



High School Principals' Lean Management and Its Relationship with Teachers' Performance

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Lean management encourages shared responsibility and shared leadership among leader and the rest of the organization, because it focuses on respecting customers and making continuous improvement in the work environment. This study aimed to identify (a) the level of lean management adoption by public high school principals in the capital city of Jordan, Amman, and (b) lean management relationship with teachers' job performance. The sample consisted of 342 teachers completed lean management scale and teacher job performance scale. Results showed that the level of lean management was high, and no statistically significant differences in the level of lean management were revealed in association with the classifying variables of gender, year of experience and academic qualification. The results showed the level of teacher job performance was high, and no statistically significant differences in the level of teacher job performance were revealed in association with the classifying variables of gender and academic qualification. However, there were statistically significant differences in the level of teacher job performance associated with year of experience in favor of teachers with more than ten-year experience. Finally, results showed a positive correlation between the degree of lean management and the level of teachers' job performance. The authors recommend emphasizing the concept of lean management, encouraging its adoption and increasing its practice as this affects the effectiveness of different educational institutions, hence teachers' the job performance.

Keywords: lean management, job performance, high schools, teachers' performance, job

INTRODUCTION

Currently, there is a trend in management towards new patterns of leadership aimed at improving the performance of educational management. This coincides with the recent

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trend toward bringing "the latest technologies from industrial practice into the teaching process of educational institutions" (Krajčovic et al., 2021). The purpose of school management is no longer to run the school along routine lines, and the role of the school principal is no longer simply to maintain order, ensure that work proceeds according to schedule, and generally encourage the success of pupils. The focus of modern management patterns now revolves around the students, providing all the conditions for them to reach the highest levels of academic achievement measured by global standards. This involves reduction of wasted effort, the knowledge revolution, information and communication technology, rapid development and the emergence of competitiveness among educational institutions. It also requires the introduction of modern methods and recognition of contemporary global trends in modern management thought. Methods must be modernized in order to renew the infrastructure to meet the requirements of educational change in the light of postmodern trends (Danese et al., 2018; Tay & Low, 2017).

It has been noted that "lean", as a term, was first introduced by Krafcik to describe the use of "less of everything compared to mass production, half the space, half the man power, energy, time, and costs" (Sremceva et al., 2018). Lean management thinking is based on institutional change that includes many practices and tools that contribute to making activities simple, fast, and streamlined (Kartat, 2019). It improves the physical and psychological working environment (work and work relationships), the application of teamwork systems (teams of talented and multi-skilled individuals), production maintenance with reduced maintenance time and costs, and encouraging creativity, innovation, investment in knowledge and positive routines.

Lean management is as a philosophy through which the organization aims to maximize the value offered to its customers by minimizing loss and waste (Barac et al., 2010). Lean management stands on a set of principles that emphasize a long-term outlook and philosophy, and the acceptance of short-term costs. It means creating a realistic and practical system to address the various problems that may occur during administrative work, a streamlined democratic system in which the various activities and processes are not obstructive. It covers developing an ongoing plan with a clear description of administrative processes and using the method of continuous development; detecting and not hiding errors, and using the best rules and methods to address them. It also involves employing technology in administrative work to avoid wasting various material and human resources and not making mistakes; and relying on competent and capable leaders in managing administrative processes and successfully harnessing their various resources (Nicoulas & Thomas, 2009).

Lean management has invaded the field of education after proving its success in industry and accounting. Thus, developed countries began to resort to Toyota's administrative system to overcome the waste faced by their schools, making lean management of great importance (Jahan, & Doggett, 2015). This coincides with educational management that aims at investing in the human element in order to meet the needs of the entire society through ample focus on the process of education implemented by teachers and evaluation of their learning outcomes in achieving the wider goals of the philosophy of education.

Lean management is a modern trend that addresses all kinds of waste in educational institutions through the use of a range of tools and techniques that reflect a set of policies and ideas, reducing waste in the enterprise a major objective and predicting maximum use of resources (Rauch & Matt, 2016). It has become an important way to improve the performance of organizations; it relies on continuous improvement and requires commitment and participation by all employees (Jurado & Fuentes, 2014).

The application of lean management in schools encourages the identification of waste and solving problems that hinder students from achieving the highest quality requirements; it provides teachers with ideas to make their work more effective and efficient. As outlined by various authors, the use of agile management has a variety of objectives, such as getting rid of different types of waste, achieving the best performance and best outcomes for customers with the total disposal of each activity that does not represent the added value of the business or the customer and cause waste (Ismail, 2012). Additionally, agile management speeds performance and zero wastage, improves customer-serving processes and enables employees to redesign operations (Hiremath, 2018) to achieve measurable results for student achievement while monitoring and improving these results over time (Hess & Benjamin, 2015). Furthermore, it develops educational institutions in a systematic manner to achieve positive effects on the educational process (Thomas, 2017) and facilitates the process of carrying out administrative and educational activities in order to eliminate waste from complex administrative procedures. It also enhances greater understanding of the process of self-learning in order to eliminate waste from learning outcomes, provide improved functional systems and effective communications between departments in order to overcome waste of time, increase innovations and continuous improvement of productivity by overcoming waste and valuable additions, and provide a clearer and rational management map (Abu Taleb., 2020).

The effectiveness of the management and the productivity of the teacher in achieving a high level of job performance according to specific criteria is of paramount significance. This stems from the fact that school management is the first educational administrative unit that deals with the teacher, the student, the community and lives up to the message of education over time (Madi, 2009). Many studies emphasize the importance of the human element and employee performance within organizations. Hence, it is imperative to focus on the performance and productivity of the teacher—in the educational context— and study the surrounding factors in order to increase productivity and effectiveness and find the most appropriate solutions to eliminate problems that have a negative impact on performance. And since each organization aims to examine the working spirit of its employee in order to achieve its objectives (Naameh, 2011), it is quintessential to have an appropriate regulatory environment capable of satisfying the needs of individuals and motivating them to work in the internal environment and to keep abreast of changes in the external environment (Salamah, 2017).

Job performance consists of a set of essential elements without which performance can hardly be effective. These elements, therefore, are used to measure employees' performance (Jabr, 2010). Such elements include knowledge of job requirements,

involving general knowledge, technical skills, professional skills, and a general background to the job. Required also is the quality of work and the individual's ability to organize and carry out tasks without making mistakes. Worth attention also is the amount of work completed under normal conditions, speed of completion, perseverance, trust, seriousness, responsibility, dedication to work, the ability to complete the work assigned on time and to take responsibility. Added to these is the internal and external regulatory environment with both internal factors (goals, strategies, resources) and external factors (social, economic, technological, and legal) (Dorra & Sabbagh, 2008).

Al-Mutairi (2019) studied the role of lean management in the quality of management performance at Kuwait University. Abu Taleb (2020) found that the value of learning outcomes was maximized in the lean management of reducing the waste rate, and that lean management and accurate working supported each other. In a job evaluation model, Al-Majham (2011) found a direct relationship between teachers' performance and academic qualification, the number of training courses, and the teachers' grades in the classroom visit record. Al-Omari (2013) found that the degree of impact of the regulatory climate on job performance was moderate. Hussein (2013) found that the greater the stress the work, the lower the performance of teachers. Saliha (2015) found a relationship between management and teachers' performance. Al-Dahdar (2016) concluded that the level of job performance among teachers in Gaza governorate was high, as did Salamah (2017) in Zarqa governorate. The level of performance of female teachers is higher than that of male teachers.

Research problem and questions

Educational institutions, particularly high schools, require more research that represents their weight and importance on the one hand while also meeting the demands of today's era with its quick and successive changes on the other. As a result of educational waste that impedes our society's growth, high schools require a management approach that lowers waste and solves the problems that impact educational return and learning outcomes. In line with this, the main objective of this study is to examine the relationship between lean management and teachers performance. The study seeks to answer the following questions:

Q1. To what extent do Jordanian public high school principals exhibit lean management practice from a teacher's perspective?

Q 2. Are there statistically significant differences in lean management practice among Jordanian public high school principals from a teacher's perspective associated with teachers' gender, years of experience (less than 5 years, 5-10 years, or more than ten years), and academic qualification (BA or BSc versus MA, MSc or higher)?

Q 3. How do Jordanian public high school teachers perceive their job performance?

Q 4. Are there statistically significant differences in the level of job performance among Jordanian public high school principals from a teacher's perspective associated with: gender, years of experience (less than 5 years, 5-10 years, or more than ten years), or academic qualification (BA or BSc versus MA, MSc or higher)?

Q5. Is there a relationship between the degree of Jordanian public high school principals' exhibition of lean management, on the one hand, and the level of public high school teachers school job performance from a teacher's perspective?

METHOD

To achieve the current study objectives, the researchers followed a survey-based descriptive design, which is suitable for collecting data about the phenomenon addressed from a relatively high number of participants.

Population and Sample

The study population comprises all Jordanian public high school teachers (n= 69 schools) during the academic year 2019-2020. Given COVID-19 circumstances, questionnaires were distributed via email to a convenient sample of 450 teachers, among whom 342 fully completed the survey and was found fit for analysis. Table 1 shows the distribution of the study sample members, by variable.

Table 1
Distribution of the study sample by variable

Variable	Category	Number	Percentage
Gender	Male	157	46.9%
	Female	185	54.1%
Qualification	Bachelor degree and below	230	67.2%
	Postgraduate	112	32.8%
Years of experience	Less than 5 years	85	24.8%
	From 5-10 years	116	33.9%
	More than 10 years	141	41.3%
Total sample		342	100%

Research Instruments

To fulfil the aim of the study, two questionnaire were developed for the purpose of the current study. The first aimed at identifying the degree to which target principals exercise lean management (e.g., The school administration is working to improving the teachers skills). It was based on the work of Abu Taleb (2020), Al Mutairi (2019), Rakaj & Al-Badlah (2018), Al-Banna (2016) and Hussein (2013). The second questionnaire was developed to measure the level of teachers' job performance (e.g., I do my job efficiently), after reference to a number of previous studies (e.g., Salamah, 2017; Saliha, 2015; Al-Zahrani, 2013; Fakhoury, 2008).

Both questionnaires adopted a five-point Likert scale (5= strongly agree; 4= agree; 3= neutral; 2=I do not agree; 1=never agree. A classification plan was used based on the calculated mean scores of the scale to yield three categories: low (1-2.33); medium (2.34-3.67); and high (3.68-5).

To verify their validity, both questionnaires were presented in its initial form to a panel of experts to take advantage of their observations in terms of item relevance and appropriateness, item clarity and language accuracy. Panel members were requested to suggest any addition, deletion, or substitution. Based on the experts' feedback, the questionnaires were revised, and some modifications were made to bring the instruments

in the final form. The panel experts include 10 faculty members who are at the rank of professor and associate professor and whose experience in university teaching exceeds years.

To ensure reliability, Cronbach's Alpha was used to assess the internal consistency of the items in the two scales, yielding a value of 0.90 for the items associated with the level of lean management practice and 0.86 for the items aimed to assess the level of job performance.

Data Collection

The data for this study was collected via email. Target teachers were required to complete a consent form indicating their willingness to participate, followed by questions eliciting demographic information and questionnaire items.

Data Analysis

Analysis was conducted using SPSS version 21. Descriptive statistics (mean and standard deviation) and inferential (*t* test and One Way Analysis of Variance (ANOVA)) statistics were used.

FINDINGS

To answer the first research question addressing the level of lean management practice among the public high school principals the mean and standard deviation for overall responses were calculated, yielding a mean value of 3.98/5.00 with a standard deviation value of 0.98—considered a high practice level according to the criteria set for this purpose.

The second question addressing whether there are statistically significant differences ($\alpha = .05$) in the practice of lean management among public high school principals associated with categorical variables (gender, years of experience, and academic qualification) was answered using inferential statistics. For of the first two categorical variables (gender and academic qualification, *t* test was used. Results pertinent to gender revealed that although female teachers ($M=4.37$, $SD= 0.58$) reported a relatively higher level of practice compared to male teachers ($M= 4.05$, $SD=0.91$), this difference was insignificant at the level of significance ($\alpha \leq 0.05$), $t = -1.46$, $p=0.72$. This result extends to teachers' academic qualification (BA compared to higher studies). Whereas teachers holding higher than BA qualifications reported a relatively higher practice level of lean management ($M=4.05$, $SD= 0.79$) compared to BA holders ($M= 4.00$, $SD=0.85$), the difference was statistically insignificant at the level of significance ($\alpha \leq 0.05$), $t = -1.62$, $p= 0.06$. In short, there are no statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the degree of exercise of lean management among public high schools principals from the point of view of teachers' perspective associated with their gender or academic qualification. For the third categorical variable, years of experience (below 5, 5-10, or above 10 years, One Way Analysis of Variance (ANOVA) was used. The results revealed that the relative difference in the calculated means for teachers with less than five-year experience ($M= 4.01$, $SD= 0.84$) compared to those with 5-10 years of experience ($M=4.07$, $SD=0.69$) and those with higher than 10-year experience

($M=3.91$, $SD= 0.87$) was insignificant at the level of significance ($\alpha \leq 0.05$), $F=1.813$, $p= 0.164$.

To answer the third question addressing the level of public high school teachers' job performance, means and standard deviations were calculated. The values ($M= 3.99$, $SD= 0.89$) were corresponding to a level categorized as "high."

The fourth research question was associated with the impact on the level of job performance according to the categorical variables: gender, specialization, years of experience, and academic qualification. For the first three variables that had two levels, t test was used, and One-Way ANOVA was used for the variable of academic qualification. Results indicated that there was no statistically significant difference associated with either gender ($t(340)= 0.619$, $p=.26$) or academic qualification, $t(340)= -2.111$, $p=0.18$. However, the results of ANOVA as shown in Table 2, indicated a statistically significant difference.

Table 2

ANOVA results for job performance by years of experience

Source of variance	Sum of squares	df	Mean squares	F value	Sig.
Between groups	3.045	2	1.522	4.528	0.01
Within groups	154.995	339	0.336		
Total	158.539	341			

Post-hoc analysis, using LSD, revealed that teachers with an experience higher than ten years ($M=3.94$, $SD= 0.74$) outperformed the other two groups of less than 5 years ($M=3.77$, $SD=0.83$) and those with an experience of 5-10 years ($M=3.80$, $SD= 0.69$).

The fifth question addressed the relationship between the level of high school principals' practice of lean management and the level of teachers' job performance. To answer this question, Pearson correlation coefficient was calculated. The Pearson correlation coefficient between the degree of lean management and job performance was (0.95).

DISCUSSION

The results showed that the principals' practice of lean management is high. This might be attributed to the modern use of the lean management approach in high schools, which has been successful particularly as school principals are becoming increasingly aware of its importance. Its application is a way of solving problems, improving plans and maintaining success at work through the principals' open-door policy that allows teachers' participation in decision-making, and the provision of plans that help in developing teachers' abilities and skills. This finding is in concordance with those of Abu Taleb (2020), Salah (2017), El Talla et al. (2017), and Rauch et al. (2016) which found that the principals practice of lean management was high.

The results showed no statistically significant difference in the level of lean management practice among principals from the teachers' perspective according to teachers' gender or academic qualification but not the years of experience. This uniformity can be explained by the nature of lean management practice and the degree of its deployment in the administrative processes; it is clear and tangible to everyone, which resulted in the homogeneity of the views of teachers toward the role of the application of lean

management in the quality and output of administrative work. These results are in line with those of Ramly (2016) that showed no differences in the study sample responses on the degree of exercise of lean management in the quality of work, as well as with the results of Al-Mutairi (2019) and Abu Taleb (2020). However, our results differed from those of Ahmed (2015), and Al-Masri and Al-Agha (2014). Variability in teachers' academic qualifications or gender does not have an impact on teachers' chance to move from one position to another. The administrative style therefore does not count much.

Our results showed differences in teachers' responses related to the level of principals' lean management practice associated with the years of experience in favor of 5-10-year-experience teachers. To put this finding in perspective, it should be noted that a teacher is not allowed to move to a position in administration or supervision before completing five years of service. Just after five years of experience, a teacher is allowed to apply for an administrative position based on a recommendation by the school principal. During this period (less than 5 years), it is not unexpected for those teachers to care much about the school principals' management style. The school principal has a crucial saying in a teacher's status during the period of 5-10 years of experience. After ten years, a teacher can apply for an administrative or supervisory position without a need for the school principal's recommendation. Thus, in agreement with Ahmed (2015) and Ramly (2016), there seems to be a particular period during a teacher's service where the management style very crucial for making decisions on a teacher's status. Moreover, it has been noted (e.g., Abu Salim et al., 2018; Al-Dahhar, 2016; Durra & Sabbagh, 2008; Jabr, 2010) that school administration provides teachers with the means to work in their various disciplines, and teachers respond to the recycling method for the administrative tasks they are assigned to. The result of this study was consistent with those of several authors who found a positive relationship between teachers' perceptions of management practices and their satisfaction with their job performance (Al-Omari, 2013; Fakhoury, 2008; Salamah, 2017; Saliha, 2015).

The *t*-test results showed no statistically significant differences in teachers' performance from their own point of view according to gender or academic qualification. This finding might be explained by the fact that the members of the sample study (teachers) are aware of their professional roles; they perform their duties required to achieve the school goals. The role of the school management is to sustain specialized professional development over the long term as well as to reduce waste and train teachers to identify elements using the methodology of problem solving. This result coincides with those of Al-Dahdar (2016), Hussein (2013) and Al-Muhjim (2011), who all found a high level of performance. However, it was different from that of Khalif (2007), who found that the level of teachers' performance was low.

The results showed statistically significant differences in teachers' level of job performance according to their experience in favor of teachers with more than ten years, a finding that can be interpreted given their greater understanding of the work required to carry out their duties. Compared to fellows with less experience, experienced teachers are more likely to have developed richer awareness of the regulations and laws applied in schools and a deeper grasp of how to deal with different working conditions in their

field. Jabr (2010) pointed out that workers' performance is measured by their knowledge of the requirements of the job and their technical and professional skills, which come with increased experience. Al- Dahdar (2016) in this vein also confirmed that increased experience gives employees the ability to increase the workload, and Salamah (2017) noted that the more experienced a teacher is, the more experienced he or she will be in dealing with students and parents.

The results showed a positive correlation between the degree of high school principals' practice of lean management and the level of teachers' job performance. This result may be reflecting the convergence of meanings and connotations indicated by the principals' lean management and the impact this has on teachers' performance. If a principal care about teachers and their personal and professional growth, works on their development, empowerment and association with the school, and seeks to achieve the goals with all the power and potential to serve his school, this is very likely to have a positive impact on teachers' commitment to work within the school hence their increased career performance.

CONCLUSION

Lean management is one of the modern trends in management that aims to achieve the maximum value for administrative work. The main purpose of this study was to examine the relationship between lean management and teacher job performance. Results showed a positive correlation between the degree of lean management and the level of teachers' job performance.

In light of the findings, the researchers recommend that educators and administrators in particular emphasize the concept of lean management, encouraging its adoption and increasing its practice because of its impact on achieving the effectiveness of various educational institutions. Additionally, the Ministry of Education should apply lean management at schools as it supports the success of schools and brings a positive impact on job performance. Future studies examine the relationship between lean management and other variables such as teachers motivation to teaching, school climate and teacher job satisfaction.

LIMITATIONS

There are some limitations in this study, firstly self-report method were used in collecting data and information for the lean management and teacher job performance variables. Secondly the study sample was limited only teachers working in public schools. Thirdly the study sample also included the first education directorate of Amman, Knowing that there is five education directorate in Amman.

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