined as a special need and request which induces motivation.

Motivation as a mental aptness is a prerequisite for learning. The effect of motivation on learning is completely obvious (Sief, 2008). Petrich and Schunk (1996) in a research have concluded that motivation is one of the most important influential factors on human learning and his/her performance. In Encyclopedia of Learning and Education, Husent *et al* (1992) considers the progress motivation as an aspect of motivation which is called student`s internal motivation. Human perceives himself/ herself as having the necessary qualifications and desirable self-control. Also, Uguroglu and Walberg have demonstrated that the mean of the correlation coefficients of motivation level and educational progress is + 0.34. In some other studies, the correlation between motivation and educational progress has been reported as +0/50. (Bloom, 1976).

Also, the studies carried out by Harter (1999), Walex *et al* (1993), Wolfulek (2004), Anderson and Burke (2000) has corroborated the effect of the students` internal motivation and on their tendency to scientific and learning activities which contribute to educational performance. The results of the studies conducted by Jamshidi (1998), Rafiyian (2001), Hasanzadeh (2003) and Sheikhifini (1994) in Iran have indicated that the students` educational progress motivation and their educational performance are significantly correlated.

Fuller and Hyneman (1989) have specified the influential factors on learning and educational progress in the third world countries as follow: the education duration (86%), the learners' nutrition program (83%), the activities of the school library (83%), the teacher training courses (71%), textbook and educational materials (67%), science laboratories (36%), the teachers payment (36%), the decrease in the number of learners (24%) and the retaking of the educational grade (20%).

Examining the effect of individual factors on educational failure, Sewell and Shan (1967) have concluded that aptitude, which is important in calculating the educational failure, is undoubtedly related to students` staying at the high school. Examining the inner-school factors which are influential on educational failure has indicated that since the type of the institute is related to its quality, the institute's quality is correlated with the students` presence and staying in the institute. The research conducted in Wisconsin (U.S.A) has shown that the institutes with higher quality, compared to the low quality institutes, have more alumni (Astin, 1972; Vagner, 1967; Rauch, Touster and Leen, 1970; Camens, 1971; Wagner and Sivell, 1970, quoted in Puladi, 1996). Pittman (1986)

argues that the student vulnerable to educational failure is likely to feel uninterested in their teachers or the school staffs. As a result, the students who are likely to undergo educational failure are more vulnerable to being the victims of misunderstanding compared to the other students with learning problems. Safavi (1986) quotes from the *American Journal of Educational Researches* published in 1985 " educational factors related to school are the major cause of leaving high schools". Approximately one third of the dropouts attributed leaving schools to being not good at the lessons".

Also, the studies conducted in Iran have repetitively examined educational progress as a dependent variable. The results of the studies carried out by Biabangard (2005), and Hassanzadeh (2002), have indicated that there is a significant relation between the students` educational progress motivation and their educational performance. In addition, their findings show that the students` entrance scores and the inner-school factors such as the lower educational grades GPA have been significantly correlated with the their educational performance in the upper educational grades.

This study aims at determining the effect of entrance exam scores, the GPA at the 3rd grade of guidance school, the mean of the GPA of the 1st and 2nd grades of high school and the score of educational progress motivation on predicting the educational performance of the students of the 3rd grade of the high schools in Hormozgan province in the final exams. and finding a regression model for the mentioned factors.

The research questions are as follow:

1- To what extent the inner-school factors (the variables such as entrance exam scores, GPA of the 3rd grade students of the guidance school, the mean of the GPA of the 1st and 2nd grades of the high school students and the scores of the educational progress motivation) affect predicting the educational performance of the students of the 3rd grade of the high schools in the final exams?

2- To what extent the entrance exam scores affect predicting the educational performance of the students of the 3rd grade of the high schools in the final exams?

3- To what extent GPA of the students at the 3rd grade of guidance school affect predicting the educational performance of the 3rd grade students of the high school in the final exams?

4- To what extent the mean of GPA of the 1st and 2nd grade high school students affect predicting the educational performance of the 3rd grade students of high school in final exams?

5- To what extent the scores of the educational progress motivation affect predicting the educational performance of the 3rd grade students of the high school in final exams?

MATERIALS AND METHODS

Since this study intends to examine and determine the effect of inner-school factors on predicting the educational performance of the 3rd grade students of the public exemplary high school in their final exams and the relation between the variables have been examined and analyzes, correlational research method has been used. This method belongs to descriptive (non-experimental) research methods.

The statistical society includes the whole 3rd grade students of the public exemplary high schools in the province during the educational year 2010-2011. The statistical society includes 519 girls and 407 boys which totally makes 926 persons who have been studying in 16 public exemplary high schools. The statistical samples have been selected from the statistical society using stratified random sampling method which was appropriate for our selected group (girls and boys). With regard to the number of the predictive variables and the practical considerations of the research, to obtain a referent sample the final volume of the sample have been assumed 300 persons (including 160 girls and 140 boys) according to Morgan sampling table.

The research tool for this study was the short form of the educational motivation questionnaire with a 7-point Likert scale with choices ranging from 1 (strongly agree) to 7 (strongly disagree). Coutinho and Newman (2008) have used *Cronbach's Alpha* method to examine the reliability of this questionnaire. According to them, reliability coefficient of this questionnaire is 0.90. Rafiyian (2000) using Chronbach alpha method has calculated the reliability of this scale as 0.81. For evaluating the validity of this scale, Rafiyian (2000) has used Scherrer self-efficiency instrument and calculated its validity coefficient as 0.64. In this study, the reliability of this questionnaire has been evaluated using Cronbach's alpha method as 0.78.

RESULTS

The researcher in this study intends to determine the role of each predictive variable in explaining the criterion variable. According to the available resources, if a researcher has no specific theoretical model in his mind or the number of the predictive variables is low, the best method will be the simultaneous method. Therefore, this method (simultaneous method) has been used in regression analysis. Due to the presence

of quantitative data such as mean and standard deviation and application of stratified random sampling method for information analysis, descriptive and inferential statistical methods have been used. In the descriptive part, mean and standard deviation statistics has been used. In the inferential part, simultaneous multiple regression analysis has been used for testing the suggested model. In addition, for testing the significance of the model, ^{1}F coefficient and for testing the significance of (β) values of each factor, T test have been used. In simultaneous method which has been performed using the version 16 of SPSS software *Enter* method has been applied to find the regression line equation. Because in this method all the variables are inserted simultaneously to form the equation and all the beta coefficients are offered and calculated. These coefficients are used for determining the dependent variables used in explaining the criterion variable. The salient descriptive findings which include mean and standard deviation statistics are shown in the table 1.

Table 1. Mean and standard deviation of the predictive variables and criterion variable

Variable	Mean	Standard deviation	N
Entrance exam score	15	1.02	300
GPA of 3rd grade of guidance school	19.09	0.974	300
Mean of the GPA, 1st and 2nd the grades of the high school	18.58	1.185	300
Score of Educational progress motivation	18.37	0.808	300
The written GPA of Final exams of the 3rd grade of high school	16.15	2.492	300

Table 1 shows the mean and standard deviation of 4 predictive variables which have been examined as the inner-school factors affecting the educational performance of the 3rd grade students of exemplary state high schools in addition to a criterion variable (the written GPA of final exam). Considering the data of the table it is observed that he highest mean belongs to the variable written GPA of last exams of the 3rd grade, guidance school (with the mean 19.09 and the standard deviation 0.974). In addition, the lowest mean belongs to the variable entrance exam score (with the mean 15 and the standard deviation 1.02).

In addition to the above mentioned descriptive findings, it entailed to calculate the matrix of correlation between the predictive variables and the criterion variable in order to examine the research questions and conduct an inferential analysis on the research data. Table 2 shows the related matrix.

Table 2. The matrix of correlation between the predictive variables and the criterion variable

Variable	GPA, 3rd grade of guidance school	GPA, 3rd grade of guidance school	Mean of the GPA, 1st and 2nd the grades of the high school	Score of Educational progress motivation
Entrance exam score	0.595			
GPA, 3rd grade of guidance school	0.391	0.249		
Mean of the GPA, 1st and 2nd the grades of the high school	0.228	0.595	0.228	
Score of Educational progress motivation	0.527	0.265	0.253	0.416

According to the findings indicated in the table above, the highest positive and significant correlation coefficient with the criterion variable belongs to the variable entrance exam score and the lowest positive and significant correlation coefficient with the criterion variable belongs to the mean of the GPA of the 1st and 2nd grade students of high school. The other variables indicate correlation with the criterion variable between these two values. All the studied variables are positively and significantly correlated with the criterion variable at a level of less than0.05.

Conducting regression analysis on the research data for offering a general model for the examined variables indicated that the predictive variables can justify and explain approximately 63% of the criterion variable variance. To determine the calculated R^2

significance, variance statistical analysis test has been used. F value was calculated as 127.936 which was significant at a level of less than 0.05. The results are presented in detail in table 3.

Table 3. The values of R, R^2, B, beta and the significance test in the studied general model

Variable	B	beta	T value	Sig.	R	R^2	Sig.
Variable	-31.63	-	-12.94	0.05	0.795	0.632	0.05
Entrance exam score	0.587	0.236	5.32	0.05			
GPA, 3rd grade of guidance school	0.444	0.174	4.67	0.05			
Mean of the GPA, 1st and 2nd the grades of the high school	0.888	0.422	9.08	0.05			
Score of Educational progress motivation	0.762	0.245	6.22	0.05			

As you can see in the table above, for the significant test of the beta coefficients calculated for each predictive variable in the model, *t* statistical test has been used. In the above table, a general regression model has been suggested using the research data concerning the examined predictive variables and the criterion variable. In general, in this model, the predictive variables have explained approximately 63% of the criterion variable variance. All the predictive variables are positively and significantly correlated with the criterion variable. The role of the variable entrance exam score in explaining the creation variable was 0.236. The role of the variable GPA of the 3rd grade of the guidance school in explaining the criterion variable was 0.174. The role of the variable the mean of the GPA of the 1st and 2nd grade of high school in explaining the criterion variable was 0.422. The role of the variable educational progress motivation score in explaining the criterion variable was 0.245.

DISCUSSION

The studies conducted using statistical method for regression analysis of a number of variables on the examined variable has shown that the predictive variables can justify and explain approximately 63% of the criterion variable variance. The result of this analysis indicates that the variable mean of GPA of the 1st and 2nd grade of high school with beta value of 0.422 significantly plays the major role in predicting and explaining the criterion variable. Also, the variable GPA of the 3rd grade of guidance school with beta value of 0.174 significantly plays the minor role in predicting and explaining the criterion variable. The results of the researches which have been carried out formerly corroborate the results of this study. In introduction section, the results of these studies have been discusses. For example, the results of the study conducted by Skalvin and Hatgut (1990), Migery (2002), Alex *et al* (1993), Petit (2002), Peterich and Schunk (1996), Harter (1999), Wokfulk (2004), Anderson and Burke (2000), Perterich and de Grute (1990) worldwide, also, the results of the studies carried out in Iran such as Biabangard (2005), Hasanzadeh (2002), Jamshidi (1998), Rafiyian (2000), Sheikhifini (1994) support and confirm the positive and significant relation between the predictive variable educational progress motivation and the criterion variable.

For instance, Peterich and Schunk (1996) in their research have indicated that motivation is one of major factors in human learning and performance. Harter (1999) has emphasized on the role of internal motivation and shown that the students who are internally motivated have better educational performance in compassion with those who are externally motivated. Rafiyian (2000) has indicated the positive and significant relation between motivation and educational performance.

Fuller (1986) and Fuller and Hyneman (1989), Alex *et al* (1993 Sewell and Shan (1967), Pittman (1968), Guartez and Gerguard (2004), Katergie (2003) in other countries and Puladi (1996) and Seif (2008) in Iran have corroborated the positive and significant relation between the individual factors and the inner-institute factors such as entrance exam scores, IQ, aptitude, and the students` GPA of former grades as the predictive variable and the criterion variable.

For example, Fuller (1986) in examining the inner0scholl factors affecting the students` educational performance has concluded that school and its related factors, independent from the family background, are highly influential on the learners` educational progress in the third world. Safavi (1986) quotes from *American Journal of Educational Researches* published in 1985 “educational factors related to school are the major cause of leaving high schools”. Approximately one third of the dropouts attributed leaving schools to being not good at the lessons”.

Sewell and Shan (1967) in examining the effect of individual factors on educational failure have concluded that aptitude, as it is important in calculating educational failure, is also related to students` staying at high school. The data analysis in this research showed that in general the students with higher educational progress motivation score (the predictive variable) had higher written GPA in the final exams compared with the students with lower scores of educational progress motivation. In addition, the students with higher entrance exam score and GPA of the 3rd grade of guidance school and higher mean of GPA at the 1st and 2nd grade of high school managed to get higher final GPA compared to their classmates lacking these features. The remaining role in explaining the criterion variable is related to the unknown factors out of the range of this research.

Considering the considerable effect of the mentioned variables on predicting the criterion variables (the written final GPA of the 3rd grade students of the high schools in Hormozagan) it seems that the authorities of education in the province and the cities can regulate and execute their annual and operational programs with adopting executive strategies in a way that enable the educational activities and teaching processes to enhance the factors and predictive variables above. In this case, it is expected that a fundamental change is needed in educational quality in these high schools in order to enhance the students` educational performance. Achieving this goal entails revising the management, teaching methods, student accepting policy, the educational assessment and the executive programs in these high schools.

The biggest role in predicting and explaining the criterion variable belongs to the variable mean of GPA of the 1st and 2nd grade of the high school and the slightest role belong to the variable GPA of the 3rd grade of guidance school. Regarding the fact that the GPA is 50 % considered in accepting the candidate for entering the high schools and calculating the score of the test, taking this issue into the account and reviewing it by the authorities seems to be absolutely essential. With regard to the considerable effect of the variables entrance exam score, GPA of the 3rd grade of guidance school and the mean of the GPA of the 1st and 2nd grade of the students of the high schools (predictive variables) on explaining the criterion variable (the written GPA of the 3rd grade of high school), the degree of observing the scientific standard for educational assessment and evaluation in the process of designing, performing and declaring the result of these exams by the state authorities should be reexamined and revised. Also, with regard to the effect of educational progress motivation score (0.245) on explaining the criterion variable, to increase the students` internal motivation and guide their education, special educational workshops should be frequently held by education departments with presence of accomplished psychologists and advisors and the successful and top-notch students be introduced and praised in these workshops. The educational authorities of the province should invite the authors of the textbooks and the skilled experts of designing standard questions in form of in-service training so that their teaching and question designing skills as well as the skills concerning the methods of holding standard tests may be improved. In addition, the educational leaders of different lessons should supervise the teaching practices and question designing in the schools.

Since at each educational grade different factors affect the desired educational performance, the results of this study may be difficult to be generalized about other educational grades. Lack of awareness of the individual characteristics of the students in the statistical samples was one of the limitations of this study. Improper conditions, lack of adequate equipment and facilities, the high school students` cultural background have different impacts on the studied variables. These factors are worthy to be considered in applying the results of this study to all the high schools in the province.

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