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# Are Graduates from the Public Authority for Applied Education and Training in Kuwaiti Meeting Industrial Requirements?

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**Abstract**
This paper examined those factors that had a direct impact on the quality of graduates from the Public Authority of Applied Education and Training (PAAE&T) in Kuwait. The study also report the degree to which the graduates met the requirements of local employers. The study consisted of: a review of the literature; a questionnaire given to a sample of students in selected departments; interviews with department heads at the PAAE&T; deans of related colleges and institutions; deans of industrial liaison offices in the selected sample of the PAAE&T; and supervisors in industry who have direct contact with prospective PAAE&T graduates; and employed graduates. This paper concluded that there was a need to develop a proper labour strategy to ensure that graduates from PAAE&T are equipped with the required knowledge, skills and attitudes to meet industry and business needs.
**Keywords:** Vocational and technical Education, developing Indigenous Manpower, Interaction between vocational and technical education and local industries and business, Kuwait.

## 1 Introduction

The importance of vocational and technical education in supplying the market place with skilled and semi-skilled manpower has been well documented in the literature. (Besnoy, et. Al. 2013, Dixon and Brown, 2012, Retallich and Miller 2010). The studies on vocational and technical education have tackled the importance of delivering quality in vocational education through total quality management, upgrading the standard of graduates as clients and satisfying customer requirements. The interaction between vocational and technical education and workplaces is considered highly significant in development and refinement of competencies, attitudes, and knowledge through formal and informal teaching methods and techniques. In fact, learning in vocational education and workplace are considered the main components of vocational and technical education (Schaap & Baartman & Bruijn 2011). Vocational education and workplace are seen as the most significant learning environment in order to acquire and integrate those knowledge, skills, and attitudes that meet the interest of both parties. (Gulikers et. Al, 2008) However, It is common that students would experience some difficulties relating to the integrating of knowledge, skills, and attitudes (Barrtman and De Bruijin, 2011), since vocational institutions are primarily based on the rationales of learning and theory, while workplaces are based on the rationales of real working and practice. (Schaap, et. al. 2011)

In most developing countries, especially in the Gulf States, the need for skilled and semi-skilled national workers is the highest government priority in national human resource development. In the Gulf States, expatriates form 58% of the total workforce. In the United Arab Emirates and Qatar, expatriates form 87% of the total workforce, followed by Kuwait at 69%, and Bahrain at 49%. Saudi Arabia and Oman are the only countries in the Gulf States with a clear majority of national labour, with nationals representing 73% and 70% of the total workforce, respectively (Centre for Middle East Commercial Information, 2011). In fact, the World Bank report has classified Kuwait as having the fourth smallest ratio of national to expatriate workers in the world. However, Kuwait is currently one of the top countries in terms of financial transfer to expatriates' countries of origin (AlRai Newspaper, Kuwait, 2010), which implies a wide gap between national labour and expatriates in Kuwait and other Gulf States. The domination of expatriates is visible in most sectors, especially manufacturing, construction, transportation, storage, communications, financial insurance, real estate and business services. The variation of national labour and expatriates is also noted in occupational groups. In 2008, there were 22,825 non-Kuwaitis amongst medical and science technicians, compared to 7,028 Kuwaitis, 120,438 non-Kuwaitis in the production sector, compared to 8,986 Kuwaitis and 24,313 non-Kuwaiti engineers, compared to 6,741 Kuwaitis (Annual Statistical Abstract 2009).

As a result, education policymakers and politicians in the Gulf States have focused on partnerships between vocational and technical institutions and local industries and business to reduce dependence on expatriates, particularly in the sectors that are most important for the national economy (e.g., oil, electricity and water, and finance). Closing the gap between such institutions and related industries and businesses as much as possible will ensure that students are well prepared for their careers. A common belief is that employers must play a vital role in the training and education of future indigenous labour. This role can manifest itself in various activities,

 

including pre-apprenticeship, joint seminars, joint research, the involvement of employers in forming future workforce strategies and plans, curriculum development, selecting and testing machines, safety and health procedures and regulation in workshops. In fact, the literature indicates that what is being taught in the classroom is quite different from what is being practiced in real life (Muskin, 1997; Tabron and Yang 1997). As a result, most developing countries seem reluctant to employ indigenous labour, preferring to rely on expatriates. Teachers have been somewhat isolated from technology as it is applied in certain industries, which is negatively reflected in the quality of the curriculum, teaching methods, research and development, and the standard of staff competency. Wash, Lovedahl, and Paige (2000) argued that for fruitful change to occur in the classroom, "…teachers need access to information concerning current practices and trends" (p. 45). Lambeth, Elliot, and Joerger (2008) identify the professional development of teachers as part of the national career and technical education (CTE) research agenda. However, they indicate that it is much more difficult to identify the training that is most appropriate and most needed by local industries and business.

In Kuwait, the Public Authority for Applied Education and Training (PAAE&T) has been established to respond to the urgent need for skilled and semi-skilled national labour. The PAAE&T consists of the College of Technological Studies, the College of Business Studies, the College of Business Education, the College of Health Service, the High Institute of Energy, the Sabah Al-Salem and Shweekh branches of the Industrial Training Institute, the Institute of Nursing, and the Higher Institute for Communications and Navigation. Special efforts were made to identify those factors that significantly shape students' knowledge, skills and attitudes and to measure employer's perceptions of the standard of PAAE&T graduates.

## 2 Research Objectives

The research objectives of this study were to examine the following:

1. Students' perception at the College of technological Studies to various academic activities.
2. Students' perception at the College of Health Science, College of Nursing, and High Institute of Energy towards those factors that have direct impact on shaping students knowledge, skills and attitudes.
3. Discussions & Conclusion.

## 3. Research Methodology

The study employed a mixed method approach (Cresswell, 2011). This included a quantitative survey that provided a large number of responses to specific questions and a series of interviews that allowed for the collection of detailed qualitative data. Three data collection methods were used in this research: a literature review, a structured questionnaire and a personal interview. The examined factors include whether students selected the PAAE&T as their first choice, student perceptions of the standard of teaching and learning, student perceptions of the curriculum quality (theory vs. practice), the quality of machines and tools in workshops, the effectiveness of industrial training programmes, the degree of industrial involvement in shaping student competence, and the quality of libraries and whether they met student expectations. A questionnaire was designed, tested and distributed to 1600 students at the PAAE&T with 1069 completed. This number represents an 67% response rate. The high response rate was achieved by administering the questionnaire at a time that was convenient to the students, being immediately after a class. The questionnaire targeted first year students, and the results were then compared to final year students. The distribution of questionnaires is shown in Table 1.

 

**Table 1: Distribution of Questionnaires at the PAAE&T**

| Name of PAAE&T College /Institutes | Selected Major | Selected Sectors | Distribution of Questionnaires in PAAE&T | | | |
|---|---|---|---|---|---|---|
| | | | First Year | | Final Year | |
| | | | Male | Female | Male | Female |
| College of Technological Studies | Electrical, Petroleum, Manufacturing, Mechanical, Production, Electronic & Computer, Chemical, Applied Science. | Kuwait Oil Company, Kuwait Petrochemical Industry, Kuwait Fleet Oil, Kuwait National Petroleum Company, Ministry of Electricity & Water, Three national banks | 181 | 82 | 173 | 185 |
| College of Health Science | Nursing, Environmental Studies, Nutrition, | | 26 | 61 | 25 | 44 |
| College of Nursing | Nursing, Medical Reports, | | 13 | 19 | 19 | 40 |
| High Institute of Energy | | | 34 | 0 | 78 | 0 |
| Institute of Nursing | Nursing | | 0 | 32 | 0 | 58 |
| Total | (1069) | | 245 | 194 | 294 | 327 |

Personal interviews were conducted with the heads of the selected departments within the investigated colleges and institutions. For example, at the College of Technological Studies, meetings were carried out with the heads of production engineering, electrical engineering, petroleum engineering, and electronic engineering. The main objective was to obtain an inside view of the most important factors determining the quality of PAAE&T graduates and to evaluate whether graduates from PAAE&T are well equipped with the necessary knowledge, skills and attitudes. Several issues were discussed, such as curriculum development, connection to related industry and business, staff competence, the evaluation system, and the quality of workshops. The research was also expanded to include meeting with heads of industrial training programmes in the selected colleges and institutions to evaluate the effectiveness of such programmes in enriching student competence. The issues raised include the length of the industrial training programme, student attitudes, the evaluation system, collaboration with a employment sector, and obstacles (if any) facing suppliers (PAAE&T) and employers. The deans of the selected colleges and institutions were also interviewed to identify and examine the colleges' and institutes' overall plans (if any) for providing employers with skilled and semi-skilled Kuwaiti labour and to pinpoint any obstacles hindering the achievement of such an aim. The investigated areas include whether the employers of PAAE&T gradates and the departments involved in selecting colleges and institutions participated in setting, implementing and evaluating the plan; whether the plan considered an overall national labour plan; the degree of success in achieving the plan's objectives; the sufficiency of the allocated resources; and obstacles in implementing the plan.

Personal interviews were also conducted with supervisors in the employment sectors who were in direct contact with PAAE&T trainees and graduates. Several aspects were investigated, such as the following: effectiveness and efficiency of the industrial training programme; students' knowledge, skills, attitudes, and problem-solving ability; the number of PAAE&T who drop out after working in a related industry; degree of collaboration between students and PAAE&T staff; students' awareness of safety and health rules and procedures; students' hours worked; students' communication skills; and whether students met overall employment requirements.

## 4 Research Findings

### 4.1 Measuring the standard of Curriculum

Vocational education has its own unique characteristics but it can be considered useless if it fails to provide industry and business with the required level of knowledge, skills, and attitudes. The success or failure of VET institutes would certainly be judged on the quality of their final product, which must meet and satisfy, to a degree, the standards set by industry and business. There was overall agreement among those interviewed (65% of selected staff) that the current curriculum in the DPE and CTS needs extensive review and assessment to ensure the embodiment of knowledge, skills, and attitudes required by local industry and business. There was also a

 

common belief that industry and business must play a significant role in curriculum development. According to the Dean Assistant of Academic Affairs, serious and sincere action is now being taken in the CTS to review and update the status of the curriculum in all specialisations. Selected students also voiced complain regarding the standard of curriculum, since 67% have noted the need to up-date curriculum to meet industrial needs. Industrialists were found isolated from taking an active role in reviewing, up-dating and evaluating the current and future curriculum. As a result, 45% of the selected students have revealed that what is being taught in class is differ from the real working place. Thus industry has to retrain students to enrich their knowledge, skills and attitudes regarding the type of technology that is being applied in their premises.

**4.2 Measuring the Status of Links between the CTS and Local Industry**

Vocational instructors will not be able to satisfy industrial needs unless they have a positive attitude towards meeting with industrialists to agree on the standard of required knowledge, skills and attitudes. Instructors' attitudes will not evolve positively unless the management of VET appreciates the role of instructors in the organisation. The majority of the interviewed instructors (55%) in the CTS agree with selected industrialist that the CTS is not able to prepare students with the required knowledge, skills and attitudes needed by industry. The findings of this research revealed that the only method of collaboration between the DPE and selected industry is through industrial training programmes and this was confirmed by 75% of the selected staff. Interviewed industrialists (Oil Sector, Electricity and Water Power Stations, Ministry of Health) were concerned about the quality of graduates from the CTS in particular, and the CTS in general.

**4.3 Measuring the Availability of an Evaluating Scheme for Instructors'Competencies**

It is a management responsibility to ensure that instructors are well equipped with the necessary competencies so that knowledge, skills, and attitudes can be successfully transferred to students. It is also a management responsibility to establish an evaluation of competencies scheme that can identify and examine the current and future competencies required by industry. It is thus, through close monitoring and reviewing of instructors' competencies, the Departments at the College of Technological Studies can achieve their objectives, particularly those dealing with supplying industry with Kuwaiti skilled and semi-skilled manpower. However, the findings revealed another weakness when no attempt was made by the college management to establish an evaluation scheme for determining the level of instructors' competencies before employment at the college. Instructors' competencies can be assessed through a questionnaire during the course, through which a sample of students evaluate their instructors in accordance with a list of competencies. Again, industry was excluded from giving feedback in relation to whether the college instructors have the necessary skills for undertaking industrial training programmes. Skills such as instructors' attitudes towards student involvement in industrial activities, solving problems, motivating students, and methods of improving learning are strongly needed to succeed in satisfying, to some extent, industrial requirements. Selected industries showed a positive willingness to collaborate with the CTS in determine the area's most needed to collaborate in order to satisfy both parties. Industries, particularly at the Oil Sector and Electricity and water Power Station ager to take an active role in shaping and developing instructors competences. As a senior engineering in Doha Power station stated "We will not hesitate to help in up-grading the standard of PAAE&T graduates, nor to collaborate with our colleagues at the concern colleges and institutions".

**4.4 Health and Safety Strategy**

As in any organisation, regardless of its size, ownership and activities, the health and safety strategy must be clearly defined, so that every member of the organisation is well aware of its contents and applications. In fact, in most organisations, employees undertake obligatory orientation seminars or courses to ensure that they all understand health and safety aspects related to their work environment.

Surprisingly, neither the College of Technological Studies educational philosophy nor its four objectives mention health and safety policy or procedures. "The College of Technological Studies established an educational philosophy in order to achieve a strategic national objective: that is, to involve the Kuwaiti people in building a productive future for Kuwait. The role of the college is to design and offer study programs, to develop the graduate with executive capabilities and grant academic credentials from vocational licences to scientific degrees". (College of Technological Studies Bulletin, 1997-98). This unsatisfactory situation presents a barrier to creating a safe and healthy work environment for instructors, students, managerial staff, and visitors. The absence of a health and safety strategy in the CTS and the PAAE&T has significantly influenced the morale of instructors and students. Despite constant exposure to danger from mechanical machines, flammable and chemical materials, and pollution in workshops and laboratories, no sincere attempts have been made to safeguard the lives of instructors and students. 75% of the selected students at the College of Technological Studies confirmed the lack of proper health and safety apparatus, 55% of the total students criticised the lack of

 

health and safety information in workshops and laboratories, 45% of the total students who felt unsafe to work with machines and tools due to lack of health and safety procedures.

**4.5 Measuring Students' perception towards Academic Standard and Facilities.**
In the College of Health Sciences, 85% of the selected students approved of the clarity of course objectives. However, they had split views on the up-to-date nature of the applied curriculum (60%), the ability of academic staff to deliver required knowledge and skills (58%), the participation of industry in teaching at the college (54%), the availability of up-to-date machines and tools (45%), the suitability of the number of machines and tools in relation to the number of students (49%), the ability to practice on related machines and tools (53%), the availability of raw materials (57%), the use of safety and health procedures (57%), the availability of recent books at the library (52%), the suitability of the duration of industrial training programmes (41%), the suitability of the evaluation system (51%), the availability of the right environment in the employment sector (46%), and the use of technology in the transfer of knowledge and skills to students (60%). Surprisingly, only 30% of the selected students agreed that the percentage of practical cases in curriculum exceeds the theoretical part. In addition, only 36% of the selected students agreed that the industrial training programme has enriched their knowledge and skills.

In the College of Nursing, only 65% of the selected students agreed that practical cases were the majority in their curriculum. In fact, 55% of the students agreed that lecturers used real cases studies in teaching, and 59% felt the curriculum was up-to-date, while 88% felt the use of medical apparatuses was up-to-date. The number of medical apparatuses in relation to the number of students was 59%, only 56% of the selected students confirm the ability to use medical apparatuses in their teaching class. Approval of the availability of medical materials was 55%, application of safety and health rules and procedure was 64%, and availability of recent books in the library was 66%, while 75% of the students agreed that the industrial training programmes had given them the required knowledge and skills and provided them the proper learning environment in the employment sector (50%). Students had a clear idea of the course objectives of the industrial training programmes (70%) and approved of the use of technology by the academic staff in teaching (70%). With respect to the Institute of Nursing, the findings seem to differ from those noted at the College of Nursing. Students have noted the lack of practical cases in the curriculum (76%), the lack of use of real case studies in teaching (65%), the absence of recent books and references at the library (70%), the inability of academic lecturers to transfer the needed knowledge and skills (55%), the unavailability of recent books and notes in teaching (55%), the lack of up-to date machines and tools (62%), the unavailability of the right number of machines and tools in relation to the number of students (64%), their inability to use medical apparatus in teaching (79%), the lack of safety and health rules and procedures (60%), the insufficiency of the duration of industrial training programmes (55%), the inability of industry training programmes in enriching students' knowledge and skills (60%), and an inappropriate working environment in the employment sector (60%).

In terms of the High Institute of Energy, the majority of students approved of the use of practical cases rather than theoretical ones (74%), the use of current cases in the employment sector (79%), the up-to-date nature of the applied curriculum (82%), the ability of lecturers to transfer the required knowledge and skills (74%), the availability of up-to date machines and tools (87%), the availability of the right machines and tools in relation to the numbers of students (82%), the availability of raw materials (77%), the application of safety and health rules and procedures in workshops (75%), the effectiveness of industrial training programmes in enhancing students' knowledge and skills (72%), the suitability of the duration of industrial training programmes (85%), and the use of technology in teaching (67%). Students complained, however, about the level of collaboration from the employment sector in providing the appropriate working environment for learning (64%).

**4.6 Measuring local perceptions of the standard of PAAE&T graduates.**
Local industry perceptions of the standard of PAAE&T graduates is summarised in Table 2.

 

**Table 2: Industry perceptions of the standard of PAAE&T graduates (weighted mean) and description.**

| Competencies | Ministry of Oil | Ministry of Electricity & Water | Ministry of Health |
|---|---|---|---|
| Attending work on time | 1 | 2 | 2 |
| Work Initiative | 1 | 2 | 2 |
| Work responsibility | 2 | 2 | 2 |
| Respecting direct supervisor | 2 | 2 | 2 |
| Relation with colleagues | 2 | 2 | 2 |
| Ability to work long hours | 2 | 2 | 2 |
| Ability to work outdoor | 2 | 2 | 2 |
| Work sincerely | 1 | 2 | 2 |
| Ability to solve work problems | 1 | 2 | 2 |
| Innovative with work | 1 | 2 | 2 |
| Applying health and safety procedures | 2 | 1 | 2 |
| Level of knowledge | 2 | 1 | 2 |
| Level of skills | 1 | 1 | 2 |
| Ability to handle machines | 1 | 1 | 1 |
| Ability to handle tools | 1 | 1 | 1 |
| Work perfection | 1 | 1 | 2 |
| English skills | 1 | 1 | 1 |

Legend: Mean Level Description

5 – above Excellent
4 – 5 Very Good
3 – 4 Good
2 – 3 Poor
1- 2 Very Poor

**5. Discussion and Conclusions**

Vocational education has its own unique characteristics but it can be considered useless if it fails to provide industry and business with the required level of knowledge, skills, and attitudes. The success or failure of VET institutes would certainly be judged on the quality of their final product, which must meet and satisfy, to a degree, the standards set by industry and business. Therefore, it is crucial for those who are managing such institutes to absorb the purpose and objectives of vocational education. It is also imperative that instructors should possess the full understanding, commitment, and capacity necessary to be able to transfer the required skills to students. Indeed, any management philosophy adopted by VET would have a significant impact on the effectiveness and efficiency of the performance of instructors.

There was overall agreement amongst those interviewed that the current curriculum in the PAAE&T needs extensive review and assessment to ensure the embodiment of knowledge, skills, and attitudes required by local industry and business. There was also a common belief that industry and business must play a significant role in curriculum development. It is worth mentioning that most of the current curriculum in PAAE&T is considered out of date. Selected students and interviewees indicated that theory and practice in the PAAE&T were not integrated as they are in industry. The research showed no sign of a sincere attempt to consult related industry and business in reviewing and developing the PAAE&T curriculum. In fact, local industry and business were excluded from taking any part in forming and upgrading the curriculum to meet employer's requirements. Therefore, the PAAE&T and industrialists continue to exchange criticism and blame for neglecting to establish proper links. This situation has been worsened by constant changes in technology in related sectors. As a result, the PAAE&T graduates have been rated "below the expected standard" and must, therefore, undergo extensive retraining to meet the standards of the workplace.

As for academic staff competencies, it is the responsibility of management to ensure that instructors are well equipped with the necessary competencies so that knowledge, skills, and attitudes can be successfully transferred to students. It is also a management responsibility to establish an evaluation of competencies scheme that can identify the current and future competencies required by industry. The issue of evaluating instructor competence was raised to the related industry, and the response confirmed the lack of interest from the PAAE&T to collaborate in this area. In fact, industry was excluded from giving feedback regarding whether the PAAE&T

 

instructors have the necessary skills for undertaking industrial training programmes. Skills such as instructor attitudes towards student involvement in industrial activities, solving problems, motivating students, and methods for improvements in learning are strongly needed to succeed in satisfying industrial requirements. Additional essential requirements include the enhancement of instructor competencies before and during their employment at PAAE&T, constant review, monitoring and developing instructor competence and student skills, encouraging industrial visits and lectures in PAAE&T, upgrading the standard of laboratories and workshops, and applying health and safety rules and procedures to instructors, students, managerial staff and visitors to ensure a healthy and safe learning environment. Surprisingly, the findings of this research show that the PAAE&T has neither a health nor a safety policy, unlike similar institutions in the U.K. Department heads must develop a departmental health and safety policy that is complementary to institutional policy to ensure the safety of their instructors, students, managerial staff, and visitors. They must also ensure that instructors and students understand all aspects of the health and safety policy, particularly those dealing with chemicals, machines, and exposure to pollution, noise, and radiation.

It is evident from this research that even the industrial training programmes have not achieved the expected objectives for several reasons: lack of a positive attitude, avoidance of outdoor work for long hours, keeping a low profile in the employment sector, low desire to learn and be exposed to the reality of one's future job, and relying on prewritten reports to present at the end of one's industrial training programme. Various initiatives to extend the scale of collaboration with related industry and business have been announced, but no action has yet been taken to implement such vital initiatives.

The issue of negative attitudes amongst PAAE&T graduates was raised in all of the personal interviews conducted in the employment sectors. These interviews suggest that PAAE&T graduates lack the necessary knowledge and skills required by the employment sectors. However, the problem also includes the issue of behaviours. The bulk of PAAE&T graduates avoid working in the field that they were trained for and are eager to transfer to another job. In fact, even those who stay at their jobs rely on non-Kuwaitis to accomplish the assigned work. The Kuwaiti civil service office guarantees a job for all Kuwaitis regardless of their work performance. The issue of negative attitudes of PAAE&T graduates must be taken seriously by PAAE&T top management if the Kuwaiti government is serious about reducing dependency on expatriates.

Dialogue between vocational educators, related industry and business, and governmental labour representatives must be encouraged. One implication of such dialogue would be an agreement on standards that would define and promote required skills. It would also contribute to developing relevant curricula for vocational courses and determine the appropriate skills required by vocational instructors, thus forming guidelines for both vocational institutions and industry and business so that they may achieve their objectives and contribute to the long-term national labour plan. It would also encourage a positive attitude amongst PAAE&T graduates could apply throughout their studies in certain programs at their colleges and institutions and provide incentive for their assigned work. If it fails to do so, Kuwait will continue to depend on expatriates for years to come.

It is a management responsibility to ensure that instructors are well equipped with the necessary competencies so that knowledge, skills, and attitudes can be successfully transferred to students. It is also a management responsibility to establish an evaluation of competencies scheme that can identify and examine the current and future competencies required by industry. It is thus, through close monitoring and reviewing of instructors' competencies can achieve their objectives, particularly those dealing with supplying industry with Kuwaiti skilled and semi-skilled manpower.

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