THE EFFECT OF TOTAL QUALITY MANAGEMENT PRACTICES ON THE ACADEMIC PERFORMANCE OF ISO: 9001 CERTIFIED PRIVATE SCHOOLS: THE CASE OF JORDAN

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Abstract

The aim of this study is to assess the academic performance of ISO: 9001 certified private schools in Jordan. Accordingly, a theoretical framework illustrating the hypothesized relationships between total quality management practices and academic performance has been developed, and hypotheses have been tested using a survey dataset of 335 questionnaires from all six ISO: 9001 certified private schools. The SPSS program has been used to analyse the collected data. The results showed that there is a statistically significant effect of TQM practices (teacher commitment, training and education, teamwork, and continuous improvement) on academic performance of private schools. More specifically, the total quality management dimension of continuos improvement has the strongest effect on academic performance, followed by training & education, and teamwork with the same strength of the effect and finally the teacher commitment.

This study is considered one of the very few empirical studies that examine the effect of TQM on academic performance within Jordanian schools. As it analysed administration quality factors in private schools, extra examinations should be attempted to improve and enhance the learning and education methodology.

Key words: TQM, ISO: 9001, academic performance, private schools, Jordan

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1. Introduction

All through the world, organizations are confronting an international challenge certainly from swift variations in a novel knowledge economy. Within the educational context, the existing situation is a knowledge-driven organization, which be determined by the knowledge value in reaching the established purposes of the educational organizations (Zwain et al., 2017). Providing that the requirement for quality training and education cannot be overemphasized, there is a necessity to guarantee that students can properly fit into the dynamic worldwide economy (Ayodele et al., 2016). Accordingly, educational organizations strongly need to improve and measure academic performance based on specific and advanced indicators (Asif and Searcy, 2014; Zwain et al., 2012). It is trusted that knowing such indicators of performance will empower the educational organization to accomplish an adequate level of academic performance (Zwain et al., 2017).

The importance of Academic performance stems from its impact on the future career of students where well-educated employees have greater rates of activity and face a minor unemployment challenge (Gautier, 2002). In the same context, the TQM program as a knowledge-driven method will enable educational organizations to develop their academic performance (Zwain et al., 2014). In doing this, it is, then, crucial to highlight the effect of TQM, on AP.

As the world now faces a noticeable change and while education is considered the dominant competitive change tool, so TQM could be a feasible approach for developing education. From this perspective, TQM asserts on continuous improvement, customers' need, increasing worker's participation, team working, training, and management commitment (Agus, 2003; Hassan, 2012) .

Although TQM was firstly designed for industry and was not suitable for education, many educators maintained that TQM could also be used in the education system (Dheeraj, 2004). Al-Jammal and Ghamrawi (2013) identified that the implementation of TQM principles in education could affect the improvement in quality, help in reducing waste and increasing productivity, thus keeping costs low and meeting student's satisfaction. TQM has become an important approach to reinforce organizational performance and competitive advantages (Ooi et al., 2011, Hatamleh et al, 2018, Saleh and Sweis, 2017).

Therefore, the purpose of this study is to determine the effect of TQM practices on the academic performance of Jordanian private schools that are ISO: 9001 certified .However, research efforts related to this field are scarce. As a result, this study seeks to investigate the relationship between TQM practices and the academic performance of private schools in Amman, Jordan. Therefore, understanding this relationship will provide a deeper sympathetic of the dynamic role of TQM practices, as well, this would help schools' managers pay attention to the practices that have a direct impact on the academic performance to devote efforts and allocate resources to get the best long-term outcomes.

To achieve the objectives, the current paper is constructed as follow: The next section provides the literature review and set out the study's hypotheses. The theoretical framework and the methodology the researchers used is then introduced. The next section offerings the main findings followed by conclusion, research limitation and managerial implications.

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2. Literature Review and Hypotheses Development

2.1 Total Quality Management (TQM)

The most commonly used method by experts to research on the quality management principles of an organization is TQM constructs (Prajogo and McDermott, 2005). TQM defined as "a management approach for improving organizational performance that encompasses a variety of both technical and behavioural topics" (Rahman and Bullock, 2005). On the other hand, (Kanji, 1990; Ahire *et al*., 1996) defined it as 'a continual method as well as techniques of sustaining the continuous improvement and satisfying the customers' demand'.

Organisational performance has a positive relationship with TQM practices (Kaplan and Norton, 2003). In addition, in a study conducted in the service sector in Jordan by Sweis et al. (2016), the analysis showed that TQM practices correlated positively with organisational performance. Therefore, to improve organisational performance, one needs to evaluate the range of TQM implementation and measure its action and effectiveness on business performance (Madu *et al*., 1996; Gadenne and Sharma, 2002, Abu-hussein et al, 2016, Khlaifat et al, 2019).

As TQM is recognized as a management philosophy, numerous studies have investigated the effect of TQM elements and academic performance (e.g., Kanji and Tambi, 1999; Lim et al., 2004; Sakthivel et al., 2005). All these researches have concluded that there is a positive significant effect of the main components of TQM and AP. Furthermore, earlier empirical researches (such as Lim et al. (2004) and Zwain et al. 2011) examined the effect of TQM on AP through linking every dimension of TQM into a single construct. Consequently, this study resulted in that there is a positive relationship between TQM main dimensions and academic performance.

H_{01}: There is no significant effect of TQM practices on academic performance of Jordanian private schools.

2.1.1 TQM Practices

Throughout the years, TQM dimensions have been widely used by many well-known experts such as Flynn *et al*. (1994), Samson and Terziovski (1999), and Prajogo and McDermott (2005). Meanwhile, Zehir *et al.* (2012) defined eight dimensions of TQM, namely: leadership management, employee management, customer focus, factual approach to decision-making, supplier management, continual improvement, system approach to management, and process management. These dimensions have a significant relationship with firm performance, which are measured by innovation and quality performance. While Sweis *et al*. (2013) in their study defined only five TQM practices that include top management commitment, training, teamwork, customer satisfaction, and continuous improvement. However, Sadikoglu and Olcay (2014) found that leadership, knowledge, process management, training, supplier quality management, customer focus, and strategic quality planning are the best practices which are positively related to the organisational performance in terms of operational performance, inventory management performance, performance of the employees, innovation performance, customer satisfaction, social responsibility, and financial performance.

As there are diverse TQM practices and dimensions, each company relies on a series of practices depending on the nature of that company (Bon and Mustafa, 2013, Saleh et al, 2017). According to Tuomi

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et al. (2013), top management commitment, employee participation and empowerment, customer focus, continuous improvement, and training are essential for successful TQM implementation in public service organisations. Meanwhile, Al-Hawary and Abu-Laimon (2013) defined these dimensions as customer focus, leadership, information and analysis, continuous improvement, and supplier quality management.

After the investigation of ISO: 9001 Certified Private Schools nature (Bon and Mustafa, 2013) that consider public service organizations the TQM dimension that will be considered in this study , are top management commitment, training and education, teamwork, and continuous improvement (Tuomi et al.,2013, Sweis et al, 2019).

2.1.1.1 Top management commitment. Commitment is defined as 'a force that links an individual to a course of action of relevance to one or more targets' (Meyer and Herscovitch, 2001). Furthermore, Ghemawat (1991) described commitment as the persistence of strategies. Meyer and Allen (1997) suggested that commitment is a psychological state that characterises the individual's relationship with an organisation, and has implications for the decision to continue membership in a company.

Achieving the top management commitment will leads to the acceptance of quality responsibility, makes vigorous strategies, and maintains persistence for quality assurance and quality improvement by focusing on market demands, consumer needs, organisational performance, profitability, and productivity (Sila and Ebrahimpour, 2005). Hence, top managers should focus on developing employees' capacity and skills by involving employees in different training programs, which provide the organisation with a skilful team. In addition, it plays a fundamental role in building trust with staff. Managers and companies have improved and innovative quality efforts at various implementations, planning and monitoring stages, to meet the stakeholder expectations and customer satisfaction (Jones and Grimshaw, 2012; Pencarelli *et al*., 2013). Therefore, top management must be on track for the organisation's success in all its ramifications (Abolarin *et al*., 2013).

High top management commitment propels TQM by creating values, goals, and systems that lead to satisfy customers and improve the organisational performance (Senge, 1990). Consequently, workers who feel that the organisation is committed to them are likely to have a positive perception of human resource management (HRM) practices, and hence they will be committed to the organization (Eisenberger *et al*., 1990; Sweis, 2009; Meyer and Smith, 2000).

$H_{01.1}$: There is no significant effect of teacher's commitment on academic performance of Jordanian private schools.

2.1.1.2 Training and education. Better performance is often due to superior employees. Thus, companies must educate their workers by training and implementing knowledge and skills, to innovate more effective and efficient workplace (Cervená, 2011). Training is defined as the effort made by an organization to allow its employees to develop essential competencies such as knowledge, skills, and behaviours that are critical for effective job performance (Cervená, 2011). While Snape *et al*. (1995) considered that training and education are important elements for TQM implementation, on the other hand; Aguinis and Kraiger (2009) concluded that training and education have a positive impact on organisational performance, employee attitude, and empowerment. Additionally, Gadenne and Sharma (2002) argued that customer involvement and employee training contribute to customer satisfaction.

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$H_{01.2}$: There is no significant effect of training and education on academic performance of Jordanian private schools.

2.1.1.3 Team work. Terms such as 'teams', 'teamwork', and 'team working' have gathered significant research over the past decades (Proctor and Mueller, 2000). The team is a group of employees who are authorised to implement several tasks (Delarue *et al*., 2006). Lloyd and Newell (2000) found that if evaluation against the standard list of practices and objectives described in the literature, teamwork for this group of workers increased neither flexibility nor commitment. There was also some evidence that it increased internal discipline or performance levels. According to Ramesh and Ravi (2013), organisations that obtained team-working culture have very strong training systems, motivational methods, and good working atmosphere.

In other words, teamwork and cooperation are primary components in educational administration. Teamwork in quality improvement is a continuous improvement and employee participation strategy in TQM (Wiengarten *et al*., 2013; Hietschold *et al*., 2014, Sweis et al, 2014).

$H_{01.3}$: There is no significant effect of teamwork on academic performance of Jordanian private schools.

2.1.1.4 Continuous Improvement (CI). TQM insists on CI considering customers' need, reducing rework, increasing workers' involvement, team working, team-based problem solving, and relative relationship with suppliers (Agus 2003 and Hassan, 2012; Jandali and Sweis 2019). Thus, the TQM concept is firstly concerned with CI in all fields of business, from the level of strategic planning and decision-making, to detailed implementation of work elements.

Gertsen (2001) defined CI as an improvement process that is applied in small increments, and depends on employee involvement. On the other hand, CI is also defined as the interaction between innovation, learning, and operations that aims to achieve administrative effectiveness, organisational cost, flexibility, and efficiency (Davison and Hyland, 2006).

Qualified education requires CI process through systematic and collective evaluation of the system (De Jager and Nieuwenhuis, 2005). Per Pourrajab *et al*., (2011), CI approach requires teachers to fight for zero defects and efficiency in all education methods. Therefore, CI activities requiring improvement in a proactive way (Taggar and Ellis, 2007).

Consequently, researchers view CI as an active process that focus on improvement programs, materials, services and their association with an organisation's customers, competitors, suppliers, and capital markets (Singh and Singh, 2013).

$H_{01.4}$: There is no significant effect of continuous improvement on academic performance of Jordanian private schools.

2.2 Academic Performance

Performance is 'the document of results of the relationship between what organisations do in terms of quality management practices and the results they achieve in various types of outcomes' (NIST, 2010). Therefore, most of the existing performance measurement literature focused on the organisational success, and performance is defined in relation to organisational objectives (Sink, 1983; Williams, 1991; Thorpe and Beasley, 2004; Tangen, 2005; Sweis et al, 2016).

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Barry (2005) analysed the effect of factors such as peer influence, school, and family on students' academic performance. Barry's findings showed that socioeconomic status is one of the strongest predictors of students' academic performance. Hermino (2005) examined the factors influencing academic performance of first year accounting students in private and public universities in Puerto Rico. The findings revealed that internal classroom factors play a major role in positively enhancing academic performance of students in both private and public universities.

Noble *et al*. (2006) investigated the factors influencing students' performance on the American College Test. Noble *et al*. (2006) noted that students' scores were directly affected by their past academic records at high school. However, family income, parents' educational level and negative situations at home influenced students' scores indirectly. Additionally, Kyoshabas (2009) examined the factors affecting undergraduate students' academic performance at Uganda Christian University. Kyoshabas' findings showed a significant relationship between students' academic performance and A-level and Diploma admission points, former school background and parents' socioeconomic conditions. Yet, there was no relationship between students' age and academic performance.

Student performance has a long history with researchers investigating on topics ranging from intellect, family background, and socioeconomic background to the levels of funding; with each study, the academic world is getting closer to understanding what drives an academic achievement. Some argued that the academic performance is more closely linked with how schools are run than with how much money is spent on schools (Jensen *et al*., 2011).

Diagne (2006) considered that the proportion of teachers with high qualifications increases efficiency. However, the proportion of teachers with indefinite duration contracts is associated with lower efficiency. In other study, Olivares and Schenker-Wicki (2012) showed that improvements in technical efficiency are the most important source of change in productivity over time. Analysing a sample of schools, Meunier (2008) showed that the more the size of the schools increases; the greater is the proportion of efficient schools.

While the role of education as a driver of economic welfare is undisputed, the actual input factors that contribute to school's performance are less clear-cut (Barry, 2005), as mentioned above academic performance could be related to family and school aspects (Noble et al., 2006) for the purpose of this study the researchers have categorized the key input dimensions examined in the literature into the following four groups to measure the academic performance from the perspective of schools only (Tangen, 2005).

(1) Funding provided for education (Jensen *et al*., 2011).
(2) Classroom size (Finn *et al*., 2005; Jepsen and Rivkin, 2009).
(3) Teacher qualifications (Croninger *et al*., 2007).
(4) Improving mentoring options for new teachers (Rivkin *et al*., 2005).

3. Research methodology

3.1 Theoretical Framework

The theoretical model for this study consists of two variables, TQM dimensions as independent variable

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and academic performance as dependent variable (Figure 1).

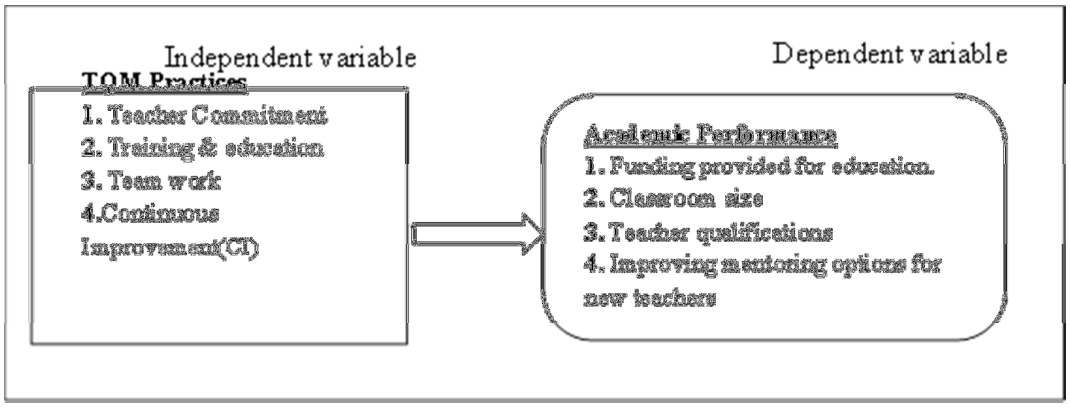

Figure (1) : the theoritical framework

3.2 Research Population, Sample, and Data Collection Method

The records of the Ministry of Education Annual Report (2014/2015) show that the total number of teachers in ISO: 9001 certified private schools in Amman, Jordan is 410 teachers. ISO 9001 is applicable in the service area because of its influence on performance (Psomas, 2013) especially the academic one. ISO 9001's association with TQM, justifies it as a foundation stone to the implementation of TQM (Babatunde and Sui Pheng, 2015). Therefore, the sample of the study includes all teachers working in those schools. While the schools that comprising the population were six schools, which are Alradwan School, Dar Alarqam School, Alomareye School, Oxford school, International Mayar School, and Islamic Education College.

To avoid any misunderstanding a questionnaire was originally designed in English and then translated into Arabic. Hence, the researchers distributed 410 questionnaires to respondents and the number of returned questionnaires was 322, which represent 78.5% of the whole population. Twenty-six questions were included in the questionnaire based on five-point rating scale. Consulting on (Gloria, 2005; Sweis, 2013; Mwanza, 2015), fifteen items have been developed in order to measure total quality management practices where each dimension (teacher commitment, training and education, teamwork) was measured by (four items), and continuous improvement was measured by (three items). Furthermore, eleven items have been developed in order to measure academic performance, Consulting on (Keller, 2006; source:Jensen et al., 2011) two items was used to measure funding provided for education, Classroom size is measured by (four items) adapted from (Hoxby, 2000; Finn et al., 2005; Jepsen and Rivkin, 2009), teacher qualifications was measured by (three items) adapted from (Croninger et al., 2007) and improving mentoring options for new teachers was measured by (two items) adapted from (Rivkin et al., 2005).

4. Data Analysis

4.1 Descriptive Analysis for Demographic Factors

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Table (1): Characteristics of the Research Sample

Variables	Categories	Frequency	Percent
Gender	Male	44	13.7%
	Female	278	86.3%
Age	20-25	46	14.3%
	26-30	101	31.4%
	31-35	100	31.1%
	More than 35	75	23.3%
Educational Level	BSc	253	78.6%
	Master's	63	19.6%
	PhD	6	1.9%
Work Experience	Less than a year	42	13.0%
	1 to less than 5 years	122	37.9%
	More than 5 years	158	49.1%

Table (1) presents descriptive analysis of the study sample based on the personal and functional variables. For Gender variable, the highest category was (female) with percentage of (86.3%), and the lowest category was (male) by percentage of (13.7%). For Age variable, the highest category (26-30 years old) with percentage of (31.4%), then category (31-35 years old) with percentage of (31.1%), followed by (More than 35) category with percentage of (23.3%), and then the lowest category (20-25 years old) with percentage of (14.3%).

On the other hand, for educational qualification variable, the highest category was Bachelor's Degree with percentage of (78.6%), then Master's Degree category with percentage of (19.6%), and the lowest category was PHD Degree) with percentage of (1.9%). Based on years of experience in current school, the highest category was more than 5 years with percentage of (49.1%), then (1 to less than 5 years) category with percentage of (37.9%), followed by the lowest category (Less than a year) with percentage of (13%).

4.2 Validity and Reliability Tests

4.2.1 Validity

To ensure that the developed measuring instrument is measuring the concept that it was set out to measure, several validity tests have been undertaken. It can be argued that the measuring instrument developed in this research is adequate since the measures of every variable was taken from a reliable and valid scale that had been designed and tested by researchers.

A simplistic form of content validity that was also utilized in this research is face validity, where the questionnaire - in the design phase - was presented to several educational experts in the field of business. Their feedback and recommendations were considered before completing the questionnaire design. Another important validity type ought to be mentioned is construct validity. To test for construct validity, factor analysis has been conducted. Therefore, the researchers ensured that all items loaded onto one factor with factor loading higher than 0.40 and Eigenvalues > 1. Consequently, the remaining number of items is (15 out of 26) as shown in **(table 2).**

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Table (2): Factor Analysis

Variable	1	2	3	4
TMC.1			0.735	
TMC.2			0.813	
TMC.3			0.779	
TMC.4			0.729	
TE.1	0.73			
TE.2	0.82			
TE.3	0.716			
TE.4	0.745			
TW.1		0.756		
TW.2		0.768		
TW.3		0.815		
TW.4		0.691		
CI.1				0.839
CI.2				0.842
CI.3				0.537

4.2.2 Reliability test

To test the stability of the measurement tool, Cronbach's Alpha was used according to the answers of the study sample totalling (322) respondents, and **table (3)** shows Cronbach alpha of the instrument as a whole (0.91), and it's ranged between (0.72-0.91) which is considered acceptable research and studies in the humanities (Zikmund et al, 2010).

Table (3): Cronbach's Alpha test

Variables	# of questions	Alpha α
teacher commitment	4	0.82
Training and Education	4	0.83
Teamwork	4	0.85
Continuous Improvement	3	0.73
Funding provided for education	2	0.72
Classroom size	3	0.84
Teacher qualifications	4	0.74
Improving mentoring options for new teachers	2	0.87

4.3 Normality

The researchers tested the normality by two methods, which are Kolmogorov-Smirnov (K-S) and skewness and kurtosis indices.

4.3.1 Kolmogorov-Smirnov (K-S) Tests

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Kolmogorov-Smirnov (K-S) tests the normal distribution of the data, which means that collected data come from a normally distributed population (Ghasemi and Zahedias, 2012). Therefore, if the significant level is more than 0.05 the researcher should accept the assumption of normality for the distribution. Analysis revealed a KMO index of 0.868, which is considered a high KMO value indicating that the data has passed the KMO index and is thus adequate. In addition, the Bartlett's Test of Sphericity was significant (Sig. =0.00).

4.3.2 Skewness and Kurtosis Test

Table (4): Skewness and Kurtosis

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Teacher Commitment	-0.786	0.136	0.644	0.271
Training & Education	-0.686	0.136	0.269	0.271
Teamwork	-0.715	0.136	0.720	0.271
Continuous Improvement	-0.877	0.136	0.779	0.271
School Performance	-0.226	0.136	-0.702	0.271
Quality Performance	-1.015	0.136	1.035	0.271
Performance	-1.058	0.136	1.860	0.271

The results presented in **table (4)** showed that skewness ranged between (–0.226) and (-1.058) (acceptable range is between –2.0 and +2.0). The values of kurtosis ranged between (–0.702) and (1.86) (acceptable range is between –5.0 and +5.0). As a result, the skewness and kurtosis values indicate almost normally distribution.

4.4 Descriptive Statistics

Descriptive statistics was conducted to describe the independent and dependent variables from statistical point of view including means, standard deviations, importance and ranking. The importance has been divided into three categories based on range, which calculated as follows: 5-1/3 = 1.33.

1- Low importance: between 1 and 2.33 (1 + 1.33 = 2.33).

2- Medium importance: between 2.34 and 3.66 (2.34+ 1.33 = 2.34-3.67).

3- High importance: between: 3.68 up to 5.

Table (5): Sample's Responses Regarding the Teacher commitment

No.	Question	Mean	S.D	importance	Rank
1	Top management is committed to applying the	3.95	1.01	High	2
2	Management is actively involved in	3.99	0.92	High	1
3	Management is in routine contact with its	3.91	0.97	High	3
4	The teachers identifies and analyses customers	3.88	1.05	High	4

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Grand Mean	3.93	0.76	High	-

Table (5) shows that means of subjects' responses regarding the statements that measure teacher commitment is ranging from (3.88-3.99). The grand mean was (3.93) with standard deviation (0.76), which is considered as high. Statement “Management is actively involved in communicating the school’s vision for quality performance" is ranked as the first important statement with mean (3.99) and standard deviation (0.92). However, statement "The teacher identifies and analyses customers need and meets their expectations, desires and complains" is ranked as the last important statement with a mean (3.88) and standard deviation (1.05).

As noticed from **table (6)** that means of subjects' responses regarding the statements that measure Training and Education ranging from (3.54-3.82). The grand mean was (3.71) with standard deviation (0.82), which is considered as high. Statement "There is a plan programmed in the school to train new teachers and teachers in service to focus on quality in the work performance" is ranked as the first important statement with mean (3.82) and standard deviation (1.06). However, statement "Training programmed at your school is designed to meet the academic needs of the school" is ranked as the last important statement with a mean (3.52) and standard deviation (1.12).

Table (6): Sample's Responses Regarding the Training and Education

No.	Question	Mean	S. Deviation	Importance	Rank
1	There is a plan programmed in the school to train new teachers and teachers in service to focus on quality in the work performance.	3.82	1.06	High	1
2	There are external training courses for teachers from time to time in TQM and their impact on educational issues.	3.72	1.12	High	3
3	Note that educational and training programs have improved teacher and student performance.	3.78	1.00	High	2
4	Training programmed at your school is designed to meet the academic needs of the school	3.52	1.12	High	4
	Grand Mean	3.71	0.82	High	

Table (7): Sample's Responses Regarding the Teamwork

No.	Question	Mean	S.D	Importance	Rank
1	I work with other teachers together closely as a team.	3.98	1.02	High	2
2	there is Support for teamwork to coordination and improve quality	3.90	0.95	High	3

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3	My work in the team increases my abilities, my energy, and leads to better services for customers	4.00	1.01	High	1
4	Working in teamwork reduce the work turnover rates	3.86	1.05	High	4
Grand Mean		3.94	0.77	High	

Referring to **table (7)**, the means of subjects' responses regarding the statements that measure Teamwork ranging from (3.86-4.00). The grand mean was (3.94) with standard deviation (0.77), which is considered as high. Statement "My work in the team increases my abilities, my energy, and leads to better services for customers" is ranked as the first important statement with mean (4.00) and standard deviation (1.01). However, statement "Working in groups reduces the work turnover rates" is ranked as the last important statement with a mean (3.86) and standard deviation (1.05).

Table (8): Sample's Responses Regarding the Continuous Improvement

No.	Question	Mean	S.D	Importance	Rank
1	I carry out monthly tests and end of term examinations	4.26	0.93	High	1
2	I Use an advance methods and measurements for continuous improvement of processes	4.01	0.87	High	2
3	Educational facilities are provided adequately for student	3.65	1.12	Medium	3
	Grand Mean	3.97	0.75	High	

The results in **table (8),** shows that means of subjects' responses regarding the statements that measure Continuous Improvement ranging from (3.65-4.26). The grand mean was (3.97) with standard deviation (0.75), which is considered as high. Statement "I carry out monthly tests and end of term examinations" is ranked as the first important statement with mean (4.26) and standard deviation (0.93). However, statement "Educational facilities are provided adequately for student" is ranked as the last important statement with a mean (3.65) and standard deviation (1.12).

Table (9) shows that means of subjects' responses regarding the statements that measure Funding provided for education ranging from (3.01-3.48). The grand mean was (3.24) with standard deviation (1.01), which is considered as medium. Statement "There are financial allocations to support and develop the teaching methods periodically" is ranked as the first important statement with mean (3.48) and standard deviation (1.15). However, statement "I'm satisfied of my salary" is ranked as the last important statement with a mean (3.01) and standard deviation (1.20).

Table (9): Sample's Responses Regarding Funding provided for education

No.	Question	Mean	S.D	Importance	Rank

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1	There are financial allocations to support and develop the teaching methods periodically	3.48	1.15	Medium	1
2	I'm satisfied of my salary	3.01	1.20	Medium	2
	Grand Mean	3.24	1.01	Medium	

Table (10): Sample's Responses Regarding the Classroom size

No.	Question	Mean	S.D	Importance	Rank
1	Larger classes have more discipline problems.	4.16	1.03	High	2
2	Smaller classrooms with smaller number of student allow more time for teachers to spend on many skills, which can increase student achievement.	4.19	0.93	High	1
3	The Small class sizes lead to substantially faster gains by increase the individualized instruction.	4.10	1.00	High	3
	Grand Mean	4.15	0.79	High	

Referring to **table (10)**, the means of subjects' responses regarding the statements that measure Classroom size ranging from (4.10-4.19). The grand mean was (4.15) with standard deviation (0.79), which is considered as high. Statement "Smaller classrooms with smaller number of student allow more time for teachers to spend on many skills which can increase student achievement" is ranked as the first important statement with mean (4.19) and standard deviation (0.93). However, statement "The Small class sizes lead to substantially faster gains by increase the individualized instruction" is ranked as the last important statement with a mean (4.10) and standard deviation (1.00).

Table (11): Sample's Responses Regarding the Teacher qualifications

No.	Question	Mean	S.D	Importance	Rank
1	I Think that I have sufficient qualifications to increase the efficiency of education	4.11	0.93	High	4
2	I am certain I am making a difference in the level of the students I teach.	4.23	0.86	High	2
3	I can deal with most questions asked by students at any level.	4.16	0.85	High	3
4	I enjoy being challenged by students asking difficult questions about other areas than the current topic.	4.26	0.85	High	1
Grand Mean		4.19	0.67	High	

Based on **table (11),** the means of subjects' responses regarding the statements that measure Teacher qualifications ranging from (4.11-4.26). The grand mean was (4.19) with standard deviation

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(0.67), which is considered as high. Statement "I enjoy being challenged by students asking difficult questions about other areas than the current topic" is ranked as the first important statement with mean (4.26) and standard deviation (0.85). However, statement "I Think that I have sufficient qualifications to increase the efficiency of education" is ranked as the last important statement with a mean (4.11) and standard deviation (0.93).

While **table (12)** shows that means of subjects' responses regarding the statements that measure Improving mentoring options for new teachers ranging from (3.81-3.88). The grand mean was (3.84) with standard deviation (0.84), which is considered as medium. Statement "there is a periodic supervisor visiting my class to mentor and evaluate the teaching method" is ranked as the first important statement with mean (3.88) and standard deviation (1.02). However, statement "The Teacher Mentoring provides a framework with usable information as I serve as a Mentor for a new teacher" is ranked as the last important statement with a mean (3.81) and standard deviation (0.98).

Table (12): Sample's Responses Regarding Improving mentoring options for new teachers

No.	Question	Mean	S.D	Importance	Rank
1	The Teacher Mentoring provides a framework with usable information as I serve as a Mentor for a new teacher.	3.81	0.98	High	2
2	there is a periodic supervisor visiting my class to mentor and evaluate the teaching method	3.88	1.02	High	1
	Grand Mean	3.84	0.84	High	

4.5 Hypotheses Testing

Before testing the hypotheses of the study, researchers conduct some important tests to ensure the adequacy of the data. Therefore, variables were tested for Multi-collinearity. The results confirm that there are no high correlations between the independent variables using the Variance Inflation Factor (VIF), and tolerance test for each variable to ensure the independence of errors. Considering the Variance Inflation Factor not to exceed the allowable value (10), Tolerance value greater than (0.05).

Table (13) shows that VIF values for each dimension of the independent variables are less than 10, with tolerance (0.623-0.730). This indicates that there is no Collinearity diagnostics problem in the regression model.

Table (13): Tolerance and VIF values

Variables	Collinearity Statistics	
	Tolerance	VIF
Top Management commitment	0.624	1.602
Training and Education	0.668	1.498
Teamwork	0.623	1.605
Continuous Improvement	0.730	1.369

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4.5.1 Testing the Main Hypothesis

To test this hypothesis, multiple regression was applied. Academic performance of Jordanian schools was entered as the dependent variable and TQM practices (Top management commitment, Training and Education, Teamwork, and Continuous Improvement) was entered as the independent variables to obtain the results of the regression analysis from SPSS.

Table (14): Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.701	0.491	0.484	0.39766

Summary

The model summary **table (14)** indicates that R-values = (0.701) which refers to the correlations of the independent variables (Top management commitment, Training and Education, Teamwork, and Continuous Improvement) and the dependent variable (academic performance). The results indicate that the relationship between these two variables is significantly positive. In addition, the adjusted R Square's value of (0.491) indicates the proportion of the variance in the criterion variable, shows that about 49.1% of the variance in academic performance has been significantly explained by TQM practices.

Table (15): ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.309	4	12.077	76.372	0.000b
Residual	50.129	317	0.158		
Total	98.438	321			

The ANOVA **table (15)** shows that F= 76.37 and p-value = 0.000. Since the p-value is smaller than the level of significance (0.05), the null hypothesis is rejected at $p \leq 0.05$ significance level. Hence, there is a statistically significant effect of TQM practices (Top management commitment, Training and Education, Teamwork, and Continuous Improvement) on school performance.

Table (16): Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

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(Constant)	1.422	.148		9.610	.000
TQM practices	0.161	0.0355	0.223	4.588	0.002

While, **Table (16)** indicates the slope value of 0.161 for the regression line. Which in turn means that the independent variable (TQM practices) can predict a 0.161 increase in the dependent variable (academic performance). The increase is due to the positive relationship between the two variables. Additionally, the second part of the table (16) demonstrates (t) and (sig.) values, which give a rough indication of the impact of each predictor variable.

4.5.2 Testing the first sub hypothesis

To test this hypothesis, multiple regression was used. Academic performance was entered as the dependent variable and teacher commitment as the independent variables to obtain the results of the regression analysis from SPSS.

The model summary **table (17)** indicates that R-values = (0.536) which refers to the correlations of the independent variables teacher commitment and the dependent variable (school performance). The table indicates that the relationship between these two variables is significantly positive. Additionally, the adjusted R Square's value of (0.287) indicates the proportion of the variance in the criterion variable, which shows that about 28.7% of the variance in the academic performance has been significantly explained by teacher commitment of TQM practices. The ANOVA **table (18)** shows that F= 31.86 and p-value = 0.000. Since the p-value is smaller than the level of significance (0.05), the null hypothesis is rejected at $p \leq 0.05$ significance level. Hence, there is a statistically significant effect of teacher commitment on academic performance.

Table (17): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.536	0.287	0.278	0.862

Table (18): ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	94.805	4	23.701	31.864	0.000[b]
Residual	235.792	317	0.744		
Total	330.597	321			

Table (19) indicates the slope value of 0.099 for the regression line. This indicates that the independent variable (teacher commitment) can predict a 0.099 increase in the dependent variable

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(academic performance). The increase is due to the positive relationship between the two variables.

Table (19): Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.02	0.32		0.06	0.95
teacher commitment	.099	.037	.135	2.666	.008

4.5.3 Testing the Second Sub Hypothesis

Table (20): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.467	0.218	0.208	0.70385

Referring to the model summary **table (20)**, it indicates that R-values = (0.467) which refers to the correlations of the independent variables (training and education) and the dependent variable (academic performance). The table indicates that the relationship between these two variables is significantly positive. In addition to, the adjusted R Square's value of (0.208) indicates the proportion of the variance in the criterion variable, which means that about 20.8% of the variance in academic performance has been significantly explained by training and education of TQM practices.

Table (21): ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	43.799	4	10.950	22.102	0.000 [b]
Residual	157.045	317	0.495		
Total	200.845	321			

Table (22): Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.90	0.26		7.24	0.00
Training and Education	.113	.033	.168	3.430	.110

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The ANOVA **table (21)** shows that F= 22.10 and p-value = 0.000. Since the p-value is smaller than the level of significance (0.05), the null hypothesis is rejected at $p \leq 0.05$ significance level. Hence, there is a statistically significant effect of training and education on academic performance. While **table (22)** indicates the slope value of 0.113 for the regression line. This indicates that the independent variable (training and education) can predict a 0.133 increase in the dependent variable (acdemic performance). The increase is due to the positive relationship between the two variables.

4.5.4 Testing the Third Sub Hypothesis

The model summary **table (23)** indicates that R-values = (0.582) which refers to the correlations of the independent variables (teamwork) and the dependent variable (academic performance). The table indicates that the relationship between these two variables is significantly positive. In addition to, the adjusted R Square's value of (0.331) indicates the proportion of the variance in the criterion variable, which means that about 33.1% of the variance in teacher qualifications has been significantly explained by TQM practices.

Table (23): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.582	0.339	0.331	0.5499

Table (24): ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	49.229	4	12.307	40.694	0.000[b]
Residual	95.872	317	0.302		
Total	145.101	321			

The ANOVA **table (24)** shows that F= 40.69 and p-value = 0.000. Since the p-value is smaller than the level of significance (0.05), the null hypothesis is rejected at $p \leq 0.05$ significance level. Hence, there is a statistically significant effect of teamwork on academic performance. **Table (25)** indicates the slope value of 0.121 for the regression line. This indicates that the Independent Variable (teamwork) can predict a 0.121 increase in the dependent variable (academic performance). The increase is due to the positive relationship between the two variables. –

Table (25): Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.83	0.20		8.97	0.00

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Teamwork	.121	.037	.168	3.300	.001

4.5.4 Testing the Fourth Hypothesis

Based on the results of the model summary **table (26)** indicates that R-values = (0.491) which refers to the correlations of the independent variables (continuous improvement) and the dependent variable (academic performance). Which indicates that the relationship between these two variables is significantly positive. In addition, the adjusted R Square's value of (0.231) indicates the proportion of the variance in the criterion variable, which shows that about 23.1% of the variance in academic performance has been significantly explained by continuous improvement of TQM practices.

Table (26): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.491	0.241	0.231	0.7378

Table (27): ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	54.771	4	13.693	25.154	0.000 [b]
Residual	172.559	317	.544		
Total	227.330	321			

The ANOVA **table (27)** shows that F= 25.15 and p-value = 0.000. Since the p-value is smaller than the level of significance (0.05), the null hypothesis is rejected at $p \leq 0.05$ significance level. Hence, there is a statistically significant effect of continuous improvement on academic performance. Additionally, **table (28)** indicates the slope value of 0.311 for the regression line. This indicates that the Independent Variable (Continuous Improvement) can predict a 0.311 increase in the dependent variable (academic performance). The increase is due to the positive relationship between the two variables.

Table (28): Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.29	0.27		4.69	0.00
CI	.311	.035	.420	8.956	.000

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4.6. Discussion:

As revealed in this study, TQM practices have been implemented by several ISO: 9001 Certified Private Schools in Jordan. This outcome is comparable with numerous earlier studies conducted in the developing countries, such as in Malaysia (Lim et al., 2004), India (Sakthivel et al., 2005) and Iraq (Zwain et al., 2017).

In this paper, a model was developed and empirically tested to examine AP from "TQM practices"-based view. The effects of four key TQM Practices: teacher commitment, training and education, teamwork, and continuous improvement on Academic performance were hypothesized and examined. .

The findings emerging from the hypotheses testing proved that there is a statistically significant and positive relationship between the two constructs. This finding is consistent with previous related studies (Kanji and Tambi, 1999; Lim et al., 2004; Sakthivel et al., 2005; Zwain et al. 2011; 2017). The TQM practice dimension of continuous improvement has the strongest effect on academic performance, followed by training & education, and teamwork with the same strength of the effect and finally the teacher commitment. The importance of continuous improvement is in line with (Singh and Singh, 2013) who concluded that continuous improvement is an active process that focuses on improvement programs, materials, services and their association with an organization.

However, this study' findings somewhat differ from previous empirical studies in terms of the strength of TQM that affects academic performance. This can be attributed to the fact that this study investigated the effect of the TQM set (teacher commitment, training and education, teamwork, and continuous improvement) most previous studies have considered different practices of TQM (Sakthivel et al., 2005) or investigated the TQM-AP association by combining each component of TQM into one construct (Lim et al., 2004; Zwain et al. 2011; 2017).

In a few words, the current research provides an applied viewpoint for educational organizations, especially of ISO: 9001 Certified Private Schools in Jordan to recognize and support a high level of AP that can be obtained if implemented TQM practices effectively.

5. Research Conclusions, Contributions, and Implications

Based on the results discussed above, the most important conclusion is the fact that TQM has an important effect on the academic performance in private schools in Amman, Jordan. Particularly those schools that have obtained the ISO certification. Understanding the role of TQM practices and their effect on academic performance has helped shed some light on this relationship. All the suggested hypotheses were supported. It is concluded that schools should include the development agenda to train their managers and teachers for TQM enhancement at all levels, age groups, and educational background. The results also indicate the need for the development of team working tasks and use the best methods to raise the level of performance, while enhance the qualification of teachers in schools through the new education method, training, creativity, and making the resources available for use. The continuous improvement (CI) has a clear effect on teacher qualification variable and on classroom size variable. The top management must always consider searching for the best and newest in the education sector in developing the learning

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system. Moreover, their participation should be in a teamwork to solve the problems and ensure that the team has clear goals to do their best and to meet their customer needs and satisfaction.

The current research contributes to the science of modern management that may benefit others who devote their attentions to further develop this science. The research has also helped to demonstrate the details of the subject through the collection of previous literature on TQM practices and academic performance of schools, and thus facilitate interested readers to obtain references. Therefore, this study contributes by enabling researchers and education agencies to understand the relationship between TQM and Jordanian private education schools, especially those that have obtained the ISO certification.

In view of this empirical research on private schools and since all hypotheses were supported in favour of TQM application to private schools in Amman. More attention should be paid to develop and enhance TQM as a culture in private schools. Moreover, further research is encouraged to explore TQM practices and their effect on performance of private school outside the Amman Governorate. In addition, in view of the results of this research, further research should be carried out to explore the effect of TQM on the public schools' sector in Jordan.

6. Research Limitations

All studies in different fields, regardless of how well they are managing; encounter some limitations during the study period. There was a problem of accessing information from teachers and restricted distribution of the questionnaire by the school administration for fear of access to the schools' own information. There was also a lack of cooperation, seriousness and the importance of scientific research while filling the questionnaires.

7. Recommendations

This study investigated the effect of TQM on academic performance. However, the possibility of generalizing the results to other countries with various characteristics needs to be confirmed by conducting similar research. Therefore, future studies should conduct further research in other Arabian countries. The researcher recommends researchers from outside to apply and study the same variables in their environment to find out the extent to which the outcomes match with other environments and the ability of comparison between them. Additionally, other independent variables can be used to help understand the variance in TQM. The researcher also proposes using larger number of questionnaires and contents that are more detailed to obtain more accurate and detailed data. Furthermore, it is recommended to use methods other than questionnaires to collect information, or study real and actual data to increase the accuracy of the results.

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