

Applying Six Sigma (SS) to Improve the Quality of Academic Life (QAL)

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Abstract

The current study looks forward to the possible application of Six Sigma as an input to improve the quality of academic life using a set of statistical methods through the SPSS vr.24 software. As a result, an increase in the value of (SS) by one unit leads to an increase in the value of (QAL) by (0.65). In conclusion, the paper shows that the lack of improvement towards the satisfaction of staff and students and the quality of its outputs and limited adoption of information technology will lead to creativity and innovation in the field of work.

Keywords: Six Sigma, methodology, continuous, improvement.

Aplicación de Six Sigma (SS) para mejorar la calidad de la vida académica (QAL)

Resumen

El estudio actual espera la posible aplicación de Six Sigma como información para mejorar la calidad de la vida académica mediante un conjunto de métodos estadísticos a través del software SPSS vr.24. Como resultado, un aumento en el valor de (SS) en una unidad conduce a un aumento en el valor de (QAL) en (0.65). En conclusión, el documento muestra que la falta de mejoras hacia la satisfacción del personal y los estudiantes y la calidad de sus productos y la adopción limitada de la tecnología de la información conducirá a la creatividad e innovación en el campo del trabajo.

Palabras clave: Six Sigma, metodología, continua, mejora.

1. INTRODUCTION

Higher education organizations are the locomotive of progress and development in various fields as a pillar in the development, use and dissemination of knowledge to serve the society. This requires continuous improvement in its scientific product and keeps up the developments in quality management and improvement of performance in accordance with the requirements of the age. At a time when it faces many variables and challenges, which requires the application of contemporary concepts in the light of an attempt to achieve excellence (Six Sigma) is one of the best methodologies which contribute to achieving this excellence and can be used to improve the quality of industrial and service organizations.

2. METHODOLOGY

The study problem starts with questions like what is the level of application of the methodology (Six Sigma) in Organization concerned from the point of view of its academics? what is the level of practice to improve the quality of academic life from the perspective of the Academy? what is the relationship between applying the Six Sigma methodology and improving the quality of academic life from the point of view of academics in the organization? it deals with two main points of interest the first is the Six Sigma methodology as a constructive methodology and philosophical commitment to offering high-quality products which approaching the zero defect.

3. THE THEORETICAL FRAMEWORK OF THE STUDY

The basic idea of the Six Sierra methodology is that it is possible to measure the number of defects and deviations in the process then it becomes possible and systematically to determine how to remove those defects and to approach to the zero defect as possible, and thus is based on continuing to reduce the deviation. Their views varied according to their practical backgrounds. Some of them see it as a statistical measure that produces (3.4) defects in every million chances, and others see them as philosophy and intellectual approach through reaching a product free of defects. Six refers to the number of deviations from the real mean of the process (Alnuaimi & Sweiss, 2008; Krajewski et al., 2010; Shathri, 2010; Sujar et al., 2008).

The purpose of using Six Sigma is to eliminate variance, reduces errors in operations and focus on continuous improvement through careful understanding customer requirements and analyzing the organization's operations. Pyzdek (2003) has seen the basic tools required for Six Sigma as flow maps, dispersion schemes, test lists, cause and effect diagram, histogram, correlation scheme, Pareto scheme, control maps (Surya & Shani, 2013; Allam, 2012; Soo et al., 2019; Jadalrab, 2008).

4. STATISTICAL ASPECT OF THE STUDY

The questionnaires were distributed to the study sample and were entered and analyzed using (SPSS vr.24), (AMOS) and Excel software and the data were descriptively analyzed including the frequencies and their ratios, the computational averages, standard deviations, the difference coefficients and the relative importance. Then, the hypothesis test was used for correlation and impact coefficients. The tables below include the statistics of frequencies, their ratios, the computational environment, standard deviations, and the difference coefficients (CV), the relative importance of each paragraph of the questionnaire:

Table 1: Frequencies and their ratios to the research variables

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Table 2: General statistics of the research variables

Ite m	Ari th me ^{me} tic ^{an}	Stadev ndąati rd on	Co effflev cieiati nt on	im Rel ati por tan ve ce	Ite m	Ari th me ^{me} tic ^{an}	Sta _{dev} ndąati rd _{on}	Co effflev cieiati nt on	im Rel ati tan ve ce
SM1	3.51	1.3	37	70	QA1	3.69	1.28	35	74
SM2	3.66	1.27	35	73	QA2	3.63	1.26	35	73
SM3	3.64	1.18	32	73	QA3	3.54	1.15	32	71
SM4	3.95	1.14	29	79	QA4	3.62	1.16	32	72
SM5	3.32	1.07	32	66	QA5	3.31	1.2	36	66
SM6	3.31	1.25	38	66	QA6	3.52	0.95	27	70
SM7	3.39	1.32	39	68	QA7	3.49	1.12	32	70
SM8	3.67	1.21	33	73	QA8	3.5	1.3	37	70
SM	3.56	0.98	28	71	QA	3.54	0.9	26	71
CI1	3.9	1.03	26	78	QP1	3.51	1.14	33	70
CI2	3.13	1.14	37	63	QP2	3.34	1.26	38	67

CI3	3.47	1.15	33	69	QP3	3.44	1.17	34	69
CI4	2.88	1.31	46	58	QP4	3.49	1.24	36	70
CI5	2.76	1.37	50	55	QP5	3.41	1.09	32	68
CI6	3.02	1.26	42	60	QP6	3.26	1.2	37	65
CI7	3.1	1.12	36	62	QP7	3.18	1.2	38	64
CI8	3.25	1.26	39	65	QP8	3.83	0.94	25	77
CI9	3.28	1.21	37	66	QP9	3.64	1.06	29	73
CI10	3.33	1.16	35	67	QP	3.46	0.84	24	69
CI	3.21	0.9	28	64	QC1	3.71	1.08	29	74
TD1	2.88	1.33	46	58	QC2	3.72	1.09	29	74
TD2	3.22	1.31	41	64	QC3	3.73	1.08	29	75
TD3	3.45	1.14	33	69	QC4	3.84	1.05	27	77
TD4	3.8	1.13	30	76	QC5	3.57	1.09	31	71
TD5	3.48	1.12	32	70	QC6	3.74	1.1	29	75
TD6	3.38	1.15	34	68	QC7	3.75	0.99	26	75
TD7	3.43	1.13	33	69	QC8	3.79	1.04	27	76
TD	3.38	0.94	28	68	QC	3.73	0.87	23	75
AS1	3.19	1.18	37	64	QT1	3.56	1.17	33	71
AS2	3.61	1.01	28	72	QT2	3.65	1.2	33	73
AS3	3.14	1.33	42	63	QT3	3.63	1.13	31	73
AS4	3.58	1.04	29	72	QT4	3.75	1.12	30	75
AS5	3.23	1.23	38	65	QT5	3.58	1.12	31	72
AS	3.35	0.93	28	67	QT6	3.72	1.03	28	74
EF1	3.13	1.07	34	63	QT7	3.66	1.07	29	73
EF2	3.68	0.99	27	74	QT8	3.78	0.98	26	76
EF3	3.75	1.03	27	75	QT	3.67	0.87	24	73
EF4	3.99	1.05	26	80	QR1	3.65	1.19	33	73
EF5	3.35	1.09	32	67	QR2	3.69	1.2	32	74
EF6	3.3	1.28	39	66	QR3	3.74	1.08	29	75
EF7	3.12	1.24	40	62	QR4	3.92	1.02	26	78
EF	3.47	0.83	24	69	QR5	3.74	1	27	75
					QR6	3.79	1.07	28	76

		QR7	3.86	0.94	24	77
		QR8	3.81	0.95	25	76
		QR	3.78	0.83	22	76

The following table includes the values of this transaction:

Axis	Items	Alpha Cronbach
SM	8	0.92
CI	10	0.91
TD	7	0.90
AS	5	0.86
EF	7	0.87
SS	37	0.97
QA	8	0.90
QP	9	0.89
QC	8	0.93
QT	8	0.91
QR	8	0.91
QAL	41	0.97
Total	78	0.98

Table 3: Alpha Cronbach coefficients

The following table contains the values of the standards used model accuracy:

Parameter	X^2/df	GFI	AGFI	RMSEA
Parameter	1986.169	0.87	0.82	0.00
Value	/619=3.21			
Comparison	Less than 5	More than	More than	Less than0.
		0.50	0.50	
Decision	Accepted	Accepted	Accepted	Accepted

Table 4: Criteria and decision taken

The above results show the suitability of the structural model designed and therefore the items are able to measure the axis with different strengths and as in the following structural scheme.



Figure 1: Six Sigma Construction Diagram

The SMI was able to explain the dimension (0.83). In other words, the increase in the value of SMT by (0.83) from the standard deviation leads to an increase in the value of the dimension (SM) by one standard deviation and so on for the rest of the items, and that the

standard decline weights in the constructional diagram above were set in the following table (Fateminasab, 2014) .

Pat		Est		Pat		Est		Pat		Est		ath		Est		Pat		Est
Pat h		im		Pat h		im		Pat h		im		аш Р		im		Pat h		im
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S -	S	8	С	-	С	5	Т	-	Т	7	А	-	А	0.	Е	-	Е	8
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М -	М	6	Ι	-	Ι	0	D	-	D	3	S	-	S	8	F	-	F	7
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Table 5: The estimated values of standard decline weights for each

item

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				9			6							
				С	<		0.							
				Ι	-	С	6							
				1	-	Ι	7							
				0		•	2							

For the purpose of detecting the ability of interpretation of the dimensions of its dimensions in the element (QAL), the following table ensures the values of the criteria of the accuracy of the model used in Table 6 and the decision was taken (Chahine, 2018)

Table 6: The values of the criteria of the accuracy of the model

Parameter	X^2/df	GFI	AGFI	RMSEA
Parameter	3617.830/769=4.70	0.78	0.73	0.00
Value				
Comparison	Less than 5	More	More	Less

		than 0.50	than 0.50	than0.08
Decision	Accepted	Accepted	Accepted	Accepted

The above results show the suitability of the structural design model:



Figure 2: Quality of the Academic Life construction diagram

It is clear through the structural scheme and its results that the first item was able to explain the dimension affiliated by (0.76) (Yang et al., 2019):

Table 7: The estimated values of standard decline weights for each item

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Q		8	1.4	8	5	8	5	8	-	ě	.734	π		τ	.795	R	12	R	854
0 A	5	8	3	8	5	3	613	9	6	ċ.	\$27	12	-	Ť.	.818	R	-	3.	311
Q.	а. 	8	1.14	8	-	8	0.73 #	8	- 6	2	0.812	8		9	1.11	Dir.	2	2	4.16
0.0	<u>د</u>	2	A.18	8		8	1.40 9	8	4	8	0.541	8	-	9	8.837	Ox.	-65	8	0,711
-	-	8	1.48	8	8	8	8.73	g	-	8	0.967	8	0	ş	111	PR.	-	2	1.824
Q.	*	2	2.68	3	-	9	47	8	6-	8	\$3.1	5	6	9	1181	98	0	8	4.01
0	÷.	2	0.12	2	8	9	151	90	6	5	6235	8	3	Ŧ	8.181	No.	0	2	2.781
9	4	8	2.00	8	2	ş	931 2	9	1	8	0.047	8	6.4	9	1.471	8	1	2	5.358
				8		9	0,41	*	-	-						4.			

The following table lists the correlation values and their relevance between the Six Sigma element and its dimension and quality of academic life element QAL:

	Correlations													
		SM	CI	TD	AS	EF	SS							
QAL	Pearson	.733**	.584**	.648**	.659**	.647**	.758 ^{**}							
	Correlation													
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000							
	Ν	100	100	100	100	100	100							
	**. Correlation is significant at the 0.01 level (2-tailed).													

Table 8: Correlation coefficients between the two elements

The results above show a positive correlation relationship between the element (SS) and the element (QAL) (0.758), The following figure shows the correlation values between the two elements:



Figure 3: correlation coefficients between the two elements

First, the highest correlation with (QAL) was recorded after the support of senior management (SM). Six Sigma (SS) impact analysis and its dimensions on the quality of academic life was carried out.

Indht epevar ndeiab le	De penVa denfia t ble	Tes t F	Sig Tesnifi t can F	T CC		Sig test ^{nifi} can		ien Co effi c
SS	QAL	132.513	0.000	0.76	11.511	0.000	Significant	58%
SM	QAL	113.562	0.000	0.73	10.657	0.000	Significant	54%
CI	QAL	50.845	0.000	0.58	7.131	0.000	Significant	34%
TD	QAL	70.992	0.000	0.65	8.426	0.000	Significant	42%
AS	QAL	75.067	0.000	0.66	8.664	0.000	Significant	43%
EF	QAL	70.702	0.000	0.65	8.408	0.000	Significant	42%

Table 9: Results of impact analysis

We conclude the presence of the trace of the dimension (EF) in element (QAL). The value of the F-test was (70.702) which is a significant value below (5%), the coefficient of determination was equal to (42%), the value of the impact parameter was (0.65) and the value of the T-test was (8.408) which is a significant value below the level of (5%).



Figure 4: Parameters of the effect between the two elements

5. CONCLUSIONS

In conclusions the senior management is weak in exchanging experiences to support and develop quality. The lack of improvement towards the satisfaction of staff and students and the quality of its outputs and limited adoption of information technology leading to creativity and innovation in the field of work. Weak organization's interest in adopting training courses in the quality of its members. Weak management attention in the incentives system for its academics according to the annual assessment system to encourage them to implement quality elements. Weak effectiveness of existing administrative and financial system to achieve administrative and financial quality.

REFERENCES

- ALLAM, S. 2012. Quality of life and its relationship to job satisfaction among university faculty members. Arab Studies in Psychology, magazine. Vol. 11, N° 2. Amman.
- ALNUAIMI, M., & SWEISS, R. 2008. Six Sigma Achieving Accuracy in Quality Management. Dar Athraa Publishing and Distribution. Amman.
- SHATHRI, A. 2010. Six Sigma Introduction Requirements for Improving Quality of Performance. Magazine of Imam Muhammad Bin Saud Islamic University, a message of Education and Psychology. N° 35. Saudi Arabia.
- JADALRAB, S. 2008. Quality of Career QWL in Modern Business Organizations. Arab Thought Publishing House. Egypt.

FATEMINASAB, A. (2014). Investigating the challenges and barriers of convergence between Iran and republic of Azerbaijan, UCT Journal of Social Sciences and Humanities Research, 2(1): 18-24.

- KRAJEWSKI, L., & RITZMAN, L., & MOLHOTRA, M. 2010. **Operations Management.** 9th ed prentice Hall. New Jersey.
- PANDE, P., & HOLPP, L. 2002. What is Six Sigma? McGraw-Hill. New York. USA.
- PYZDEK, T. 2003. Six Sigma Handbook Revised and Expanded: A Complete Guide for Green Belts. Black Belts, and Managers at all Levels, McGraw-Hill Companies. USA.
- CHAHINE, I. C. (2018). Exposing the Conscious Self: Lived Problem Solving Experience in a Socio-Cultural Context. International Electronic Journal of Mathematics Education, 13(3), 221-231. <u>https://doi.org/10.12973/iejme/3880</u>

- SOO, M., SHELBY, R., & JOHNSON, K. 2019. Optimizing the patient experience during breast biopsy. Journal of Breast Imaging. wbz001, https://doi.org/10.1093/jbi/wbz001. UK.
- SUJAR, Y., & BALACHANDRAN, P., & RAMASAMY, N. 2008. Six Sigma and the Level of Quality characteristics. AIMS international Journal of Management. Vol. 2, N° 1. USA.
- SURYA, K., & SHANI, N. 2013. A Study on Quality of work life Among the Employees at Metro Engineering private limited. International Journal of management. Vol. 4. N° 1. USA.
- YANG, Y., PAN, T., & ZHANG, J. 2019. Global optimization of Norris derivative filtering with application for near-infrared analysis of serum urea nitrogen. Scientific Research Publishing. Vol 10. N° 5. China.

Questionnaire General Information (Personal Data):

- 1. Gender: MaleFemale.....
- 2. Academic Rank: Assistant Professor, Assistant, Professor,
- 3. Organization,
- 4. Years of Service: Less than 5 years, from 5 10 years, more than 10 years,

Note: Please mark $(\sqrt{)}$ in the appropriate field that expresses your opinion in all honesty according to the degree of availability of each variable in the organization in which you work knowing that the form prepared for scientific research purposes and depends on the accuracy of the results that can be reached.

	Senior Management Support (MS).							
#	Paragraphs	completely agree	Agree	agree to some extent	do not agree	do not agree completely		

Element 1: The level of application of Six Sigma Dimension 1: Senior Management Support (MS).

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1	There is a specialized department within the organization concerned with quality			
2	Senior management is interested in implementing the principles of total quality within the organization			
3	Senior management relies on the annual budget for attention to quality.			
4	The senior management supports the exchange of experiences in order to support and develop the quality			
5	Quality Management provides its recommendations to senior management directly for adoption			
6	Senior management relies on an annual budget increase for quality management			
7	Senior management provides a strategic plan that includes attention to quality			
8	Senior management is committed to persuading staff to apply the Six Sigma methodology			

Dimension 2: Continuous Improvement (CI)

#	Paragraphs	completely	Agree	agree	do	do not agree
		agree		to	not	completely
				some	agree	
	~			extent		
1	Continuous improvement leads to creativity					
-	and innovation in the field of work					
2	Continuous improvement in the planning of					
	input quality					
3	Continuous improvement is made in the					
	planning of process quality					
4	Continuing improvement in the quality					
	planning of outputs					
5	The organization works on continuous					
	improvement in the field of buildings and					
	constructions					
6	The suggestions of all employees are accepted					
	to achieve continuous improvement					
7	Student proposals are accepted in the					
-	organization for continuous improvement					
8	The organization adopts information					
	technology extensively to achieve continuous					
	improvement					
9	The organization seeks to achieve employee					
	satisfaction to achieve continuous					
10	improvement					
10	The organization seeks to achieve students' satisfaction to achieve continuous					
	immunization to achieve continuous					
	immunization					

Dimension 3: Training and development of human rescores. (TD(

agree otomic appoints extent agree otomic agree 1 The organization appoints intelligent leaders emotionally - - 2 The organization is concerned with the management of human resources - - 4 The organization is concerned with the management of human resources - - 5 The organization is concerned with the management of human resources - - 6 The organization is interested in the continuous development of its leaders in all areas that achieve quality - - 6 The organization is interested in incentives to motivate workers to aphropriate climate for workers to aphroperiate comprehensive quality - - 7 The organization is interested in incentives to motivate workers to aphroperiate comprehensive quality - - 7 The organization has an administrative information management system to facilitate the achieve communication system to achieve quality system within the organization uses an effective financial system to achieve daministrative quality - - 3 Theor is an effective financial quality - - - 4 There is an effective academic quality - - - 5 There is an effective academic quality - - - 6 There is an effective academic quality - -	#	Paragraphs	completely agree	Agree	agree to some	do not	do not agree completely
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	3	6	1			1	

4	There is a follower to make sure that the deviations are correct			
5	The Organization has approved standards for financial and nonfinancial measurement			
6	There is a correlation between evaluation results and rewards and incentives			
7	There is a correlation between results of evaluation and promotions			

Element 2: quality of academic life (QAL) Dimension 1: Quality in the academic portal (QA)

#	Paragraphs	completely	Agree	agree	do not	I do not
π	r aragraphs	agree	Agree	to some extent	agree	agree completely
1	There is an academic portal for everyone to follow the announcements of the organization					
2	There is a secret code for each academic entering his or her own page through the portal					
3	The academic communicates with the students through the portal in order to achieve speed in communication					
4	The Academy can record its lectures through the academic portal					
5	An academic can send his lectures to students through the academic portal					
6	The academician can communicates with the rest of the university's academics through the portal					
7	An academic has a special email through the academic portal					
8	The academic uses the portal to send students questions and summaries	Quality in the Ph				

Dimension 2: Quality in the Physical environment (QP(

#	Paragraphs	completely agree	Agree	agree to some extent	do not agree	I do not agree completely
1	There are special rooms for academics					
2	There are computers dedicated to academics					
3	The computer of the Academy is connected to the organization's Internet					
4	Air conditioning is available for the Academies' office					
5	There is enough lighting in the classrooms					
6	There is high ventilation in the classrooms					
7	There is a suitable furniture in the offices of academics					

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			1	1						
8	There is an									
	elevator for									
	the movement of									
	teaching staff									
9	There is a buffet and private									
	bathrooms for academics		~							
	Dimension 3: Quality in Compensation (QC)									
#	Paragraphs	completely	Agree	agree	do not	I do not agree				
		agree		to some	agree	completely				
	~			extent						
1	The organization is committed to the									
	unified staff to determine the									
	salaries of academics									
2	The organization is committed to									
	providing technical and administrative bonuses to									
	academics									
-	scientific affairs are committed to									
3										
	providing the extra burden for an academic who earns an extra reward									
4	Financial incentives are available to									
	the academicians according to the									
-	annual assessment									
5	Moral incentives are available to the academicians according to the									
	annual assessment									
6	Academic gets paid for hours of									
0	academic counseling for students									
7	The organization is committed to									
/	rotate in leadership positions such as									
	department heads and unit officials									
8	The promotion of academics is									
0	linked to their research and scientific									
	achievement									
		n 4: Quality in the	techniques i	read (OT)						
#	Paragraphs	completely	Agree	agree	do not	do not agree				
#	ratagraphs	agree	Agree	to some	agree	completely				
		agree		extent	agree	completery				
1	The organization provides electronic			extent						
1	methods for giving lectures (virtual									
	classes)									
2	The organization provides L.C.D in									
2	the classroom									
3										
3	The organization provides computer labs where an academic can give									
	labs where an academic can give lectures									
4										
4	The organization provides a television station									
-	lectures by academics									
5	The organization provides speakers									
	within the large halls									
6	The organization provides the means									
	of recording lectures are vocal to									
	students									

Applying Six Sigma (SS) to Improve the Quality of Academic Life (QAL)

	 The organization provides a network connecting the computers of all the university formations to facilitate communication The organization uses modern electronic means to connect with academics 	mension 5: Quality	v in relations	hips (QR)		
#	Paragraphs	completely agree	Agree	Agree to some extent	do not agree	I do not agree completely
1	The organization is working to hold continuous meetings between academics to improve relations.					
2	The organization is making joint trips for academics and administrators to improve their relationship					
3	The organization holds periodic meetings between leaders and academics to exchange suggestions and opinions					
4	The organization supports seminars and conferences with the participation of academics to exchange relations					
5	The organization supports academic visits of other universities to exchange views and experiences					
6	The organization supports academics to visit community organizations to strengthen the relationship					
7	The organization supports academics holding seminars and meetings within the ministry and government agencies					
8	The organization holds periodic meetings between academics and students at the beginning of the school year					



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