The Impact of Management Control System on Correcting Deviations in Public Institutions (An Empirical Study of Jordanian Universities)

Adnan M. Al-Wedyan

1. Introduction

Procedural Terms

Correcting Deviation Operations

It is a title that has been referred to its importance by practitioners and academics since the early 1990s. The adoption of Correcting Deviation Operations (CDO) should take into consideration many dimensions affecting institutions. Beside the need to update its procedures and improve their implementation in order to face global challenges, this leads to compete with other enterprises, satisfy stakeholders’ needs, and direct the employee’s actions toward improving their performance. The process of CDO is considered the last most essential step of implying Management control. Managers should detect errors and take quick corrective procedures by removing errors and adjusting negative deviations. There are some procedures that help managers in limiting deviations, such as: developing the work system through applying effective training programs, increase both wages and incentives, in addition to imposing penalties on carelessness and irresponsible actions that caused deviation (Lei et al., 2016).

Management Control System

It has been used since long time ago. Fayol’s had outlined control system as making an attempt by the organization to extend the likelihood that people can behave in ways in which can cause the attainment of organizational objectives (Saleem & Khurshid, 2014). The work’s behavior can be controlled by carrying out four controlling mechanisms starting with planning, then measuring, getting feedback, and finally evaluating and giving rewards. Monitoring and evaluation are considered the basic elements of control function according to Fayol’s; however, it would be useless if monitoring does not result into decision making that leads to corrective actions. (Bacud, 2020) Correctional settings adopted by the management control system (MCS) may have different effects on the quality of performance and efficiency.

According to Fayol’s, organizational control can be described as the systematic procedure of regulating all activities of the organization to make them compatible with expectations. Managers usually set up control system by establishing clear standards of employees’ performance. Then they review daily, weekly, and monthly reports that reflects quantitative performance measurements to assure the right implementation of the
process. After that they compare actual activities to performance standards. Next step they specify the authority responsible for deviations that carry out penalties. Finally, after identifying problems facing MCS, a corrective action should be taken to interpret the deviation and determine what changes are needed (Wren D et al., 2002).

In this study, we study control procedures, such as: president’s effectiveness of applying MCS, observation and supervision, correction of deviation, comparing reports, and management employee’s relation. Managers analyze different dimensions of control integrating markets, employees, customers, as well as financials. According to Malmi and Brown (2008) these control dimensions are:

1. Market indicators focus on production and operating statistics.
2. Employees’ factor reflects the capacity of human resource to learn and grow.
3. Customer service indicator, measures customer satisfaction and view.

Managers analyze these four metrics to have a clue of the possibility of achieving the organizations strategic goals.

Public Institutions
We have defined MCS as a management concept that focuses on achieving required goals, high profits, cutting costs, and discover any deviation in the financial system for correcting them. This paper selects public institutions (PI) as the case study; it is one out of three types of profitable institutions, beside individual property institution, and group institutions. Public institutions are distinguished by the fact that they include a large number of shareholders, in addition to the existence of an independent legal personality for owners, and as for the shareholders, profits are distributed to them or they bear losses according to their contribution to it. MCS shareholders in PI are experienced in the field of its activity, and this is what makes the shareholders trust in the ability of their managers to run the affairs of the institution well.

MCS practiced over several fields, mostly in production companies, financial fields, services, and trade. The existing MCS should change consequently to the change in their environment, each discuss different aspects that the management should be aware of. For example, MCS in production companies deal with specific aspects concerning product lines and customers. However, in case of PI calculating cost of services are considered questionable. Due to the specification of the work, calculating cost in medical centers is through observing the patients’ health medical status starting from the entry date. It means calculating cost of means of the service not the product itself. In the case of this paper, measuring cost for the selected Jordanian Universities would be through improving the students’ results through the completely academic year.

Our sample includes four public institutions in Jordan, including Jordan University of Science and Technology, Yarmouk University, Al-Balqa Applied University, and Irbid National University. This paper compares the clear planned performance of the selected Universities with the actual performance and attributes to classify errors or deviations to be treated.

Hypothesis Development
This paper tests and analyzes assumptions to have a clue of the possibility of achieving the institution’s strategic control goals. The hypothesis of this paper includes the following:

• First Hypothesis: There is no statistical significance at the level (a=0.05) between the competence of the university president and correcting deviations in Jordanian universities.
• Second Hypothesis: There is no statistical significance at the level (a=0.05) between the development of employee and academic performance and between correcting deviation in Jordanian universities.
• Third Hypothesis: There is no statistical significance at the level (a=0.05) between the difficulties of administrative control and the performance of employee in Jordanian universities.
• Fourth Hypothesis: There is no statistical significance at the level (a=0.05) between the effectiveness of administrative control and correcting deviations in Jordanian universities.
• Fifth Hypothesis: There is no statistical significance at the level (a=0.05) between supervisory techniques and tools and between correcting deviations in Jordanian universities.

Study Importance
In this paper, we extend the previous studies by examining the impact of management control as a key framework on correcting deviations in public institution. Since MC deals in this paper with educational services, calculating results are challengeable. This topic is considered one of the most important management matters that can monitor and improve a specific sector through work performances’ results in four universities.
including: University of Jordan, Amman Arab University, Applied Science University, and the Middle East University.

The comparison step between the standard performance and the actual one of the University employees’ -which is measured through the students’ results, depends on the ability of the university president to reach at truthful findings that reveals the actual and real performance (Wei, et al., 2019).

The employees’ feedback is a complicated process it depends on an evaluator feelings and style to reduce negative affects between employees and promote personal observation among them. This fact can help scientific beginning studies who search for more data in this field.

The importance of this paper arises due to the following:
1. It encourages workers to participate in specifying the problems of their performance, this increase worker satisfaction and affecting positively on the performance evaluation process. It also helps mangoes (university presidents) in correcting deviations through providing timely performance information. Usually the manager reviews data performance daily, weekly, or yearly.
2. It concentrates on problem solving. The university president attempts to solve all the issues that result in poor performance, and this means he must work with academics and employees to detect the actual reasons, and then develop suitable solutions.
3. Asks employees to rank or assign scores for their performance before the hearing or interview process by giving them feedback, which gives employees the courage to objectively identify weaknesses in their performance, besides gaining a real experience in this process, which makes it easier for the university president to track the steps involved in finding the facts about performance.
4. Evaluates and highlights effective performance. The evaluation of effective performance gives a positive reinforcement of behavior, which participate in the continuity of positive behavior by employees.
5. Concentrates on solving problems in order to improve performance feedback on performance, outcomes and behavior rather than individuals themselves.
6. Decreases complains and criticism. For example, in case a worker performs beneath standard levels, the university president should attempt to alter the situation and control his behavior, and work efficiently to persuade low-performing employee to enhance his performance and act better. This condition usually results from implementing practices through new employees either through the management of the institution - university president in the case of this paper.

**Literature Review**

Previous work has investigated variables affecting MCS. A recent study by Al-Hajj &Zraunig (2018) analyzed the influence of project management implementation on outputs. It studied the effect on completion of constructional projects; it collected and analyzed data from project practitioners. The study found that there is a high impact of tools and techniques used on the degree of success of the projects. Also, it assured on the importance of training the human resources, and its effect on the level and time of implementation achieved of the project. Another study has tested the effect of correcting deviations on the performance of employees of Islamic University in Gaza. A random sample was selected and by using SPSS as a statistical analysis results were found. The study suggested from the point of view of the members a change in Islamic University regulations; it also showed a positive relationship between CD in measuring and changing performance in order to achieve their control goals (Abed, Alfetah, et al., 2018).

Ho (2011) examined the MCS effects on quality and productive performance, considering data involvement analysis, it examined how MCS affects institutions in Taiwan. Results show that tight control policies have higher quality performance which is reflected on the quality of their outputs. (Horngren, 2015) study shows that when analyzing and evaluating the organization, managers must receive feedback about a process to make correct adjustments such as using planned budgets, statistical reports and personal notes which are considered an effective tool for management to get feedback. (Thatcher &Oliver, 2001) pointed out the effect of MCS on both efficiency and quality performance of organizations. Another study examined how the MCS affects performance and efficiency; it concluded that tight management control system increases performance in industrial organizations (Ho et al., 2011).

Another study has identified the relationship between demographic variables and well-being managers in Palestinian universities. The study found a significant relationship in relation to human resources. It recommended increasing the attention of university employees by participation in decision making, increase their job satisfaction and provide job security (El, Talla, 2018). (Ingersoll, 2001) analyzed the other factors that might have an impact on employees’ turnover levels, and the problems of PI such as factors rooted in the industrial institutional characteristics and conditions. The study concluded that lack of data creates staffing problems that are related to large numbers of workers departing their jobs due to reasons other than retirement, while (Jofre, 2011) discussed the theory and practice of strategy in business, he examined factors affecting on the success of applying these strategies.
The planned objectives can be restricted by budgets, as a result financial control can be used to compare old performance of employees with the current one, and by achieving the planned objectives it can promote the employee’s performance. Therefore, it is important to link budget objectives with material and moral incentives of human resources (Sunder,2002). The results of this paper showed the importance of academics’ classroom interactions practices. Interaction improves valued student results regardless external observations and preferences. Furthermore, academics must develop their classroom performance through attending educational coaching courses (Kingdon& Geeta, 1996). The paper also shows the importance of external supervision and classroom observations that enables academics to identify strengths in different teacher education contexts and helps to identify areas that needs improvements (Dangel, et al., 2014).Results also let light on the relation between Academics and other employees’ welfare and classroom interaction, and how to maintain teacher welfare throughout a teacher’s in-service career. For example, low salary and low job security is linked with the quality of classroom interactions which is reflected negatively on student outcomes (Goh, et al., 1998).

Method
This paper critically reviews the use of applying a systemic process and making sure that those set of rules are considered productive. To reach objectives of the study, a questionnaire was created for a field study process that contains comprehensive questions. These questions discuss different dimensions of control, integrating all employees (administrative, academic, and services) in the selected Jordanian Universities (Jordan University of Science and Technology, Yarmouk University, AL Balqa Applied University, and Irbid National University). The study also reflects the importance of financial and employees’ factors, the first reflects the capacity for human resource, while financial sector reflects continuously of the business on the long term.

Modern statistical method according to the statistical analysis program (SPSS) was used to examine the impact of MCS in correcting deviations and affecting both efficiency and quality performance in the selected Jordanian Universities. To achieve the purpose of the study, a questionnaire was designed for the field study process that contains comprehensive questions, (120) copies were distributed to all employees (administrative, academic, and services). The community of the study included selected four Universities (Jordan University of Science and Technology, Yarmouk University, Al-Balqa Applied University, and Irbid National University) across Jordan in the academic year 2020.

Questionnaire items concerning university presidents include management experience, gender, age, special characteristics such as objectivity and flexibility, fast reporting of any deviation, and the ability to predict future. Also, it includes emotional support, preferences, continuity of supervision, clear procedures and rules, distribution of responsibilities, and financial support. On the other hand, questionnaire items concerning employees include work experience, gender, age, number of workers in the same sector, structure of the university, modern technology use. It also tested job satisfaction, wages rate, emotional exhaustion, employees' background information, the degree of understanding the institutional rules and responsibilities, and meeting and trainings attending.

Analysis of Study Data and Hypothesis Testing
This section deals with the study sample, analyzing the results and answering the study questions using the statistical analysis program (SPSS), to perform the statistical analysis on the data collected through the questionnaire that was distributed on the sample’s (120) members.

Axes of the resolution
The effect of efficiency and effectiveness related to administrative control on correcting deviations at public institutions, a case study of Jordanian universities.

The questionnaire contained six axes. The first axis contains demographic factors and includes (educational qualification, years of experience, academic specialization, and employment), then the second axis, which is based on the assumption that there is no statistical significance at the level (a = 0.50) between the competence of the university president and correcting deviations and it contains 23 questions, then the third axis which is based on the assumption that there is no statistical significance at the level (a = 0.50) between the development of employee and academic performance and between correcting deviations in Jordanian universities, which contains 16 questions, then the fourth axis Which is based on the assumption that there is no statistical significance at the level (a = 0.50) between the difficulties of administrative control and the performance of employees in Jordanian universities, and it contains 12 questions, then the fifth axis which is based on the assumption that there is no statistical significance at the level of (a = 0.50) between the effectiveness of administrative control and correcting deviations, which contains 13 questions, and then the sixth axis, which is
based on the assumption that there is no statistical significance at the level \( a = 0.50 \) between supervisory techniques and tools and between correcting deviations in Jordanian universities, and which contains 10 questions.

**Presentation and analysis of sample properties**

Descriptive statistics were used to extract the results of the study samples and calculate the frequencies and percentages to describe the study sample.

**The stability of the tool**

The researcher extracted the stability coefficient and that through the internal consistency coefficient according to the (Cornbach Alpha) equation for each field of study, and for the tool as a whole. University president and correcting deviations (as a whole \( .91 \)) which is an excellent percentage and indicates the stability and validity of the tool in the second axis, and as attached to Table No. (01), then the third axis that deals with the hypothesis of developing employee and academic performance and between correction Deviations in Jordanian universities, where the overall stability ratio of the tool reached \( (0.87) \), which is an excellent and strong rate that we can build on, then the fourth axis that deals with the hypothesis of administrative control difficulties and the performance of employees in Jordanian universities, where the overall stability ratio of the tool reached \( (0.91) \), and it is an excellent and strong percentage that we can build on, then the fifth section of the questionnaire questions, which is the effectiveness of administrative control and correcting deviations, and the stability ratio reached a value of \( (0.92) \), which makes the study more reliable, and then the last axis that deals with techniques and tools between the correction of deviations in Jordanian universities, where the consistency ratio reached \( (0.91) \), which is excellent. Table (1) illustrates the coefficients of internal consistency (Cornbach Alpha), which clarifies the study tool and its axes (fields and paragraphs).

**Table (1) Coefficients of internal consistency (Cornbach Alpha)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Field</th>
<th>Number of paragraphs</th>
<th>Stability coefficient (Cornbach Alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The efficiency of the university president and correcting deviations</td>
<td>23</td>
<td>.91</td>
</tr>
<tr>
<td>2</td>
<td>Developing employee and academic performance and correcting deviations in Jordanian universities</td>
<td>16</td>
<td>.87</td>
</tr>
<tr>
<td>3</td>
<td>Difficulties in administrative control and the performance of employees in Jordanian universities</td>
<td>12</td>
<td>.91</td>
</tr>
<tr>
<td>4</td>
<td>The effectiveness of administrative control and the correction of deviations</td>
<td>13</td>
<td>.92</td>
</tr>
<tr>
<td>5</td>
<td>Control techniques and tools and between correcting deviations in Jordanian universities</td>
<td>10</td>
<td>.91</td>
</tr>
</tbody>
</table>

**Table (2) Calculation of means and standard deviations for all areas of the impact of the efficiency and effectiveness**

<table>
<thead>
<tr>
<th>No.</th>
<th>Independent variable (educational qualification)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diploma or less</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>Bachelor</td>
<td>69</td>
<td>57.5%</td>
</tr>
<tr>
<td>3</td>
<td>Master</td>
<td>39</td>
<td>32.5%</td>
</tr>
<tr>
<td>4</td>
<td>PHD</td>
<td>5</td>
<td>4.2%</td>
</tr>
<tr>
<td>5</td>
<td>Higher Diploma</td>
<td>1</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

The table above indicates that for those with an educational qualification (diploma or less), the frequency of the answer was 5% of the content of the questions, which is a restless group, while those who hold a bachelor's degree, the percentage of their response to the questionnaire is 57.5% and it is considered a large percentage and a large target group that answered the questionnaire, while those with a master’s degree were 32.5%, while the percentage of those with a doctoral degree was 4.2%, which is a small percentage, while only one sample had a higher degree of doctorate.8% that answered the questionnaire questions. Table (3) shows the calculation of averages and standard deviations for all areas of the impact of the efficiency and effectiveness of administrative control on correcting deviations (Independent variables).

**Table (3) Calculation of means and standard deviations for all areas of the impact of the efficiency and effectiveness**

<table>
<thead>
<tr>
<th>No.</th>
<th>Demographic</th>
<th>Number of</th>
<th>Mean</th>
<th>STDV</th>
<th>T. Value</th>
<th>Indication</th>
<th>Degree of approval</th>
</tr>
</thead>
</table>


The results of Table (3) indicate the standard mean and the deviation in the sample size, where the arithmetic averages ranged between (3.2 - 2.3) that the arithmetic mean of the independent variables was (2.38), which is an average degree (acceptable). While the standard deviation ratio was .47 at the significance level 0.00, for the sample size of 120 samples.

Perhaps the most important characteristic of the questionnaire is the degree of job that answered the questionnaire questions, as its ratio to (T-Value) = 42.72, and this indicates the reliability of the samples and the degree to which we reach the owner of the problem in order to prove the validity of the statistical inference that there is no statistical significance at the level (a = 0.50) between all hypotheses. Figure (1) below illustrates the work histogram related to the results.

<table>
<thead>
<tr>
<th>factors</th>
<th>sample</th>
<th>level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 qualification</td>
<td>120</td>
<td>2.383</td>
</tr>
<tr>
<td>2 Years of Experience</td>
<td>120</td>
<td>2.503</td>
</tr>
<tr>
<td>3 Specialization</td>
<td>120</td>
<td>2.325</td>
</tr>
<tr>
<td>4 Vocation</td>
<td>120</td>
<td>3.275</td>
</tr>
</tbody>
</table>

Table (4) presents the case processing summary.

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>120</td>
<td>100.0</td>
</tr>
<tr>
<td>Excluded a</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure (1) Work Histogram

The chart also indicates that the largest percentage of the sample results were from a bachelor’s degree, the academic qualification that bears answer number (2) in the questionnaire from demographic factors. Table (4) presents the case processing summary.

Table (5) presents the reliability statistics of the work.

<table>
<thead>
<tr>
<th>Table (5) Reliability Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>.875</td>
</tr>
</tbody>
</table>
Through the previous tables, it can be concluded that the study is correct and its validity rate is 87%, which proves the validity of the data and information entered in the questionnaire, and indicates the validity of the study and recommends it.

Results & Discussion

Competence of the University President Results
This argument supports a positive relation between correcting deviations and the competence of the university president in Jordanian universities. Special university president’s characteristics such as, objectivity and flexibility, besides the ability to predict the future is important in evaluating and using MCS. Tekavec & Peljhan (2003) show in their study that decisions are affected by many controls’ techniques; including budgetary control, personal observation, statistical reports, breakeven analysis, modern technology, management information data, and management audit.

It also shows that the effect of the management control can vary certain due to the university president’s plans, strategy, recent performance, and evaluation process, treatment for the expenditure, and the inner observation and external supervision (Zuriana, et al, 2013), and using these techniques can help managers in evaluating the performance through measuring the planned with expressed actual performance.

Development of Employee & Academic Performance Results
This argument extends previous studies by approving on the importance of improving the employee’s performance through attending training courses, creating personal observation, using incentives, supervisors, and specifying the work procedures in an easy way. Following up on academics and other employees in universities at early stages of their careers, this procedure helps providing reliable audit opinions and reports. This supports Sabiu, et al (2018) findings that tested the effect of human resource management practices on their performance, resulted in a significant strong relation between them.

Control Difficulties Results
The third argument supports no relation between correcting deviations and difficulties of MCS in Jordanian universities. MCS can face several difficulties that increase the challenge of application. Such difficulties are data shortage, uncomfortable job, lack of managerial experience, high number of employees in the same section, low wages, low emotional support, fewer preferences, no supervision, unclear procedures and rules, no distribution of responsibilities, and no financial support (Louis & Lokamy, 2001).

Control Efficiency Results
The fourth argument implies there is a positive relation between correcting deviations and the efficiency of MCS in Jordanian universities. Effective systems ensure that all the documents regarding expenditure and controls are held to guarantee a suitable assessment way. Effective implementation of MCS helps in the prevention, detection and correction of irregularities including proportionate anti-fraud measures (Merchant, 1997).

Management control supports the hypotheses that it can achieve efficiency, and quality performance, which is reflected on higher education outcomes. Also creating comfortable job conditions is considered necessary to make decisions applicable by management, through using a clear guide used by university management purposes as a reference for information and for rewarding employee performance (Govindarajan & Gupta, 1985).

Supervisory Techniques and Tools Results
The paper’s result supports the fifth argument; that there is a clear statistical relationship between correcting deviations and the supervisory techniques and tools used in Jordanian universities. Applying tight MCS through specifying responsibilities and separation of jobs and adequate systems for reporting and monitoring, and describing procedures, besides imposing penalties on irresponsible actions, all can limit work deviations (Chennell, 2000).

The importance of applying supervisory techniques is having reliable and accurate data, as well as having effective assessment and monitoring. In doing so monitoring, evaluation and quality control of Jordanian Universities members will enhance academics and employee’s efficiency resulting in achieving planned goals.

Conclusions
This paper summarizes the university president responsibilities that include specifying goals and objectives and study their impact on long term changes. Beside building a control strategy to achieve university specific goal,
he analyzes outcomes and output deliverables such as policy papers, drafted, roads built, following the educational process, providing key performance indicators for measuring employees progress, arranging meetings, and training courses.

This study has many important results, which summarized in the following:
1. University presidents in Jordan have awareness regard the importance of availability, objectivity of information, and the important role of the teaching process in life.
2. Universities prepare an appropriate environment atmosphere for both academics, and other employees.
3. The study indicates that a very high percentage of the Jordanian universities use supervisory techniques and tools and applies tight management control results in addressing the deviations of current performance and actual.
4. Most of the opinions confirm that there are some limitations that somewhat hinder the use of the planned control system.
5. Most frequent mistakes in monitoring reports at Jordanian universities are due to useless details, lack of analysis of the data and evaluation, lack of recommendations, and due to no corrective actions taken.

Recommendation
University president should have a future vision of the planned goals and the ability to predict expected difficulties in the selected Jordanian universities. Usually he sets up control system by establishing clear standards to academic and other employees’ performance and the service itself, which followed by reviewing daily, weekly, and monthly reports that reflects quantitative performance measurements. Then, by comparing actual activities to performance standards a university president should make corrective actions, if any deviations accord from the standard, he must interpret the deviation and determine what changes are needed. It’s important to choose the suitable corrective action in the selected Jordanian universities. The paper recommends for more implication and research in this area specially related to the assessment and practices on distance learning, which helps for a clear foresight for management development process.

Acknowledgement
Special thanks to each of Jordan University of Science and Technology, Yarmouk University, Al-Balqa Applied University, and Irbid National University for their efforts in completing this study

References

Author Information
Adnan M. Al-Wedyan
Al-Balqa Applied University, Irbid University
College Irbid-Jordan