

# Application Degree of High School Principals in Aqaba/Jordan to the Japanese KAIZEN Model to Reduce the Waste of School Time as Perceived by Teachers

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## Abstract

The study aimed at identifying the application degree of high school principals in Aqaba/Jordan to the Japanese KAIZEN Model to reduce the waste of School time as perceived by teachers. The sample of the study consisted of (372) teachers, who were chosen using the stratified random technique, during the second semester of the academic year 2017/2018. A 36-item questionnaire; divided into three domains, was developed for data gathering. The findings of the study indicated that the degree of principals' use of the Kaizen model from the teachers' point of view was medium. The ranking of the three questionnaire domains was as follows: cooperation, continuous improvement of work, and decision-making. Furthermore, the results indicated that there are no statistically significant differences at the level ( $\alpha=0.05$ ) attributed to the study's three variables: gender, scientific qualification or years of experience.

**Keywords:** KAIZEN model, waste of school time, public secondary schools, teachers, Aqaba, Jordan

## 1. Introduction

The last few years witnessed huge leaps in the field of educational work development; a lot of points of views were changed concerning its management. The new attitudes are looking for the total quality approach and the importance of its educational organization performance in order to keep up with the requirements of our era. The school administration has been changing through time and new forms and names of management has been developed such a crisis management, knowledge management, strategic management, time management and other new forms and names that imposes themselves in modern administration.

For the purpose of excellence, the competition today is directed toward improvement, development renewal and creativity in all aspects of its organization activities in addition to the applicable methods and technologies as well as its outcomes weather in the form of goods or services. Quality becomes its distinguished element for excellence among organizations. Quality requires the collective efforts, capabilities and resources of organizations as well as reducing time wasting in all operations in order to achieve its objectives effectively and efficiently (Abu AL Naser,2015). Al- Sha'alan (2011) mentioned that all of the advanced countries have been using new methods in the field of total quality in their administration systems; where such new methods applying scientific and methodological steps to achieve their goals as well as improving their performance and increasing productivity in the most minimal time, efforts and coast. Japan has adopted an administration approach which develops and improves its organizations and that approach was Kaizen Model.

Accordingly, a lot of organizations turn to use different models by which they can specify points of strength and weakness in their performance and according to the evaluation results performance will be corrected accordingly as well as obtaining development and required improvement. In the educational organizations in general and schools in particular there is a need to use a lot of models and modern methods to use time effectively, and eliminate time wasting through exercising activities which do not participate in achieving the desired objectives; therefore, schools are required to look for specific procedures to exploit and improve time use in order to achieve objectives efficiently within specific time frame. One of these models is the Kaizen model for continuous improvement.

Time is considered as an important element in educational organizations, as one of the main inputs of the educational process. Time also is considered as one of the basic resources in schools since schools conduct different and overlapping operations such as planning, organizations, coordination and supervision as well as other operations. Time wasting and miss-use will be negatively reflected on schools in terms of achieving their objectives effectively and efficiently as well as non-improvement of performance and productivity. Since high schools are very much interested in the best use of resources, and since time is a unique and valuable resource and input of high schools inputs and the school interest to use time effectively and to specify operations and fields which waste time in order to achieve its objectives and to improve its productivity and performance, it is deemed necessary that schools including high school should reconsider all administrative methods and strategies in order to achieve high level of productivity and performance which enable them to offer a total quality services. According to what has been mentioned earlier this study is designed to discover the extent of the application of Japanese Kaizen model by high school principals in Aqaba Governorate; Jordan, from the teachers' point of view.

### *1.1 Problem of Study*

- 1 The success of any school depends on different resources where providing all required conditions for all employees by its principal in order to effectively achieve the school objectives taking in to consideration time use and application of modern concepts and methods. Time is a major part of any job or mission to be carried out; therefore, it should be used and managed properly. Time is the indicator by which the success of school principals and employees can be judged in terms of performing their administrative tasks. If school principals, teachers and administrative staff do not have the required skills, the time allocated for administrative responsibilities will be subject for loss and misuse and ultimately the required objectives of the school will not be achieved.
- 2 Through the experience of the two researchers on the issue of time management in high schools in Jordan, they have noticed that there were a lot of time wasting and procrastination of decisions which is negatively reflected on the achievement of the school objectives. Therefore, the researchers have conducted this study.

### *1.2 Objective and Questions of Study*

The purpose of this study is to identify the application degree of the high school principals in the governorate of Aqaba / Jordan to the Japanese Kaizen model to reduce the waste of school time from the point of view of the teachers of those schools. To achieve this goal, the study attempted to answer the following two questions:

Question 1: What is the application degree of the high school principals in the governorate of Aqaba / Jordan to the Japanese Kaizen model to reduce the waste of school time as perceived by the teachers of those schools?

Question 2: Are there statistically significant differences between the means of the teachers' perceptions of the implementation of the secondary school principals in Aqaba / Jordan for the Kaizen model to reduce the waste of school time due to the variables: gender, scientific qualification and years of experience?

### *1.3 Importance of the Study*

The importance of this study comes from the importance of its subject; which is time management, and more specifically the importance of this study is determined by the following:

- The results of this study are expected to benefit school principals, teachers and administrative staff, with regard to reducing waste of time.
- It is hoped that the Kaizen model will become an entry point for efficiency and productivity, by reducing waste of school time.
- Finally, it is hoped that this study will benefit researchers and interested people by providing a theoretical framework for the Kaizen model of reducing waste of time, as well as providing a tool to measure the wasting of school time.

### *1.4 Definitions*

The present study includes a number of terminologies which are defined as follows:

- **Time wasting:** Loss of time without doing any job or mission or carrying out activities efficiently, and thus not achieving the desired targets on time (Al-Alaq, 2016). Time wasting is defined operationally as the failure to perform the tasks and duties required, or to carry out unplanned activities and tasks, without obtaining value or interest, and not completing tasks on time. It is measured through the questionnaire developed by the researchers for this purpose.

- **Kaizen-Model:** it is a methodology or strategy that applies a continual and gradual improvement which may be small in size but has a great impact and it participates in increasing productivity, reducing operational costs, minimizing all types of waste. It participates in increasing and improving innovation and creativity of employees and it improves and develops operations and activities in the organization through minimizing time wasting (Abu Al-Nasr, 2015).

### *1.5 Limitations of the Study*

This study was limited to teachers (male and female), who are working in public high schools in Aqaba Governorate/ Jordan, during the second semester of the school year 2017/2018.

## **2. Reviewing the Relevant Theoretical Literature**

### *2.1 Kaizen Concept*

The Kaizen concept emerged in 1984 by the Japanese expert Masaki Imai who published a book titled (Kaizen philosophy) in 1986. In 1997, he published another book titled (Low Approach to Management and Common Sense:( Kaizen Gemba). Kaizen is a philosophy created by Tatchi Ohno for leading organizations through good governance of place and time (Abu Al-Nasr, 2015).

The Kaizen term consists of two Japanese words (Kai)that means (change), and the word (Zen)which means (to the best). Thus, the overall meaning of the term Kaizen becomes: continuous improvement. The Kaizen is considered one of the most important and up to date methods in terms of cost reduction and quality improvement since it follows a distinguished methodology in application. It applies improvements gradually and continually on services and products where such improvements lead to cost reduction and elevation of quality level of services and products in continuous way.

The Kaizen philosophy is based on the possibility of improving any work being executed and that every process must have a sort of waste; minimizing or removing such waste will result in an added value for the process as well as for the customer. Therefore, combating waste in the first priority of the Kaizen application and it is considered as one of its basis (Abu Al-Nasr, 2015). Each activity and process has two parts one of them is useful and enriches the work and adds a high value and the other part is useless and does not add any value or enrich the work ultimately the first part produces a tangible and useful work and its cost is invested, whereas the second part produces waste in time, effort and money (Abu Al-Ragheb and Sahwish, 2016).

### *2.2 Change Theory by USING Kaizen*

The Kaizen believes in creating change in an unsurprising, continuous, gradual and partial way taking in to consideration its smallest level provided that all employees should be involved. Change by using Kaizen emphasizes two types of results (Qassem, 2014):

- a. First type: social results which guarantee the change in the culture of the organization and the employees through learning and considering learning activities as a basic element of Kaizen philosophy where each person learns to identify his objectives and achieving such objectives.
- b. Second type: eliminating waste or loss in operations as much as possible which finally leads to improve the time of the process, cost and quality and this is the technical part of the process.

Abdel-Qader (2008) summarizes the Kaizen as follow: it works on continuous improvements in all sides and all times and there are a lot of elements which are emphasized in accordance with this process such as focus on customer, relationship between management and staff, spirit of cooperation, team work, production on specific time, quality circles and finally use of technology in work. All of these elements work together within Kaizen concept in organizations applying this methodology.

The Kaizen is considered as a quick improvement process run by work groups of managers and staff as one team in order to achieve the predefined objectives. The improvements process may follow the following steps: defining the problem, selecting best employees, problem solving or corrections of malfunctions within a week or less by using Kaizen technology tools. The final goal is cost reduction, minimizing time waste, eliminating loss and emphasizing continual improvement (Abu Al-Ragheb and Shahwish, 2016).

### *2.3 Kaizen Principles*

Shaanan (2011) indicated that the Kaizen model is based on six main principles, which will lead to higher quality and lower cost. These six principles are

1. Continuous improvement is the responsibility of each person in the educational organization and not according to each group or specific administrative level.

2. Continuous improvement of processes achieves high quality results.
3. Focusing on performance improvement in all aspects since improvement is not limited to one field; however, it includes all fields in the educational organization: productivity, financial, administrative ... etc.
4. Development and improvement will not be accomplished without admitting the presence of problems.
5. The administration has two tasks: quality of planning and quality of application, where these two processes became parallel and the responsibility of all levels in the organization. The highest administrative levels are in charge of planning quality; however, the quality of application is the responsibility of those in charge of implementation.
6. The Kaizen concept is an integrated blend of administrative thought, labor system, problems analysis and decision making.

### 3. Previous Relevant Studies

This section deals with previous studies related to the two subjects of the study: Kaizen model and time wasting. These studies have been arranged chronologically from oldest to newest, as follows:

#### 3.1 Studies Related to Kaizen Model

Al-Smadi (2001) has conducted a study entitled, "Employees attitudes toward application of Japanese Kaizen model to improve work and facing modern competitiveness in the third millennium: Jordanian Industrial Private Sector". A random sample of (870) employee in (30) industrial organizations randomly distributed on the industrial cities in the three largest Jordanian cities (Amman, Irbid, Zarka). Results of the study indicated that small size organizations were more tending to benefit from the innovative capabilities of the employees more than the large size organizations. The study also indicated that employees with decision making regarding their work as well as their suggestions to improve the work were less than the required level in relation to Japanese Kaizen model. The study concluded that the administration point of view regarding continual improvement concept is far away from Kaizen concept.

Jawad (2005) has conducted a study entitled, "Comparative study for continual improvement Inputs". The study aimed to explain and discuss the theoretical basis for each of: Lean, Kaizen, Total quality management, Capability maturing model, ISO, Six Sigma and Manufacturing as the important inputs of continual improvement. This study dealt with the focus philosophy on continual improvement in Japanese Kaizen method and to compare the inputs in accordance with different standards as well as to present a theoretical frame work which helps the organizations to select the appropriate input which is the most suitable for its problem and culture and to remove the vagueness which surrounds the selection of the most suitable input of continual improvement inputs. The study proved that the continual improvement does not apply only on the quality of the product but also applies on the processes improvement. The continual improvement implies identifying of comparison basis for best practices and the creation of a sense among the employees that they own the whole processes.

Oaki (2008) conducted a study entitled, "Transferring Japanese Kaizen Activities to overseas in China". Three organizational capabilities were defined by the researcher as follow capabilities which help in increasing the employees' self-initiative, capabilities which help facilitation of overlapping occupational communication and the capabilities which develop the employee discipline. The study covered nine Japanese factories (medium, large size) in china. The results indicated that the successful cases have common characteristics for the administration practices such as encouraging the team proposals system rather than the individual proposals system and personal management focuses on having multi-mission employees as well as long term employment and also characterized by the daily visits of the manager to the work sites.

Magnier-Watanble (2011) conducted a study entitled, "Getting ready for Kaizen: organizational and knowledge management enablers". The researcher used the case study model where she applied the study on (Nummi) organization for vehicles manufacturing in the state of California. The study concluded that there are a number of factors that help in the success of Kaizen practical application. From the organizational factors the researcher found that the horizontal organizational structure and the unofficial relationships within the organization which based on innovation strategy are the best factors that lead to the success of the Kaizen. However, for the knowledge management factors the researcher found that: focus on acquiring knowledge from inside the organization where interaction between the employees create experiences and knowledge, as well as strong knowledge through sharing it with the team and granting the individuals to use such knowledge and to explore more of it were found to be the best cofactors that help in the success of the Kaizen. The Kaizen process is successful in the organization of high degree of independency, self-discipline, openness and where

organizational characteristics go side by side with the knowledge management practices within the organization.

Al-Kaser (2014) conducted a study entitled, "Kaizen Strategy Application Requirements in Management for the Purpose of Improving Administration processes as Perceived by Administrative Board (A field Study on Girls' Faculty of Education-at Shagra'a). The results indicated that Kaizen strategy requirements for administration obtained a high evaluation and the possibility of the strategy application requirements obtained a medium evaluation.

### *3.2 Studies Related to Time Wasting*

Taylor (2007) conducted a study entitled, "A study of principals' perception regarding time management". A sample of high school principals in Nevada State were selected. The study has achieved the following results: The principals of schools with (1001) student and more spend more time in time management more than principals of schools of less than (1000) student. Female principals spend more time in educational management than male principals. The study showed that (43%) of high school principals are in need for a critical focus and direction of their educational management in order to improve their leadership levels. Principals also, through the study, identified the areas of time wasting which will enable them to have the proper recommendations to use their times effectively.

Al-Yahyawi (2012) conducted a study entitled, "Time Management by Middle Schools Female Principals at Al-Madinah Al-Monwarah". The sample consisted of (20) female principals. The study results indicated that the top missions that take more time are the administrative missions followed by technical missions, personal missions and then missions related to local community. The results clarified that there are some factors lead to waste the time of the female principals, such as reviewing and answering coming mail, daily routine, lots of notices, and absence of principals. The results also indicated that the most efficient method for time saving is using the computer in work organization and providing a comfortable work atmosphere.

Al-Qahtani (2013) conducted a study entitled, "Degree of Procrastination and Time use Efficiency and Occupational Performance and the Relation between them among Public High Schools Principals in Kuwait". The study sample consisted of (200) school principals, half of them males and the other half females. The results indicated a tendency for procrastination and the effective use of time by principals is not high, in addition to that tendency for procrastination by principals has a clear impact on the principal visualized occupational performance through the intermediate effect for time efficiency usage. The total impact was clear and effective.

Grissom, Loeb & Mitanni (2015) conducted a study entitled, "Principal Time Management Skills: Explaining Patterns in Principals Time Use, Job stress, and Perceived Effectiveness". Time management skills scale was used on a sample size of (287) principal in Miami Deed County. The study results indicated that the performance of the principals is improved as much as they know the principles of time management and when they have an allocated time to manage the schools and it is also indicated that a lot of time can be saved by the principals when applying time management strategies. It is also indicated in the results that the perfect time management is the translation of the principal performance in to questions in need for answers about the best way to perform a mission.

### *3.3 What Distinguishes this Study from Previous Studies*

The previous studies related to Kaizen model were few and most of them were applied on industrial organizations and not on educational institutions except Al-Kaser (2015) which was applied at the Girls' Faculty of Education-Shagra'a University. The previous studies did not discuss the Kaizen with time wasting, however it emphasized the importance of the Kaizen model since it leads to improve the efficiency, quality and cost reduction and that there are other factors that support the application of Kaizen model such as higher administration support and organizational factors and that is clear in (Magnier-Watanbe, 2011). It is also clear, from the review of the previous studies, the importance of time since it is an important indicator in the efficiency of school management.

This study is distinguished by presenting and analyzing the previous attempts in the areas of research concerning time management and time wasting, Kaizen model, development of a questionnaire to discover how far the public high schools' principals in Aqaba Governorate -Jordan, apply the Japanese Kaizen model to minimize time wasting from teachers' point of view. This study will participate in enriching the applicable and scientific sides since it deals with an important issue which is minimizing time wasting by using Kaizen model. It is also distinguished from previous studies because it is from the early studies discussing the relation between time and Kaizen model and this was not discussed in the previous studies and to the best knowledge of the researchers

#### 4. Methodology

This study followed the descriptive survey approach as the most appropriate for this type of studies.

##### 4.1 Population of the Study

The population of this study consist of all (573) male and female teachers of the public high schools in Aqaba Governorate; Jordan, who have been working during the second semester for the academic year 2017-2018 (Directorate of Education in the Governorate of Aqaba, 2017-2018).

##### 4.2 Sample of the Study

Using the stratified random technique, the study sample consisted of (372) teachers; Distributed according to gender variable as follows: 115 males and (257) females, of public secondary schools, from those who are working during the second semester of the academic year 2017-2018, at Aqaba Education Directorate, as shown in the following table.

Table 1. Distribution of the study sample by Sex, Qualifications and Experience

Variable	Category	Quantity	Total
Sex	Male	115	372
	Female	257	
Educational Qualifications	B.A	253	372
	B.A & Diploma	98	
	Master & PHD	21	
Years Of Experience	5 years or less	48	372
	6 - 10 years	125	
	11 – 15 years	95	
	16 years or more	101	

##### 4.3 Study Instrument

To achieve the study objectives, a 36-item questionnaire was developed, based upon the theoretical literature and related previous studies, namely: Kariuki (2013) and Al-Smadi (2001). The questionnaire was divided into three domains: Decision making (9 paragraphs), Participation (10 paragraphs) and Continual improvement (17 paragraphs). To answer the items of the questionnaires, the 5-choice Likert scale was used: Very high, high, medium, low and very low.

##### 4.4 Questionnaire Validity

To verify the validity of the study instrument, the two researchers presented the questionnaire to (11) arbitrators of university professors and experts in the field of educational administration, foundations, measurement and evaluation in the University of Jordan and the University of Mutah, to ensure the validity in terms of construction, language integrity and clarity. The remarks of all arbitrators were taken into consideration.

##### 4.5 Questionnaire Reliability

To verify the reliability of the questionnaire, the Cronbach-alpha coefficient was calculated for its domains as shown in the following table.

Table 2. Cronbach-Alpha Correlation Coefficient for the Instrument

No.	Domain	Cronbach-Alpha Coefficient
1	Decision making	0.77
2	Cooperation	0.73
3	Work improvement	0.94

##### 4.6 Study Variables

The study included three types of variables as follows:

- a. **Independent Variable:** The perceptions of high school teachers in the governorate of Aqaba / Jordan to the extent of the application of their school principals to the Kaizen model to reduce the waste of school time.
- b. **Secondary Independent Variables:** The study includes three independent intermediate variables:
  - Gender: (Male, Female).
  - Scientific Qualification:(B.A, B.A& Diploma, M.A. & PhD).
  - Years of Experience: (5 years or less, 6-10 years, 11-15 years, 16 years or more).
- c. **Dependent Variable:** The application degree of the high school principals in the governorate of Aqaba / Jordan to the Japanese Kaizen model to reduce the waste of school time.

#### 4.7 Statistical Processing Methods

To meet the study objectives, the Statistical Packages for Social Sciences (SPSS) program was used to analyze data and obtain the results as follows: Frequency and percentages to describe the characteristics of study sample, means and standard deviations to identify responses of sample members on the questionnaire, Pearson Correlation and One-way ANOVA for finding out correlation between variables, and Cronbach's Alpha to verify the reliability of the questionnaire.

In order to identify the application degree of the high school principals in the governorate of Aqaba / Jordan to the Japanese Kaizen model to reduce the waste of school time, the following equation was used: The highest choice of answer (5), minus the minimum choice of answer (1), divided by the number of options (3). This means:  $5-1=4/3=1.33$ . Accordingly, the values of the three levels are as follows: Low level (means 2.33 or less), medium level (2.34-3.67), and high level (3.68 or above).

### 5. Study Results

In this section, the two researchers present the study results in accordance with its questions as follows:

#### 5.1 Results Related to Question

(1): What is the application degree of the high school principals in the governorate of Aqaba/ Jordan to the Kaizen model to reduce the waste of school time as perceived by the teachers of those schools?

To answer this question, means and standard deviations for each domain of the questionnaire were calculated as clarified in table (3) below:

Table 3. Means, standard deviations and rank for the sample on the domains of the questionnaire of Kaizen model for minimizing time wasting at schools and the degree of its application by public school principals

No.	Domain	Means	Standard deviations	Rank	Application Degree
2	Participation	3.63	0.87	1	Medium
3	Work improvement	3.25	0.67	2	Medium
1	Decision making	3.00	1.03	3	Medium
	<b>Total</b>	<b>3.29</b>	<b>0.76</b>		<b>Medium</b>

The results indicated that the degree of application of Kaizen model for minimizing time wasting by public high schools' principals in Aqaba Governorate/ Jordan as perceived by teachers was medium, where the mean was (3.29) with a standard deviation of (0.76). All domains of the questionnaire were medium, where the means ranging between (3.00 – 3.63). The participation domain was in the first rank with a mean of (3.63) and standard deviation of (0.87), followed by work improvement with a mean of (3.25), and finally the domain of decision making with a mean of (3.00) and standard deviation of (1.03).

In addition, the two researchers calculated the means and the standard deviations of the responses of the study sample members on the items of each domain, as follows:

##### 5.1.1 First Domain: Decision Making

The two researchers calculated the means and the standard deviations of the degree of application of the secondary school principals in Aqaba Governorate in Jordan to the Japanese Kaizen model to reduce the waste of school time from the teachers' point of view to the decision-making domain, as shown in table (4):

Table 4. Means, standard deviations and rank of the degree of application of the secondary school principals in Aqaba Governorate in Jordan to the Japanese Kaizen model to reduce the waste of school time from the teachers' point of view to the items of decision-making domain

NO.	Items of Decision Making Domain	Mean	S.D	Rank	Degree of Application
9	The administration delegates me by authorities which enable me to do my job.	3.53	1.06	1	Medium
5	My participation in decision making gains importance.	3.38	1.11	2	Medium
1	I seek the administration help in any decision I want to make.	3.30	1.22	3	Medium
6	My participation is important and my thoughts and points of views were taken in to consideration when making decision.	3.23	1.09	4	Medium
2	I sometimes took the initiative without referring to my boss.	3.07	1.06	5	Medium
3	School is a good place to make my own decisions.	2.98	1.20	6	Medium
7	The administration rewards me when participating in decision making.	2.80	1.12	7	Medium
4	I refer frequently to the administration even in minor issues related to my job.	2.55	1.24	8	Medium
8	The administration asked me to participate obligatory in decision making.	2.20	1.08	9	Low
<b>Total</b>		<b>3.00</b>	<b>1.03</b>	<b>Medium</b>	

#### 5.1.2 Second Domain: Participation

The two researchers calculated the means and the standard deviations of the degree of application of the secondary school principals in Aqaba Governorate in Jordan to the Japanese Kaizen model to reduce the waste of school time from the teachers' point of view to the participation domain, as shown in table (5):

Table 5. Means, standard deviations and rank of the degree of application of the secondary school principals in Aqaba Governorate in Jordan to the Japanese Kaizen model to reduce the waste of school time from the teachers' point of view to the items of participation domain

NO.	Items of Participation Domain	Mean	S.D	Rank	Degree of Application
12	Participation relationships lead to a better performance at school	4.15	0.88	1	High
19	Our managers encourage contact between teachers to develop the school performance	4.01	0.95	2	High
13	The school works as a partner with the local community	3.95	0.97	3	High
10	The administration encourages everyone to work together to achieve the joint objective	3.88	1.01	4	High
11	The administration works to encourage the participative relationships between teachers	3.81	1.05	5	High
14	The administration encourages the constructive competition between teachers to improve their performance	3.57	1.07	6	Medium
18	Most problems at school created by people who don't do extra efforts	3.44	1.02	7	Medium
17	Most of the problem resulted due to lack of motivation	3.16	1.14	8	Medium
15	Most of the problems in the school resulted from the processes and not individual	3.17	0.99	9	Medium
16	Most of the mistakes committed by individuals working at schools	3.03	0.97	10	Medium
<b>Total</b>		<b>3.63</b>	<b>0.87</b>	<b>Medium</b>	

#### 5.1.3 Third Domain: Work Improvement

The two researchers calculated the means and the standard deviations of the degree of application of the



secondary school principals in Aqaba Governorate in Jordan to the Japanese Kaizen model to reduce the waste of school time from the teachers' point of view to the work improvement domain, as shown in table (6):

Table 6. Means, standard deviations and rank of the degree of application of the secondary school principals in Aqaba Governorate in Jordan to the Japanese Kaizen model to reduce the waste of school time from the teachers' point of view to the items of work improvement domain

NO.	Items of Participation Domain	Mean	S.D	Rank	Degree of Application
33	The administration considers work improvement as a part of work performance	3.70	1.97	1	High
32	The administration is always interested in work improvement	3.67	1.07	2	Medium
25	The administration encourages new proposals to improve performance at the school.	3.62	1.05	3	Medium
24	New development proposals are seriously taken by the administration.	3.56	1.06	4	Medium
20	The school forms work teams to solve the problems	3.44	1.12	5	Medium
22	The administration encourages the work teams to solve the problems.	3.42	1.10	6	Medium
26	The administration adopts most of the proposals submitted by teachers.	3.38	0.99	7	Medium
23	The administration benefits from work teams point of views before decision making.	3.38	1.07	7	Medium
21	The administration encourages the work teams to improve performance at schools.	3.34	1.09	9	Medium
28	The administration asks me to present proposals for work improvement.	3.36	1.13	8	Medium
27	The administration inform the teachers if they applied their proposals.	3.26	1.09	10	Medium
34	The administration rewards me for submitting proposals to improve the work.	3.16	1.16	11	Medium
29	The administration carefully studies my proposals to benefit from them.	3.14	1.10	12	Medium
30	The administration rewards me when I have new achievement at work.	3.00	1.17	13	Medium
36	The administration always conduct training courses to enhance the teachers skills in order to improve the work.	2.93	1.19	14	Medium
35	The administration held me accountable when I don't achieve any improvement at work.	2.65	1.17	15	Medium
31	The administration forces me to present proposals.	2.28	1.12	16	Low
<b>Total</b>		<b>3.25</b>	<b>0.67</b>	<b>Medium</b>	

5.2 Results related to question (2): Are there statistically significant differences between the means of the teachers' perceptions of the implementation of the secondary school principals in Aqaba / Jordan for the Kaizen model to reduce the waste of school time due to the variables: gender, scientific qualification and years of experience?

To answer this question, the required statistical processes were conducted for each variable separately and as follow:

#### 5.2.1 Sex Variable

To determine if there were statistically significant differences at the level of ( $\alpha = 05$ ) between male teachers and female teachers' views on the degree of application of secondary school principals in Aqaba Governorate in Jordan to the Kaizen model, means and standard deviations of response scores were calculated according to the gender variable (males, females). In addition, (t-test) was used to examine the differences in the response of the participants to the study's questionnaire three domains, as shown in table (7):

Table 7. t-test results between responses average of the study sample el for minimizing time wasting in Aqaba public high schools in Jordan.

Domain (Variance)	Sex	No. of Participants	Mean	S.D	t-test value	Degrees of freedom	Sig.
Decision making	M	115	3.04	0.62	0.67	370	0.50
	F	257	2.99	0.36			
Participation	M	115	3.54	0.57	2.12	370	0.03
	F	257	3.67	0.32			
Work improvement	M	115	2.06	1.39	2.16	370	0.03
	F	257	3.31	0.77			
<b>Total</b>	<b>M</b>	<b>115</b>	<b>3.22</b>	<b>0.24</b>	<b>1.68</b>	<b>370</b>	<b>0.09</b>
	<b>F</b>	<b>257</b>	<b>3.33</b>	<b>0.25</b>			

The results indicated that there are no differences with statistical significances ( $\alpha=0.05$ ) between the means of the study sample responses on the degree of the application of Kaizen model for minimizing time wasting by public high school principals in Aqaba Governorate - Jordan as perceived by teachers in terms of (decision making) and the instrument as a whole. In terms of (participation) domain, there are differences where t-test value was (2.12) with a significance level of (0.03) and this is a value with a statistical significance and it is in favor of the highest average, that is the female.

Finally, the results indicated that there were statistically significant differences in the third domain; improvement in work, where the value of t-test (2.16) with a significance level (0.03). This value is statistically significant, in favor of the upper average, that is the females.

#### 5.2.2 Scientific Qualification Variable

To determine if there were statistically significant differences at the level of ( $\alpha = 05$ ) between teachers' views on the degree of application of secondary school principals in Aqaba Governorate in Jordan to the Kaizen model, means and standard deviations of response scores were calculated according to the scientific qualifications variable, as shown in table (8):

Table 8. Means and Standard Deviations of Teachers' Responses on the Reality of the Use of Secondary School Principals in the Governorate of Aqaba / Jordan for the Kaizen Model to Reduce the Waste of School Time According to the Scientific Qualifications

Domain	Scientific Qualifications	Number of participants	Mean	Standard Deviation
Decision making	B.A	253	2.97	0.58
	B.A & Diploma	98	3.18	0.63
	M.A or PHD	21	2.89	0.66
Participation	B.A	253	3.62	0.53
	B.A & Diploma	98	3.67	0.57
	M.A or PHD	21	3.54	0.63
Work improvement	B.A	253	3.25	1.31
	B.A & Diploma	98	3.22	1.30
	M.A or PHD	21	2.99	1.49
<b>Total</b>	B.A	253	3.88	2.07
	B.A & Diploma	98	3.37	2.22
	MA or PHD	21	3.12	0.25

It is clear from Table (8) that there are apparent differences between the means of responses of the study sample members for each domain of study's instrument according to the variable of the scientific qualification. In order to identify whether these differences have a statistical significance on significance level ( $\alpha=0.05$ ), the one-way ANOVA analysis was used and the results indicated that there are no differences with statistical significance on level ( $\alpha=0.05$ ) between the means of the study sample individuals responses concerning the use of Kaizen model

for minimizing time wasting in public high schools in Aqaba Governorate – Jordan on each domain of the questionnaire and of the tool as a whole which may be referred to the scientific qualification level, as clarified in table (9).

Table 9. Results of the One-way ANOVA test for the responses of the study sample members of the questionnaire domains according to the variable of the scientific qualification

Domain	Section	Total Squares	of Degrees of freedom	of Squares average	F-test value	Sig.
Decision making	Between groups	16.50	2	8.25	2.30	0.0
	Within groups	132.69	369	0.36		
	Total	134.34	371			
Participation	Between groups	3.70	2	1.85	0.63	0.54
	Within groups	110.47	369	0.30		
	Total	110.85	371			
Work improvement	Between groups	56.40	2	28.20	1.62	0.20
	Within groups	642.10	369	1.47		
	Total	647.74	371			
<b>Total</b>	Between groups	16.74	2	8.24	0.17	1.80
	Within groups	168.92	369	0.46		
	Total	170.57	371			

### 5.2.3 Years of Experience Variable

To determine if there were statistically significant differences at the level of ( $\alpha = 05$ ) between teachers' views on the degree of application of secondary school principals in Aqaba Governorate in Jordan to the Kaizen model, means and standard deviations of response scores were calculated according to the years of experience variable, as shown in table (10):

Table 10. Means and Standard Deviations of Teachers' Responses on the Reality of the Use of Secondary School Principals in the Governorate of Aqaba / Jordan for the Kaizen Model to Reduce the Waste of School Time According to the Years of Experience

Domain	Years of experience	Number of participants	Mean	S.D
Decision Making	5 Years or Less	48	3.07	0.58
	6-10 Years	125	3.00	0.62
	11-15 Years	98	3.00	0.68
	16 Years or More	101	2.97	0.50
Participation	5 Years or Less	84	3.63	0.59
	6-10 Years	125	3.54	0.56
	11-15 Years	98	3.71	0.57
	16 Years or More	101	3.65	0.46
Work Improvement	5 Years or Less	48	5.63	1.18
	6-10 Years	125	5.38	1.33
	11-15 Years	98	5.68	1.44
	16 Years or More	101	5.50	1.24
<b>Total</b>	<b>5 Years or Less</b>	<b>48</b>	<b>1.20</b>	<b>1.78</b>
	<b>6-10 Years</b>	<b>125</b>	<b>1.16</b>	<b>2.21</b>
	<b>11-15 Years</b>	<b>98</b>	<b>1.10</b>	<b>2.39</b>
	<b>16 Years or More</b>	<b>101</b>	<b>1.18</b>	<b>2.00</b>

It is clear from Table (10) that there are apparent differences between the means of responses of the study sample

members for each domain of study's instrument according to the years of experience. In order to identify whether these differences have a statistical significance on significance level ( $\alpha=0.05$ ), the one-way ANOVA analysis was used and the results indicated that there are no differences with statistical significance on level ( $\alpha=0.05$ ) between the means of the study sample individuals responses concerning the use of Kaizen model for minimizing time wasting in public high schools in Aqaba Governorate – Jordan on each domain of the questionnaire and of the tool as a whole which may be referred to the years of experience, as clarified in table (11):

Table 11. Results of the One-way ANOVA test for the responses of the study sample members of the questionnaire domains according to the variable of the years of experience

Domain	Section	Total squares	of Degrees freedom	of Squares average	F-test value	Sig
Decision making	Between groups	2.48	3	0.95	0.23	0.88
	Within groups	134.09	368	0.36		
	Total	134.34	371			
Participation	Between groups	18.08	3	6.02	2.03	0.11
	Within groups	109.04	368	0.30		
	Total	110.85	371			
Work improvement	Between groups	56.40	3	18.0	1.08	0.35
	Within groups	642.10	368	1.74		
	Total	647.74	371			
<b>Total</b>	<b>Between groups</b>	<b>14.29</b>	<b>3</b>	<b>4.76</b>	<b>1.07</b>	<b>0.38</b>
	<b>Within groups</b>	<b>169.14</b>	<b>368</b>	<b>0.46</b>		
	<b>Total</b>	<b>170.57</b>	<b>371</b>			

The results indicated that there are no differences with statistical significance ( $\alpha=0.05$ ) between the means of the study sample responses concerning the use of Kaizen model for waste of school time at public high schools in Aqaba-Jordan on all domains of the study and on the questionnaire as a whole which may refer to the variable of years of experience.

## 6. Discussion of Results

Below is a discussion of the study results according to its questions:

*6.1 Discussion of results related to the first question: What is the application degree of the high school principals in the governorate of Aqaba / Jordan to the Japanese Kaizen model to reduce the waste of school time as perceived by the teachers of those schools?*

The results of the study showed that the degree of estimation of the members of the study sample on all domains of the instrument was medium. This is an indicator that the principals of secondary schools in the governorate of Aqaba / Jordan do not perform their roles associated with reducing the waste of school time according to the Kaizen model.

This result is not consistent with Kaasen's principles, which emphasize the participation of employees in decision making process, because they are familiar with their work procedures, and have the ability to improve work to reduce the time of their tasks and improve performance and save time.

*6.2 Discussion of results related to the second question: Are there statistically significant differences between the means of the teachers' perceptions of the implementation of the secondary school principals in Aqaba / Jordan for the Kaizen model to reduce the waste of school time due to the variables: gender, scientific qualification and years of experience?*

The study results indicated that there are no statistical significance differences on the significance level ( $\alpha=0.05$ ) for the whole tool in relation to the study samples points of views regarding the application of Kaizen model for reducing time waste which may refer to gender variable and that could be resulted from the understanding of

most of the teachers to the basis of Kaizen model. The results also indicated that there are no statistical significance differences on the significance level of ( $\alpha=0.05$ ) which may refer to decision making and the presence of differences in the domains of participation and work improvement in favor of female teachers and this is resulted from the interest of females in professional developments through training courses which is ultimately leads to improvement of work. The female schools are characterized by cooperation and participation of all and this might refer to the school administration. The study sample participants agree on the area of decision making which is a positive indicator, since decision making is considered an important process in schools' administrations.

The study results indicated that there are no statistical significance differences on the significance level on the questionnaire as a whole from the point of views of the study sample participants in relation to the use of Kaizen model for reducing time wasting which is may referred to scientific qualification and experience and this is my resulted from the understanding of Kaizen model basis by teachers regardless of educational level and experience.

In general, the results of this study are in consistent with Al-Qahtani (2013) study which indicated that schools' principals' efficiency in using time is not high and also with Al-Smadi (2001) study in the area of decision making which indicated that participation of employees in decision making is less than the required level.

## 7. Recommendations

Based on the findings of this study, the researchers recommend the followings:

- 1) Adoption of Kaizen model for reducing time wasting in high schools through the orientation of the employees about its importance and its application at schools.
- 2) Changing the prevailing organizational culture in schools to fit with the Kaizen model.
- 3) Conducting training courses for all employees at schools concerning the Kaizen model in order to facilitate its application at schools.
- 4) Conducting training courses for school principals and teachers to improve time management and use in perfect way.
- 5) Calling the concerned parties in the educational administration to encourage and motivate the researchers to conduct more studies in the field of time management.

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