Study the Efficiency and Productivity of High Schools at Education District 4 of Karaj (Iran)

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ABSTRACT: *In this study, efficiency and productivity in second grade of high schools have been compared and discussed as main objective of study. The mythology of study was descriptive of comparative-casual kind. Statistical population of this study consisted of all teachers at second grade of high schools at education and training organization of district 4 of Karaj. Statistical sample was selected using Morgan Table by stratified and purposive sampling and was analyzed by efficiency and productivity inventories. Kolmogorov-Smirnov, variance analysis and single-t test were used to analyze data. According to obtained data, there is significantdifference between second grades of high schools in term of efficiency at confidence level of 99%. Also, there is a significant difference between second grades of high schools in term of productivity at confidence level of 99%.*
Keywords: *Efficiency, Productivity, Highschools, Teachers*

I. Statement of Problem

Any carried out process requires a set of data and resources and, of course, a series of achievements and products. The importance and necessity of efficiencyassessmenttoapply reflection and consequences caused by carried out activities is important especially when strategic planning and performance- based goals and macro policies are at the center of concerns. Continuous improvement of organizations' performance creates a synergisticmassive power; such power can be the support of growth and development program and create excellence opportunities of organization. Governments and organizations and institutions apply a heading attempt in this case. Without study and awareness of the progress and achievement of objectives and without identify challenges of organization and achieve feedback and inform of the implementation of policies developed and identify cases that need serious improvement, continuous improvement of performance will not be possible. All of the above cases are not possible without measurement and assessment (Ebrahimi et al., 2011) The present era that researchers have called it postmodern has characteristics of continuous change and complexity of structures. In such circumstances, only those mangers are successful who have proper and up to date and comprehensive information about the performance of their organization and make correct and timely decisions to its continuous improvement in accordance with the changes (Sane, 2003). By extending schools and increasing the control area of managers, assessment and control of organizational units becomes a necessity for managers (Shokri, 2014) which this issue is not possible without assessment the efficiency of schools and centers under their supervision. In addition, the managers of Education regarding the present and future conditions, have to improve educational services, budgeting, innovation, improvement of human resources, modernization of the equipment and ultimately increase the efficiency among the units under their own supervision.

For this purpose, it is necessary to be aware of efficiency at schools and investigate causes of their efficiency and inefficiency, and reform and guide the inefficient units with proper planning. It is obvious that by doing this, it can be expected to minimize losses due to inefficiency and overall improve the performance of the schools (Kazemi, 2013). Evaluate the efficiency of schools is a little difficult, because the efficiency of schools is measured based on their students' performance and academic success (Shabahang and Borhani, 2008). On the other hand, productivity is efficient use of resources of organization to achieve the efficient and effective goals, in the context of anacceptable value system. Productivity is a culture, a rational attitude towards life and work to make intelligent the activities to achieve a better and transcendent life (Abtahi and Kazemi, 2010).Education is the key factor of social and economic, cultural and political development of every community. Analysis of the factors influencing the growth and development of advanced societies shows that all these countries have efficient and effective education. As well as parents of students because of the sensitivity and importance of quality of education and its consequences on the future fate of their children increasingly tend to entrust their children to schools that according to their research have good and effective performance and have productivity and efficiency. Efficiency and productivity of schools is more important due to massive investment of government and concern of beneficiary groups, especially parents about the fate and future of

their children. So, identifying efficiency and productivity of schools in different ways is the concern of many policy-makers and education planners at the macro level (Bell and Stevenson, 2014).Taking a glance on similar studies in other countries, the study of Far et al in 2006, in Swedish schools can be noted. They calculated productivity indicators without quality characteristics and then by calculating them using data covering analysis and found that the quality is effective on efficiency. They considered quantitative and qualitative variables such as the costs of library and counseling and per space of student for each student as input. Also, for the output, they used qualitative and quantitative variables such as the number of students and middle average of students respectively (Fare et al., 2006). In another study, Saricco and Rosa in 2009 in Portugal, by examining a sample of public schools with the panel evaluation with value-added approach considered inputs including capability on arrival, socio-economic characteristics, standards of human resources and quality of educational staff and outputs including academic success, graduation rate and academic loss rate and found that schools performance is significantly different and much efficiency can be done to improve the system (Saricco and Rosa, 2009).

II. Research Methodology

The study in terms of methodology is a descriptive research. With regard to compare efficacy and productivity in second grade of high school, research method is causal -comparative. The study population consisted of all teachers at second grade of high schools at education and training organization of district 4 of Karaj. In second grade of high schools, the number of teachers is 480 people, in second grade of high schools of Technical and vocational, the number of teachers is 220 people and in second grade of high schools of work and knowledge, the number of teachers is 200 people. 180 teachers of high schools, 130 teachers of high schools of technical and vocational and 110 teachers of high schools of knowledge work were selected as the sample through Morgan table. In this study, stratified random sampling method was used. The tool of data collection was efficiency questionnaire (Kamal Zare, 2015) and productivity questionnaire (Shahsavari, 2012). Analysis of variance (ANOVA) was used to analyze the data.

Table 1: Indicators of descriptive statistics of variables

Variable		Mean	Variance	SD
Efficiency	High school	3.44	0.09	0.30
Productivity		3.98	0.52	0.72
Efficiency	Technical and vocational	3.32	0.08	0.29
Productivity		3.12	0.09	0.30
Efficiency	Kar o Danesh	3.01	0.52	0.32
Productivity		2.67	0.08	0.34

Findings:
First hypothesis:
There is a difference between types of second grade of high schools of Education of District 4 of Karaj (Kar o Danesh, technical and vocational and highschools) in terms of efficiency.

Table 2: Descriptive statistics of students in multiple groups

Group	N	Mean	SD
Teachers of high schools	160	3.70	0.16
Teachers of technical and vocational schools	130	3.39	0.27
Teachers of Kar o Daneshschools	110	3.12	0.19

Table 3: Analysis of Variance of multiple groups (ANOVA)

	Sum of squares	df	Mean of squares	F	Sig
Intergroup	54.77	2	100.95	26.5	0.000
Within group	45.03	397	4.01		
Total	99.80	399			

Based on the results of analysis of variance, there is a difference between the efficiency of high schools, technical and vocational and Kar o Daneshschools from perspective of teachers according to F obtained and significance (0.000), which is smaller than significance (0.01) with 99% confidence.

Table (4): The results of post hoc analysis

Group (I)	Group (J)	Mean Difference(I-J)	Std. Error	Sig.
High schools	technical and vocational	0.310*	0.019	0.000
	Kar o Danesh	0.680*	0.021	0.000
technical and vocational	High school	0.310*	0.019	0.000
	Kar o Danesh	0.270*	0.040	0.000

According to Table 4, the following results were obtained:
1. There is a difference between high schoolsand technical and vocational schools in terms of efficiency of schools in the view of teachers at the significance level (0.01) and with 99% confidence.
2. There is a difference between high schoolsand Kar o Daneshschools in terms of efficiency of schools in the view of teachers at the significance level (0.01) and with 99% confidence.
3. There is a difference between technical and vocational schools and Kar o Daneshschools in terms of efficiency of schools in the view of teachers at the significance level (0.01) and with 99% confidence.

Second Hypothesis:

There is a difference between types of second grade of high schools of Education of District 4 of Karaj (Kar o Danesh, technical and vocational and high schools) in terms of productivity.

Table 5: Descriptive statistics of students in multiple groups

Groups	N	Mean	SD
high schools	160	3.42	0.26
technical and vocational schools	130	3.30	0.29
Kar o Danesh schools	110	3.21	0.28

Table 6: Analysis of Variance of multiple groups (ANOVA)

	Sum of squares	df	Mean of squares	F	Sig
Intergroup	8.344	2	1.66	21.25	0.000
Within group	86.69	397	0.079		
Total	95.03	399			

Based on the results of analysis of variance, there is a difference between the productivity of high schools, technical and vocational and Kar o Danesh schools in the view of teachers according to F obtained and significance (0.000), which is smaller than significance (0.01) with 99% confidence.

Table (7): The results of post hoc analysis

Group (I)	Group (J)	Mean Difference(I-J)	Std. Error	Sig.
High schools	technical and vocational	0.122*	0.029	0.031
	Kar o Danesh schools	0.260*	0.025	0.000
technical and vocational	High schools	0.122*	0.029	0.031
	Kar o Danesh schools	0.089*	0.040	0.210

According to Table 7, the following results were obtained:
1. There is a difference between high schoolsand technical and vocational schools in terms of productivity of schools in the view of teachers at the significance level (0.05) and with 95% confidence
2. There is a difference between high schoolsand Kar o Danesh schools in terms of productivity of schools in the view of teachers at the significance level (0.01) and with 99% confidence.
3. There is not a difference between technical and vocational schools and Kar o Danesh schools in terms of productivity of schools in the view of teachers at the significance level (0.05) and with 95% confidence.

Third hypothesis:

Second grade of high schools of Education of District 4 of Karaj have efficiency.

Table (8): one sample t test for third hypothesis

Observed mean	Expected mean	Difference of mean	T	df	P	Significant level
3.39	3	0.39	6.24	399	0.000	0.01

In accordance with the above table, the second grade of high school of Education of District 4 of Karaj have efficiency that this is due to the significance (0.000) that is smaller than significance (0.01) and obtained t (6.24) that is greater than t table (2.58). The average obtained is 3.39 and difference between means is 0.39, which shows high efficiency in second grade high school according to teachers.

Fourth Hypothesis:

Second grade of high schools of Education of District 4 of Karaj have productivity.

Table (9): one sample t test for fourth hypothesis

Observed mean	Expected mean	Difference of mean	T	df	P	Significant level
3.31	3	0.31	4.31	399	0.000	0.01

In accordance with the above table, the second grade of high school of Education of District 4 of Karaj have productivity that this is due to the significance (0.000) that is smaller than significance (0.01) and obtained t (4.31) that is greater than t table (2.58). The average obtained is 3.31 and difference between means is 0.31, which shows high productivity in second grade high school according to teachers.

III. Discussion And Conclusion

According to the results, there is a significant difference between the second grade high schools of Education District 4 Karaj in terms of efficiency and productivity. Based on the results obtained, efficiency and productivity in high schools have had a better position than technical and vocational and Kar o Danesh schools and this indicates that in high schools in terms of efficiency and productivity, many efforts have been conducted from officials and managers.

Education system of high school is divided to three branches of high schools, technical and vocational and Kar o Danesh schools. The overall objective of high schools is to promote public knowledge and culture and training moral virtues, political and social insight and better understanding of talent and interest in students to pursue higher education. The overall objective of technical and vocational is the overall objectives of high schools branches and creating the perfect context to guide students to proper occupation and establish relative readiness to continue education in applied science (technology) disciplines: The overall objectives of knowledge work branch, in addition to objectives of high schools, technical and vocational branches is to train manpower at the semi-skilled, skilled and master and supervision levels for industrial, Agriculture and services parts and establish the relative readiness of students to study in specific fields of applied science. Considering the importance of each of the branches, efficiency and productivity is very important. The results showed that high schools high schools have greater efficiency and productivity, it should be investigated different factors like more demand of parents to attend their children in high schools, interest of teachers to attend in these schools, first choice of students with academic and training merit and... in explaining this issue. About the low efficiency of high schools of knowledge work, it needs to be done radical revision in the curriculum, extensive advertising, the better introduction of targets of high schools of knowledge work, systematic bond with tight mechanism with the industry field. Schools in Iran are associated with huge costs in areas such as material, financial, human and it is natural that this investment should be accompanied with benefit. Schools that do not have required efficiency have wasted country's wealth and resources and thus in line with the results in this study, the redefinition of investment in education to be done and objectives of three branches to be introduced to beneficiaries and if possible to be reviewed and revised. The findings of this study are in line with research results of Shafi'i (2013), Etemadi (2013), Sameri (2013), Kazemi (2013), Ebrahimpour (2006), NaderiKazaj (2005), Sane (2003), and Nasiri (2001), respectively. Finally, it is suggested according to the results of the research:

1. It should be appreciated of schools that have a better efficiency and productivity to motivation of schools increased to achieve efficiency and productivity.
2. It should be investigated more of schools that have less efficiency and productivity to their working efficiency increased.
3. It is suggested to be conducted a similar study to this study in one another district;
4. It should be considered a model in order to identify efficient schools to provided rank of schools and input and output indicators;

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