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## DISCUSSION

# Training Within Oil & Gas-Based Industries In The State of Qatar

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### ABSTRACT

*This research is an exploratory study that investigates training in the state of Qatar. It is carried out with the intention to provide an insight into such a process among national workers in the Oil and Gas-based Industries (OGBI), which is one of the most significant economic sectors in the country. Additionally, the study also endeavours to investigate the training process and its related factors and practices that affects the development of their skills within the industry, such as their educational background, promotion and training incentives. It is found that educational attainment had influenced the Qatari workers' achievement of their training programmes objectives and its effectiveness in developing their general and specific skills, with a stronger link with higher educational attainment and technical education. It was also shown that success and effectiveness of training within the industry in forming and developing Qatari workers' skills is influenced by other internal organizational factors mainly promotion*

### 1. INTRODUCTION

The State of Qatar, as an oil/gas-rich country, has benefited from its natural resources' revenues in implementing different social and economic development projects. However, future development, particularly industrial development, is increasingly significant and may require the full utilization of such resources. As challenging the global economy, Qatar has to benefit from its current natural resources through building up its indigenous human capital, mainly through education and training. Moreover, as a newcomer to industrial development, particularly via oil and gas projects, the Qatari oil co-operations has to realize that competing in such a global production market, with changing technologies, is a difficult task without a qualified and highly-skilled workforce. This study, therefore, seeks to provide in depth understanding of the state of national human capital formation through training at the micro level of the oil/gas-based industry (OGBI). It investigates the training process by analyzing the influence of educational attainment of employees within the OGBI and the related practices on the effectiveness of training within OGBI.

## **2. OIL AND GAS-BASED INDUSTRIES IN QATAR**

Oil, natural gas and related manufacturing industries form the backbone of the national economy of the state, and the dominant industrial sector in Qatar, beside the manufacturing industries that have become important in the recent years as an alternative source of national income. The oil sector provides about 90-95% of Qatar's total government revenues. It was and continues to be besides gas, the most important lever for economic development in the country. The Qatari government launched broad-based development projects in many fields since 1970s.

As a result of the development of the sector, Qatar Petroleum Company (QP) was established in 1974 by the government to take over the civil service function of monitoring the oil and gas industry, which was followed by other industries. There are five prominent industries in Qatar: crude oil and refining, fertilizers, petrochemicals, steel reinforcing bars and cement. For the purpose of the current study, focus will be on the oil and gas-based industries (OGBI), which depend on oil and/or gas as feedstock to their production, and are part of QP - namely the fertilizer, chemical and petrochemical industries, whose industrial base represents the manufacturing base of the current country's economy. The country now boasts four petrochemical companies, Qatar Petrochemical Company (QAPCO), Qatar Fertilizer Company (QAFAC), Qatar Vinyl Company (QVC), Qatar Chemical Company (Q-Chem), and one fertilizer company, Qatar Fuel Additive Company (QAFCO), in most of which QP is a major shareholder. Those companies will be the sample of the current study.

## **3. SIGNIFICANCE OF TRAINING IN THE INDUSTRY**

Attention has been drawn to the importance of human capital to economic development. Both microeconomic analysis (Becker 1975) and macroeconomic studies (Romer 1986, Lucas, 1988) have stressed the importance of human resources' education and training for increasing productivity and economic growth. The value of education and training is confirmed by studies which point to the high returns on investment in this field. The concluding observation of these studies is that there is a close relationship between formal education and training in developing workforce skills. It is generally agreed that formal pre-employment education is the main institutional body for supplying the basic general skills needed in the workplace. Indeed, basic skills are considered a prerequisite and basis for acquiring and accumulating additional specific-skills in the future. However, though formal education may teach basic or sometimes simple skills that maybe relevant to industry, such skills may only serve the activities of small-scale industries (Lall, 1991: 136). For higher levels of industrialization, both technical and vocational education and training (TVET) and on-the-job training are essential to meet the requirement for constantly changing skills.

The challenges industrial corporations and organizations, such as those within the OGBI in Qatar, face in the knowledge-based economy are increasing profitability and competing globally. Apart from the normal means of achieving financial and productivity goals through advanced technology, these corporations must expand beyond their current boundaries to meet these challenges. Education, as invested by government, and training, as invested by corporations, should enable corporations to create the opportunities to meet the demands of the new economy. If, therefore, the industry's workforce lacks employees equipped with the skills necessary to perform their tasks efficiently, corporations will not be able to operate in such a competitive sector. This means greater training efforts are needed to meet the job requirements of a variety of industries.

The workforce is not generally equipped with the required competitive skills through the formal education system. This suggests a possible option for developing workers' skills in the production sector, which is generally capital intensive and requires a qualified workforce to carry out its complex tasks. The available option is to fill such a gap by increasing the coverage of the school system through intensive compensatory training programs especially of young people (i.e. high-school graduates). The global tendency within manufacturing industry today is to assign companies all kinds of responsibilities, including that of skills training, which had traditionally been provided by the formal/public education system. Thus, training is crucial in any attempt to improve productivity levels within the production sector.

#### **4. LITERATURE REVIEW**

Different studies have examined the impact of education on particular sectors within an economy. Using industry level data for 61 branches of U.S. manufacturing over the 1960-80 period, Bartel and Lichtenberg (1987) found that the relative demand for educated workers was greater in sectors where more advanced capital equipment had been installed. In the same vein, Wolff (1996) found that in U.S. industries in the period 1970-85 the growth of cognitive skill levels among employees was positively correlated with indicators of recent technological change, including computer intensity. Furthermore, Griliches (1970) uses industry-level manufacturing data from the U.S. to determine whether labour "quality" is correlated with greater output and found out that education has a positive impact on output.

In examining the relationship between education and productivity in the manufacturing sector in Ghana, Jones finds evidence that workers with tertiary education are more productive than those with secondary schooling, workers with secondary schooling more productive than those with primary education, and workers with primary education more productive than those with no formal education. In addition, she also found that workers with vocational training are more productive than those with secondary education (2001: 75). This, in turn, may reflect

the fact that manufacturing industry is shifting towards skilled, well-educated, labor. In this regard, Berman, et al. found that there was a shift in demand away from unskilled and towards skilled labor in U.S. manufacturing over the 1980s, which was due to the increased use of skilled workers within this sector (1994: 367).

As to the empirical literature aiming to directly quantify the contribution of training to workers' or a company's productivity, several studies do indeed show a positive impact on productivity. Generally, the estimates range from very large effects (Bartel, 1994) to minimal effects (de Koning, 1994). Benefits from training investment in the firms include different effects for workers, besides higher company productivity, such as a positive influence on subsequent occupational status (Greenhalgh and Stewart, 1987) and the likelihood of promotion (Bishop, 1990).

In terms of educational attainment for example, it was found that inappropriate educational background and lack of training were major obstacles contributing to the limited improvement and development of workers' competence and performance in the Omani Chemical Industry (Al-Muqbali, 2002.:284). Al-Muqbali also found that the lack of firm-specific training has not only kept the production workers within the chemical industry away from carrying out certain production tasks but also inhibited them from learning, acquiring and developing new skills and competencies (ibid.: 290), that may ultimately develop their performance and hence industry's productivity.

Within the petroleum industry, it was found that training may not be oriented towards enhancing and developing national workers' skills if this was associated with different problems. In this context, Abdelwahab indicates that lack of incentives, shortage of training staff, their qualifications and their training and development as well as the un-preparedness of managers, supervisors, and experienced colleagues to train others demonstrates how the training of nationals can be affected (1992: 333), and hence their acquisition of skills and knowledge may not be achieved. Accordingly, he stressed that training of training staff, at all levels, is essential to prepare them to train others and to ensure that transferred knowledge and skills are efficiently acquired (ibid., 354).

## **5. RESEARCH METHODOLOGY**

### **5.1 Objectives of the Study**

The purpose of this paper may be summarized by the following objectives:

1. To examine the relationship between the educational attainments of the industry's employees and the formation of their specific human capital through training.
2. To assess the training programs effectiveness and the its relation to promotion

3. To examine to what extent educational attainment of Qatari workers within the OGBI is adequate/matching their current job-tasks, to what extent Qatari workers need training programs to develop their job-related skills, and how far the OGBI is committed to the provision of educational opportunities for Qatari workers within the industry.
4. To suggest and set a strategy in which the future national human capital can be formed through training in the OGBI in more developed terms according to the concluding findings within the current study.

### **5.2 The main Questions of the Study**

The current paper investigates the following questions:

1. To what extent do the OGBI provide educational and training opportunities to national Qatari workers?
2. To what extent do Qatari workers' educational attainments affect the effectiveness of their training programmes, and related practices?
3. To what extent do other practices such as promotion and training difficulties influence the training of Qatari workers within the OGBI?

### **5.3 The Significance of the Study**

The current research is investigating the effect of education at OGBI on training. It endeavors to analyze the influence of such a relationship on the effectiveness of national workers' training within the investigated industry. This study will attempt to analyze the effectiveness of training according to the trainees' perspective, and its related issues as promotion. In addition it will contribute to the general literature in this field, because it is the first study to examine this issue, particularly with regard to the OGBI. It is also the first study to link educational attainment, as a prime factor, to training in a very significant industry in Qatar. Thus, the most significant aspects of this study pertain to the state of human capital in the OGBI in Qatar.

This paper is of descriptive type of research, which is a form of conclusive research that focuses on an accurate description of the variables under investigation. Usually such studies are based on the nature of the research problem and its objectives. In order to gather information relating to the context of the present study and also to provide an assessment of the general background of the study, a wide range of related primary and secondary sources, both published and unpublished documents, were used intensively. The best known resource of primary data collection in the social sciences in general is the survey, which includes structured or semi-structured data collection methods. Official documents and publications along with relating literature review were used as a major source in supporting the background of this study.

### **5.5 Sample of the Study**

The population for this study is comprised of Qatari nationals working at the OGBI. Since the core subject of this study is related directly to employees, junior and senior-level employees were targeted to participate in the study. However, this sample is heterogeneous in terms of different personal characteristics such as age, gender, educational level, and length of service within their position. Accordingly, stratified sampling was used in this study to provide a greater accuracy in comparison to a simple random sample. In addition, this type of sampling is used in order to ensure that different types of respondents are correctly and adequately represented in the sample.

A total of (350) questionnaire, were circulated to potential respondents chosen from the investigated industries. A total of 193 usable questionnaires were returned, giving a response rate of (72%).

### **5.6 Questionnaire**

The research methodology used both quantitative and qualitative methods of data collecting on a complementary base of each other. In order to gather information relating to the context of the present study and also to provide an assessment of the general background of the study, a range of related primary and secondary sources were used as well. However, related literature review was used as a major source in supporting the background of the study. The following research methodology was employed in Qatar Oil and Gas Based Industry.

Following a review of the literature in the field of training, a questionnaire was developed and included directs questions relating to training. In addition, the questionnaire included related demographic questions to provide additional information regarding the subject matter. A five-point Likert scale is used to represent the degree of a respondent's agreement and disagreement with statements ranging from "strongly disagree" to "strongly agree".

Pre-testing is very important stage in the questionnaire reinforcement process, prior to finalizing questionnaire. The completion of the pre-test provided some valuable comments on related aspects, which in turn ensured that the questionnaire was directed towards the data needed to accomplish the objectives and questions of the study. As a result, the questionnaire's questions were revised and readjusted before their final distribution amongst population within the investigated sector. Each participant was asked to complete one self-administered questionnaire presented in both languages: Arabic and English.

### **5.7 Statistical Methods**

In order to analyze the results and findings of the study, descriptive statistics and cross-tabulation is applied to determine the presence and degree of association, or absence, of a relationship between any pair of variables chosen to be analyzed. It is also used to explore how demographic variables are related to various attitudes and behaviours, and to analyze how one behavioural attribute is related to another. It also allows examining frequencies of observations that belong to specific categories or more than one variable. For the sake of expressing the relationship between any two variables, the correlation coefficient is usually computed. Nonparametric equivalents to the standard correlation coefficient are Pearson chi-square and Spearman correlation test. In addition, Mann-Whitney U test was also used to examine the attitudes of the trainees towards related issues as promotion.

## **6. ANALYSIS AND DISCUSSION**

### **6.1 Respondent's Background**

Table 1 shows that the highest proportion of participants in the current study were from QP (27.5 %) in comparison to other investigated companies where their participants constitute 15.5% in both QAFCO and Q-Chem, 15% in QAFAC, 14% in QAPCO and 12.4 % in QVC. The high percentage of participants of QP is not remarkable since this company is considered not only the major company in the oil and gas industry but also the largest company in terms of size, employing 73.5% of the total workforce in the OGBI. In terms of job classification, it was found that the proportion of senior and junior staff participants' constituted 50.3% and 49.7% respectively.

The results show that the vast majority of respondents (80.8 %) were males, while the percentage of female respondents was 19.2%. Indeed, the participation rate of females in the survey is higher than their participation rate in the industry where they constitute only 6.6% of the total workforce, which is due to the nature of the industry and the working environment: in remote areas, hazardous, with long working hours and lack of suitable job opportunities, which made the participation of women in the industry even lower. There is a similar situation in the Arab Gulf states. For example, Al-Muqbali (2002: 152) found that female participation in the chemical industry in Oman accounted for only 11.4%.



Table (1) Summary of Respondents' Backgrounds

Background Information	Frequency	%
<b>Company</b>		
QP	53	27.5
QAPCO	27	14
QAFCO	30	15.5
QAFAC	29	15
QVC	24	12.4
Q-Chem	30	15.5
<b>Job Classification</b>		
Senior Staff	97	50.3
Junior Staff	97	49.7
<b>Gender</b>		
Male	156	80.8
Female	37	19.2
<b>Age</b>		
Less than 20	26	13.5
21-30	99	51.3
31-40	44	22.8
41-50	17	8.8
51-60	6	3.1
<b>Working year with the company</b>		
Less than 5 years	130	67.4
5 – 10	19	9.8
10 – 15	18	9.3
15 – 20	18	9.3
20 +	8	4.1

The highest proportion of respondents according to their age-groups was found in the 21-30 group whose participants constitute 51.1% followed by the 31-40 age-group. The high percentage of young workers, i.e. the cumulative percentage of first two age-groups accounting for 64.8%, may suggest the industry's high interest in employing these age-groups which are considered the most productive. In addition, such a situation may also refer to the implementation of the 'Qatarization' process within the industry, which emphasizes the recruitment of high-school and university graduates most of whom are classified in the younger-age groups. Furthermore, it may also refer to the changing attitudes towards industrial employment amongst young Qataris and their willingness to join such a sector, either to move away from government employment, obtain wider experience or benefit from the sector's educational, training and financial schemes, as confirmed by the majority of high school students and new recruits in the investigated companies.

With regard to the job positions' classification, results indicated that the vast majority of respondents 66% are classified as technicians, whereas 32% are classified as administrative workers. The number of Qatari workers in the OGBI has increased over recent years and is expected to increase even more under the strategy of 'Qatarization'. The results showed that 67.4% of the respondents had been appointed within the last five years.

Statistically, Pearson's correlation test has indicated a strong relationship between working years and age of respondents as  $r = 0.537$  and  $p < 0.01$ . In turn, such a correlation may confirm that a large number of Qatari workers have been employed in the OGBI over the last 10 years, which may be interpreted either as the success of 'Qatarization' over the last decade and hence increased participation of nationals in the industrial sector or as, indicated above, the changing attitudes of Qatari graduates towards industrial employment as stressed by some of the recent Qatari recruits who confirmed that 'the brilliant future of the industry besides its financial and educational benefits' are the most significant reasons for joining the industry'.

Additionally, from their initial low participation rate in the industry Qatari females have been more eager and willing to seek employment within industry in recent years. The over-employment in the government sector by national females especially in the education sector, the emergence of the unemployment phenomenon among graduates, and the changing attitudes towards new jobs and positions especially within the public, mixed and industry sectors has encouraged Qatari females to join the industry sector.

In terms of working year with the company, the results showed that 67.4% of the respondents had been appointed within the last five years, out of which 51.3% are males and 16.1% are females, followed by 9.8% within the previous 10 years (7.3% males and 2.6% females). Statistically, Pearson's correlation test has indicated a strong relationship between working years and age of respondents as  $r = 0.537$  and  $p < 0.01$ . In turn, such a correlation may confirm that a large number of Qatari workers have been employed in the OGBI over the last 10 years, which may be interpreted either as the success of 'Qatarization' over the last decade and hence increased participation of nationals in the industrial sector or as the changing attitudes of Qatari graduates towards industrial employment as stressed by some of the recent Qatari recruits who confirmed that 'the brilliant future of the industry besides its financial and educational benefits' are the most significant reasons for joining the industry'. On the other hand, there was also another significant correlation between working years and gender as  $r = -.204$  and  $p = .004$ , with recent years appointment associated with higher recruitment of Qatari females, where they accounted for 83.8% of total female respondents that were appointed in the last five years. Indeed, such a result may refer to the implementation of 'Qatarization' strategy which emphasizes the employment of Qatari females in the industry.

## **6.2 Educational Variables**

### **6.2.1 Educational Attainment**

Results indicated that most Qatari workers within the OGBI who participated in the survey were graduates, at the time of their appointment, of secondary education (51.3 %) in comparison to graduates of university education (33.6%, N=64), while other certificate holders were less represented (7.3% technical secondary, 4.7% less than secondary education, and 3.6% post-university education). In response to the second question as to whether their education was upgraded within their current company, and though the OGBI emphasis is on providing educational and training opportunities for Qatari workers and confirmed by many interviews, it was revealed that 67.4% of Qatari participants indicated that their education was not upgraded, 31.1% (secondary), 29% (university).

On the other hand, participants whose education was upgraded within their current company constituted 32.6% of total respondents, out of whom 20.2% were secondary certificate holders. This may be interpreted in the context of training significance in developing workers' specific-skills rather than education within the OGBI. However, according to the personal interviews with both workers and managers, it was indicated that workers who are encouraged to learn are more willing and able to meet the needs, goals and objectives of the firms. Furthermore, managers stressed that providing workers with educational opportunities creates a workforce capable of applying all the benefits of learning to the growth of their firms.

Thus, it may be concluded that though providing educational opportunities in the OGBI is significant in creating a desirable workforce, training remains a higher priority since it is more effective in developing and enhancing workers' general and specific skills. This is also perhaps due to the fact that education is a long-term process that not only generates general-skills but also needs to be complemented by training, while training is a short-term process reflected in direct results. In addition, it may be argued that on-the-job training directs workers towards specific required tasks and gives them a greater opportunity to grow professionally.

Nevertheless it was reported from different interviewees that Qatari workers are more concerned with educational opportunities than training. This is basically due to their desire to upgrade their job-classification from junior to senior staff, which usually relates to higher wages and financial benefits either within the industry, as promotion and related incentives, or within the government as benefiting from the 'land and loan' governmental grant.

On the other hand, the results of respondents' current educational attainment shows that only 6.7% and 5.7% respectively hold technical secondary and diplomas, which underlines the argument regarding low educational outcomes. The majority (46.1%) held university degrees, followed by those with secondary certificates (41.5%). According to these results, it can be deduced that the majority of Qatari workers in the OGBI mostly hold secondary and university qualifications, which may reflect the OGBI's lack of interest in employing workers with less than secondary education, considering secondary education as the minimum accepted attainment among OGBI workforce. In this regard, a study conducted among operatives within heavy industry in Saudi Arabia, Aramco, Samref, and Yanpet, revealed that the majority of operatives (65.9%) were also holders of high school certificates (Al-Zalabani, 2000: 265), which emphasizes the significance of this education category in the middle-level technical positions. However, another study found that among 15.4% of the total number of Qatari workers in the manufacturing sector, 16.7% were holders of university degrees whereas 15.7% were holders of secondary and diploma certificates (Al-Misnad, 2000: 33-44).

Generally, these results may reflect the industry's strict and prudent policy in implementing the recent 'Qatarization' strategy, which started in 2000, which emphasizes the quality aspects of recruiting more-qualified, secondary education and above, workers at the expense of the less-educated workers achieving below secondary level. In addition, it may also indicate a positive shift in the attitudes of the new Qatari generation towards technical jobs and hence joining the industrial sector either as a result of over-employment within the government sector or as a result of the newly emerging phenomenon of unemployment amongst young people.

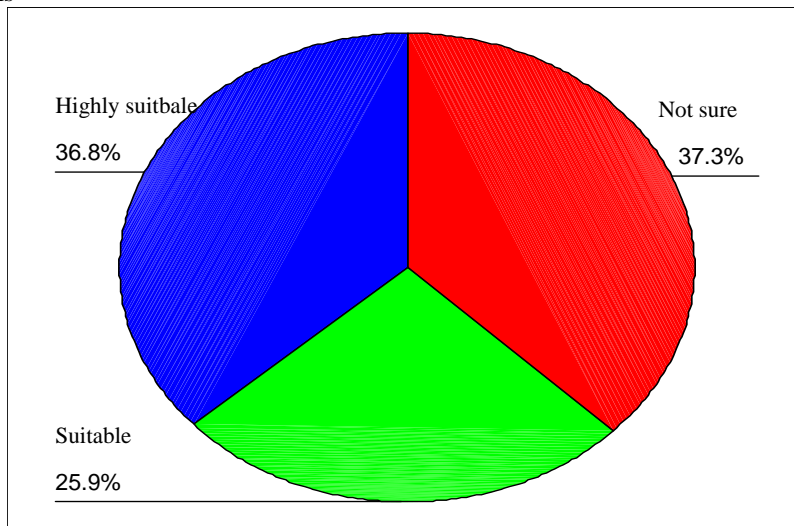
### **6.2.2 Educational Attainment and Suitability/Adequacy with Current Job**

Results show that 37.3% of Qatari workers indicated the neutral response "adequate", while 36.8% conceived that their current educational attainments are 'highly suitable' followed by those who indicated 'suitable' (25.9%), which together indicate that a majority of respondents (67.7%) are not only 'satisfied' with their current educational attainment in managing their current job's tasks, but are also endeavouring to enhance their qualifications by further training programmes as 82.4% indicated their need for further training in comparison to 17.6% who indicated that they do not need further training.

In determining the statistical significance of the relationship between education/job suitability and respondents' educational attainment, the Pearson chi-square was performed and resulted in the value of 4.972, with 6 degrees of freedom, and associated level of significance of 0.54 which is larger than the alpha value of 0.05. This implies that the relationship between the two variables is not statistically

significant, and hence not correlated, which in turn may stress the above argument that within the OGBI, training is of greater importance when compared to education.

Figure 1 Educational Attainments and its Adequacy to Respondents' Current Job's Tasks



However, such findings maybe worth more investigation especially from the human capital theory perspective. The theory suggests that the ability to absorb new knowledge and acquire new skills depends on the amount of knowledge and education accumulated in the past. This may suggest that Qatari workers within the OGBI with lower educational attainment, i.e. secondary, are less able to absorb knowledge and specific-skills and that such a level of education is not adequate to allow them to manage their jobs effectively. As shown above, 62.7% of respondents had indicated the 'suitability and 'high suitability' degree between their educational attainments and their current job tasks. This may indicate that the majority of Qatari workers employed in the OGBI, even those with higher educational attainment such as university graduates, are emphasizing that they enhance and develop their specific job-related skills, absorbing knowledge and acquiring new skills through on-the-job training rather than education.

As a result, the above argument of human capital theory regarding the significance of accumulated knowledge and hence educational level in absorbing and acquiring specific skills can apply in general to any industrial sector, as within the OGBI, but with greater emphasis on the significance of training. As Lall argued (1991: 136) though formal education may create basic, or sometimes simple, skills that may be relevant to industry, such skills may only serve the needs of small-scale industries.

For a higher level of industrialization as within the OGBI, both technical education and on-the-job training are essential to meet the requirements for new skills needs. These results were also confirmed statistically with a Pearson chi-square value of 19.864 and 2 degrees of freedom (df) and a very strong level of significance of 0.000, which suggests a strong relationship between degree of education/job suitability and respondents' need for further training programmes, particularly with those indicating their 'neutral, not sure', responses.

On the other hand, the Pearson chi-square indicated no association between the need for further training programmes and respondents' educational attainment. With a value of 2.390, 3 degrees of freedom and a significant level of 0.49, which is greater than the alpha level of 0.05, this suggests that there is no relationship between the two variables. The general conclusion that can be drawn from such analysis is that in an industrial sector, such as the OGBI, education is significant in providing workers with general skills but not specific ones, which in turn points to more important issues in the OGBI, in Qatar in general and in the industrial sector in particular, regarding the significance of continuous training in developing workers' specific-skills.

Table 2 Respondents' Educational Attainment and Suitability with Current Job \*  
 Need for Further Training Cross-tabulation

		Educational attainment and suitability of current job			Total
		Not sure	Suitable	Highly suitable	
Do you need further training program?	Yes	Count 70	40	49	159
		% of Total 36.3%	20.7%	25.4%	82.4%
	No	Count 2	10	22	34
		% of Total 1.0%	5.2%	11.4%	17.6%
Total		Count 72	50	71	193
		% of Total 37.3%	25.9%	36.8%	100.0%

However, training seems to be of great significance in filling gaps between formal education and workplace skills (Anderson, 1993: 1). Accordingly, whenever learning of basic and general skills through formal education is lacking, upgrading skills within any industry through training is not only a hard task but may affect the growth and productivity of the industry. In response to the above findings, that stress the absence of any correlation between respondents' educational attainment and their job suitability, as well as their need for further training, one may suggest that education in Qatar plays a significant role in generating and enhancing general skills among nationals, at least from the workers' perspective. This is evident in the above results, and it affects their ability to absorb and acquire specific skills within the industry.

It is true that educational institutions may not provide the OGBI with the required qualifications, quantitatively and qualitatively. However, it seems that formal education in Qatar, though isolated from the labour market, industry, and the economy, is generating a 'good level' of general-skills, especially among technical secondary graduates, which will have a positive effect on the workers' ability to generate their specific skills through training in the OGBI. However, if such education is more effective in developing nationals' general skills, then this increasingly strong foundation would have a positive effect on the occupational qualifications of those graduates, leading to success in their transition into employment, and hence developing their specific skills.

On the other hand, while the results may reflect this fact, they also underline the significance of training in creating and developing workers' specific skills, which ultimately indicates that education in itself is not enough in operating and managing an industrial sector, rather it should always be complemented by training. The fact that was noted by Middleton et al (1993), who argues that while general education provides students with broad knowledge and basic skills, training develops specific skills which a worker is expected to use on the job. This may imply that human capital formation in the industry is a continuous process that begins with general skills' formation through formal education and ends, and continues, with specific skills' formation through continuous on-the-job training in the industry.

### **6.3 Training Objectives and Achievement**

The results indicated that the main objectives of training amongst the majority of respondents were represented in 'enhancing current job-related skills' (82.9%) and 'obtaining new job-related skills' (68.4%) followed by 'implementing new production/technology' and 'increasing wages and promotion,' constituting 66.3 and 64.8% respectively. Other objectives revealed to be less significant were 47.2 and 28.5% of respondents who indicated other objectives such as 'developing general skills' and 'according to employment' as the main objective of their training programmes. In terms of the latter, though the employment agreement of any new Qatari worker within the OGBI stresses training as a preliminary condition before those workers can be post-holders, it was remarkable that only 55 Qatari workers conceived such a factor as the main objective for their training. This may support the above finding that Qatari workers are more "... interested in developing their technical skills even if they decide to leave the industry" as some interviewed workers had confirmed, since such "training is ultimately enhancing their skills though it may not be fully utilized in other jobs or sectors".

According to the above results it seems that Qatari workers are looking to enhance and develop their current job-related skills in comparison to other objectives, but the question that arises is to what extent such an objective has been met and achieved.

Indeed, it was indicated that only 23.3% had 'highly achieved' such an objective and that 39.4% of respondents had indicated that they had achieved the objective of 'implementing new production/technology'. It was also revealed that only 11.4% of respondents had 'highly achieved' their objective of 'increasing wages and promotion'. Generally, training within the OGBI is usually designed to reach a particular objective and confirmed by most training managers within the OGBI, such as those listed above which are related directly to the development of workers' skills and/or company performance and production process. However, increasing wages and promotion, though indicated by 64.8% of Qatari workers as a main objective of joining a training programme within the industry, is not the major objective either when designing these programmes or when targeting particular workers.

The correlation results revealed a significant relationship between respondents' educational attainment and obtaining new job-related skills as  $r = .261$  and  $p < 0.01$  (.000), enhancing current job-related skills as  $r = .326$  and  $p = .000$ , increasing wages and promotion as  $r = .271$  and  $p = .000$ , and general skills as  $r = .195$  and  $p < 0.01$  (.007). Such statistical findings may confirm the human capital theory argument that stresses the importance of the level of accumulated knowledge through education to absorb new skills. It may also suggest that the higher the educational attainment of the worker, the higher the degree of achieving the training objective. For example, it was found that respondents with university degrees had recorded the highest percentages in achieving, to a high level, the above objectives, where they accounted for 44.9, 36, 46.1, 19.1, and 47.2% respectively among the other respondents' educational levels. On the other hand, statistical results also revealed that there is no relationship between the respondents' educational attainment and the achievement of implementation of new production/technology, which may suggest that such an objective is influenced directly by workers' training rather than his/her educational attainment.

#### **6.4 Training Effectiveness**

Indeed, a majority of respondents 'agreed' on the effectiveness of training in developing their general-skills (93.3%), specific-skills (88.1%), know-how skills (83.9%), multi-task skills (83.4%), solving job-related problems skills (67.8%), managing complex skills (65.1%), job positions (57.0%), and finally upgrading their wages and promotion (44.6%). Training related factors were also perceived by respondents as effective in their training programmes as the results revealed. A majority of respondents agreed on the effectiveness of their training curriculum (84.5%), which coincided with training objectives (70.5%). In addition they also indicated the effectiveness of teaching staff (81.4%), facilities (69.4%), and length (69.9%).



Table 3 Spearman Correlation Test: Current Educational Attainment

Dependent Variable	Independent Variable: Current Educational Attainment	
	Correlation Coefficient ( r )	Sig. ( p )
Targeting right workers	r = .038	P = .604
Availability of training facilities	r = .043	P = .552
Understanding of training objectives	r = - .025	P = .730
Related training curriculum & objectives	r = .055	P = .443
Efficient teaching staff	r = .082	P = .259
Adequate training length	r = .032	P = .660
Developing specific- skills	r = .174*	P = .016
Developing multi-task skills	r = .078	P = .278
Managing complex-tasks	r = .155*	P = .032
Solving job-related problems	r = .230**	P = .001
Developing know-how skills	r = .180*	P = .012
Developing general-skills	r = .219**	P = .002
Developing job position	r = .193**	P = .007
Improving wages & promotion	r = .278**	P = .000

\* Correlation is significant at the .05 level

\*\* Correlation is significant at the .01 level

The above results answer the study's question regarding the effect of respondents' educational attainment on the effectiveness of their training programmes. In order to enhance such results statistically, it was further tested by the Spearman correlation test. According to these results, it is apparent that such correlation is significant in developing some skills and insignificant with others. First of all, it is clear that respondents' educational attainments do not affect training factors such as related objectives and curriculum, length, teaching staff and facilities, since the significant values of these variables are greater than the alpha value of 0.05.

The general conclusion from this result is the fact that workers' educational attainment did not affect the effectiveness of training factors such as facilities, teaching staff, etc., since such factors should be provided by the firms, thus benefiting all the workers within the industry regardless of their educational attainments. Any difficulties with these factors may, therefore, hinder the training process itself. In other words, training may not be orientated towards enhancing and developing workers' skills if it is associated with different problems. Secondly, a remarkable fact needs to be highlighted regarding the absence of a significant correlation between respondents' educational attainment and their job-education adequacy. This is represented in the significant correlation between the respondents' educational attainment and their evaluation of their training programmes in forming

their human capital within the industry. According to the Spearman correlation test (Table 3), the most significant correlation seems to be within developing respondents' know-how skills ( $r = .180$  and  $p = .012$ ), specific-skills ( $r = .016$  and  $p < 0.05$ ), managing complex tasks ( $r = .155$  and  $p < 0.05$ ), solving job-related skills ( $r = .230$  and  $p = .001$ ), developing their general-skills ( $r = .219$  and  $p = .002$ ), enhancing their career positions ( $r = .193$  and  $p = .007$ ), and finally improving their wages and promotion prospects ( $r = .278$  and  $p = .000$ ). According to these findings, the research shows that in the OGBI the effectiveness of these training programmes is greatly influenced by the respondents' educational attainment, with a strong association between higher levels of educational attainment and effectiveness of training in enhancing and developing the various skills required within the industry.

Accordingly, because the OGBI is constantly changing, workers need to improve their current and existing skills and acquire a wide range of technical skills that will keep them up-to-date with new methods and technology. Thus, training when allied to a 'good' level of general skills, i.e. secondary education and above, seems to be very important in enhancing skills and generating a flow of information and understanding that will allow the effective accomplishment of certain tasks within the industry. However, it has been shown that workers with no qualifications or intermediate-level educational qualifications have high returns from training (Blundell, et al, (1996). Investigating such a finding within the current study revealed, to some extent, a similar result.

As Table 4 shows, it is true that respondents with higher educational qualifications, such as university degrees, had clearly benefited from training in forming their skills, but it should be noted that such benefits, and hence correlation, had been with particular skills such as developing specific skills, 92.2%, solving job-related problems, 77.5%, and increasing their wages and promotion prospects, 58.5%. Nevertheless, an unexpected result was also found in the fact that respondents with lower educational qualifications had higher returns from training, as was the case with technical secondary certificate holders, where training was very effective in increasing their ability to manage multi-tasks, 92.1%, to manage complex tasks, 77%, develop their know-how skills, 92.3%, and develop their general skills, 100%, which may highlight the significance of technical education in influencing the skills' formation process within industry.

Table 4 Respondents' Current Educational Attainment \*Training Effectiveness Cross-tabulation\*

Item/educational level	General Second.		Tech. Second.		Tech. diploma		University	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Developing specific-skills	67	83.8	11	84.6	10	90.9	82	92.2
Developing multi-tasks	64	80	12	92.1	8	72.8	77	86.5
Managing complex tasks	44	55	10	77	8	72.7	64	71.9

Solving job-related problems	46	57.6	10	77	6	54.5	69	77.5
Developing general-skills	60	75	11	92.3	10	90	80	89.8
Developing job-position	71	88.8	13	100	11	91	95	95.5
Improving wages & promotion	36	45.1	8	61.6	5	95.5	61	68.6

\* Only agree and strongly agree responses are presented here, which are combined together

However, the main conclusion that can be drawn from these results is represented in the significance of education in the effectiveness of training in creating workers' skills and knowledge as the human capital theory stresses. However, another important result is represented by the fact that it is difficult to generalize the argument that the higher the educational qualifications, the higher the returns on training, as the above findings suggest. This may suggest the significance of technical education, at least in comparison to general secondary education, in forming both general and specific skills. Though technical education in Qatar is not a major source of qualified people, it seems that, according to the above findings, this type of education is a 'good' source of the technical skills required by the industry, and technical education graduates have an enhanced ability to absorb new general and specific knowledge and skills.

### 6.5 Promotion

Respondents were asked to indicate the kind of promotion/remuneration they had obtained when completing their training programmes. The results show that 41.5% of respondents did not have any kind of promotion/remuneration after the completion of their training programmes in comparison to 27.5% who were promoted, 25.4% who had an increase in salary, and 5.7% who had other types of promotion such as a letter of acknowledgement, appreciation and encouragement by direct department/section manager, and another training programme. In fact, such a result should be considered seriously, particularly amongst workers with secondary certificates, whose cross-tabulation results indicated that about 19.7% in this educational category did not have any type of promotion, only 11.9% had monetary rewards, and 7.8% were promoted. However, this is also the case with university graduates where about 15% indicated that they did not have any kind of promotion when their training programme was complete.

The above finding suggests the absence of a significant correlation between respondents' educational attainment and promotion, a fact that was statistically confirmed by the Pearson correlation test which resulted in the coefficient correlation ( $r$ ) value of 0.000 and level of significance of 0.99, which is greater than the alpha value of 0.05. Nevertheless, it may also be concluded according to the above results that completion of any training programme does not necessarily coincide with any promotion or reward. Indeed, such an argument maybe supported by the above

findings, especially by the fact that 41.5% of respondents indicated that they did not have any kind of promotion or rewards after the completion of their training programmes.

In this context, Al-Kuwari (2000: 240) found that promotion practices within an oil company, QP, that recognize and acknowledge employees' work efforts and allocate rewards to those with high levels of performance are likely to have a positive effect on work motivation and organizational commitment. On the other hand, the significance of 'lack of financial rewards' as presented as a lack of incentive, is a major obstacle of training within the OGBI, and lack of promotion can be justified from the human capital theory perspective. This theory assumes that individuals are motivated to invest in their human capital, education and training, with the expectation that such an investment will increase their future earnings. Though this argument applies from the individual perspective in terms of bearing the cost of such an investment, it is believed to be a great influence even when such an investment is fully financed by the firm, as within the OGBI. The lack of such future value for their new acquired skills, such as training incentives and promotion, had, statistically, affected Qatari workers' (chi-square =50.130, df = 3, p = .000) human capital.

#### **6.6 Training Difficulties**

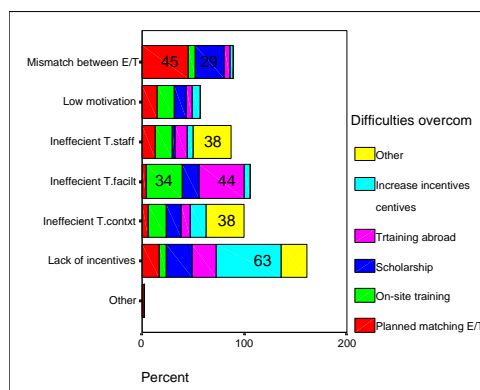
In order to identify the effect of the educational attainment of Qatari workers within the OGBI on their training programmes, respondents were asked what they considered to be the main obstacle of such a process. While the results show variations among respondents in this matter, which may be related to different personal-demographic variables, the majority of respondents (27.5%) indicated that the main obstacle to proceeding with their training programme is lack of incentive. However, such a result may point to the significance of incentives from the point of view of workers, the majority of whom (41.5%) indicated earlier that they did not have any promotion rewards when completing a training programme. Indeed, lack of incentives that coincide with training represented a 'setback to the development of indigenous skills' in other industries such as the Omani Chemical industry (Al-Muqbali, 2002: 170), which reflects the significance of financial rewards in encouraging the nationals to acquire new skills.

On the other hand, this may suggest that the educational background of Qatari workers does not appear to be a major obstacle since only 19.2% (N=37) indicated the significance of such a factor in hindering their training programmes, though it ranked as the second obstacle after lack of incentives. Other factors perceived to hinder training are inefficient training facilities (18.1%), inefficient training context (13%), workers' low motivation towards training programmes and inefficient training teaching staff (10.9%).

In terms of overcoming training obstacles overcoming, the results indicate that 25.4% of respondents had indicated 'planned matching between educational attainment and training context' as a major alternative to overcome training difficulty, followed by 19.7% of respondents who had indicated increasing the training incentives, 18.1% who had indicated the scholarship scheme, 17.6% who had indicated the option of training abroad, 15% who had indicated, on-site training, and finally 4.1% who indicated 'other' alternatives such as having intensive English language sessions, employing Arab instructors and training staff rather than non-Arabs, training teaching staff and instructors themselves, and improving training facilities.

The above findings, are apparently a contradictory result since previous results indicating training obstacles revealed that most respondents had stressed lack of training incentives as the main training obstacle, while the responses in terms of overcoming training difficulties revealed that a majority of respondents had stressed planned matching between trainees' educational attainment and training context as the main alternative for overcoming training difficulties. However, this can easily be explained by the fact that 59.5% of those who had stated the mismatch between educational attainment and training context as a major difficulty had indicated that planned matching between educational attainment and training context is the right solution to overcome training difficulties. And 45.3% of those who had stated lack of training incentives as a major obstacle, had indicated increasing such incentives as the alternative. Furthermore, 42.9% of those who had stated that inefficient training of teaching staff was the major obstacle of their training programmes had indicated that overseas training was a high priority, where 23.8% who had considered inefficient training facilities as hindering their training had indicated on-site training as the method to overcome such inefficiency, and finally 20% of respondents who stressed the inefficiency of the training context indicated that on-site training and a scholarship scheme was the right alternative .

Figure 2 Qatar Workers' Training Difficulties \*Difficulties Overcoming Cross-tabulation



Informal discussion with a number of Qatari workers revealed that they felt that even though the nature of their jobs in the OGBI differed from other industrial occupations within the industrial sector in terms of skills requirements, training remained of great value in supporting them with specific skills. Thus, planned matching between trainees' educational background and training context is very significant to achieve the required objectives of the training programme effectively. Simultaneously, the hazardous nature of technical occupations in the OGBI, as in the operation and production fields, involves a higher degree of risk in comparison to other industries. Although, the wages' structure within the OGBI is considered relatively high when compared to other sectors of the economy, especially the government sector, and to some extent other manufacturing sectors, risk remunerations do not coincide with the current working conditions, where the level of risk increases as a result of skill upgrading. Accordingly, lack of incentives, particularly of technical industrial and professional training, may decrease workers' attitudes towards such training or even the implementation of their acquired knowledge.

#### **6.7 Agreement with Training Policy**

The result, indicates that 42.5% of respondents agreed with their company's current training policy, 21% strongly agreed, 17% disagreed, and 10% of respondents neither agreed nor disagreed and strongly disagreed, respectively, with their firms' training policy. Respondents were also asked to indicate whether or not (yes or no) their current firms' training policy is in need of readjustment. The results show that a majority of workers (66.8%) believed that such a policy needed readjustment, while those who had indicated their negative thoughts of such readjustment accounted for 33.2%.

In order to highlight the significant correlation between training needing readjustment, and respondents' educational attainment, the Kruskal-Wallis H test was also used to detect differences in such readjustment scores amongst different educational categories. As the results show, there are statistically significant differences among the four categories. The Chi-square value was 9.262 with 3 degrees of freedom and a significance value of .026. In addition, the different mean ranking suggests that since the training readjust variable was coded 1 for 'Yes', and 2 for 'No', the highest educational category indicating the need to readjust training policy was found among secondary certificate holders followed by technical secondary certificate holders.

Table 5 Kruskal-Wallis Test (Test variable: need to readjust training policy)

Educational category	N	Mean
General Secondary	80	86.71
Technical Secondary	13	87.27
Technical Diploma	11	100.09
University Degree	89	107.29

Grouping variable: educational attainment

Chi-square = 9.264	df = 3	P=. 026
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#### 6.8 Significance of Education as a Pre-requisite for Training

Since the study was aiming to assess the significance of Qatari workers' educational background in relation to the effectiveness of their training within the OGBI, respondents were asked to indicate their perceptions towards such matters. The results show that a majority (41.5% and 37.3%) of respondents indicated that education is a significant and very significant, respectively, pre-requisite for the effectiveness and success of their training programmes in forming their human capital within the OGBI.

The Spearman's correlation test had indicated the insignificant statistical relationship between this variable and other independent variables such as company, age, gender, job classification, job position, and even educational attainment as the significant levels of these variables were greater than the alpha value 0.05. In turn, this may stress that respondents' perception of education as an important factor affecting their training programmes, is not influenced by their personal variables. As stressed earlier, the human capital prediction that the general-skills level, developed through education, is significant in the development of specific skills, which are formed through training, does not apply to the current study findings. Rather, it may be argued that within the industrial sector, a higher level of education is not necessary to absorb and acquire specific skills. Indeed, secondary education seems to be a good minimum level to generate and develop specific skills, but technical secondary may seem to be a better minimum level for acquiring such skills within any industry, as the current study findings suggest.

#### 6.9 Success of Education/Training Links in Forming Human Capital

Finally, respondents were asked about their evaluation of education-training close links as a significant source of forming their human capital. As result shows, 42% of respondents perceived that education and training was the significant source in forming their human capital, followed by 30.6% of respondents indicating these sources as 'very significant'.

Spearman's correlation test indicated a significant relationship between this variable and respondents' educational attainment as  $r = .199$  and  $p = .005$  with a closer association with higher levels of education. On the other hand, the Kruskal-Wallis H

test was used to detect differences in educationally significant scores across different educational categories. The results in Table 7.32 show statistically significant differences in education/training significance across the four groups. The Chi-square value was 8,984 with three degrees of freedom (df) and significant at 0.03 which suggests that there is a difference in the significant level of education and training among senior and junior workers. An inspection of the mean ranks for this group of workers suggests that since the education significance variable was coded 5 for 'very significant' and 1 for 'not significant at all', the highest significant level of education and training in forming human capital was for junior workers, whereas senior staff reported a lesser significance of education and training in forming their human capital.

Table 6 Kruskal-Wallis Test H (test variable: significance of education-training linkages)

Educational level	No.	Mean Rank
Secondary	80	87.18
Technical secondary	13	81.12
Technical diploma	11	88.73
University	89	109.17

Grouping Variable: educational attainment

Chi-square = 8.984	df = 3	P = 0.030
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## 7. CONCLUSION

Many studies have stressed the importance of human resources' education and training for increasing productivity and pointed to the high returns on investments in this field for both workers and companies. The main conclusions that can be drawn from this study, which also confirms these studies' findings, are the existence of a close relationship between formal education and training in developing workforce skills, and the significance of education as a prerequisite to the effectiveness of training within the industry in forming workers' human capital, specific and job-related skills, as the human capital theory suggests and as the above findings reveal.

However, a second noteworthy finding is that there appear to be significant differences between sectors in the validity of such an argument. For example, training within the industry, in comparison to other non-production sectors, remains of greater significance in forming both general and specific skills. This is evident in the fact that the majority of Qatari respondents had indicated the adequacy and match between their educational attainment and their current job tasks, and that the majority of respondents also indicated their continuous need for further training to enhance such skills, regardless of their educational attainments.



On the other hand, it was found that educational attainment had influenced the respondents' achievement in their training programmes' objectives as well as effectiveness in developing their skills, with closer association between such practice and higher educational attainment, which was also proved statistically by indicating a significant relationship between these variables. However, this is not to suggest that those with a lower educational attainment did not benefit from training, rather it was shown that even among those groups high returns from training in forming their skills were accomplished. In this regard, the type of education, apart from its level, seemed also to have an influence on the acquisition and developing of such skills. According to the current study findings, it was revealed that technical education had proved its effectiveness not only in achieving training objectives, enhancing and developing different general and specific skills, but also in performing more effectively than other types of education, even a university education.

For national skills to be developed effectively there is a need for constant cooperation between educational institutions, especially technical institutions, and the industry to generate and develop workers' job-related skills and hence improve their performance. At the industry level, training should continue to be a major means of generating and developing workers' specific skills and to some extent their general skills. Furthermore, internal organizational factors that affect training effectiveness such as promotion, PAS, and incentives need to be readjusted in accordance with workers' performance rather than job classification, which in turn is expected to enhance stability and the commitment of Qatari workers towards their jobs and hence firms.

It has been evident in the current study that the process of human capital formation of indigenous skills is linked, where it began with general skills developed through formal education and continued during employment through continuous on-the-job training in the industry. It was also revealed that though formal education in Qatar is quantitatively and qualitatively isolated from the real requirements of industry, i.e. technical skills, it performed well in terms of the general skills level acquired by Qatari workers within the industry. Apart from the earlier suggestion of a mismatch between formal education in Qatar and the OGBI requirements of qualified workers, it is indicated that, generally, such education performs well in enhancing the general skills of Qataris and that closer education-training links have accelerated the success of such a process. However, such education can generate higher levels of general skills, which may enhance the level of specific skills acquired through training, if a greater co-ordination between the two bodies is well planned. Thus, it may be concluded that in the absence of the above mechanisms, the process of human capital formation in the OGBI through training may continue to be hindered and remain ineffective.

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How different our lives are when we really know what is deeply important to us, and, keeping that picture in mind, we manage ourselves each day to be and to do what really matters most. If the ladder is not leaning against the right wall, every step we take just gets us to the wrong place faster. We may be very *busy*, we may be very *efficient*, but we will also be truly *effective* only when we begin with the end in mind.

**STEPHEN R. COVEY**