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How successful is the College of Technological Studies, Kuwait, in reducing dependence on expatriates?

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Abstract. No one can deny the role of technical and vocational education in the world of work. Technical and vocational education would improve productivity, increase in wages, promote self-employment, and provide an opportunity for practicing talent and creativity in work place. It is an ultimate venue for youth to gain the necessary knowledge, skills and attitudes that are mostly needed by industries and business. Indeed, it is different from a formal education where students spend a certain time in real work environment to interact with machines and tools. Technical and vocational education would allow students to work in workshops and laboratories and provide them with the ability to transfer with they learn in classrooms, workshops, and laboratories into real work place. Developing countries (e.g., Kuwait, United Arab Emirates, Qatar), has thoroughly realized and appreciate the role of technical and vocational education in reducing the dependence on expatriates, particularly in essential sectors of the economy (e.g., oil, electricity and water, constructions). Kuwait, as a developing country has recognized and appreciate the need to reduce dependence on expatriates by forging the College of Technological Studies, CTS. The main objective of the College of Technological Studies, Kuwait, is preparing students for the world of work by enhancing the level of student's knowledge, skills and attitudes that are mostly needed by local industries and business. The research paper focuses on identifying and examining the CTS student's perception towards the quality of teaching and learning. In addition to, examining industrial perception towards the standard of the CTS graduates. The oil sector and the Ministry of Electricity and Water will be selected to represent the recipients of CTS graduates. The research is based on extensive field work that encompasses a review of the related literature, questionnaires, and an interview with a sample of heads of departments at the CTS. Interviews will be also conducted with the CTS graduates' supervisor in selected industries. Finally, the research will argue that unless the CTS recognize and appreciate the value of building a strong linkage with industry, its contribution in tackling the shortage of skilled and semi-skilled indigenous manpower will be below the government expectations, thus continuing relaying on expatriates for years ahead.

Keywords. Vocational and technical Education, industrial training program, developing Indigenous Manpower, Interaction between vocational and technical education and local industries and business, quality of vocational and technical graduates, Kuwait

Introduction

The need for technical and vocational education is highly demanded in the world of work to cope with the rapid change in science and technology in industries. The high demand for products, the diversity of production processes, the high rate of unemployment, the increase rate of youth graduates, and the increase in wages level has called for urgent need for skilled and semi-skilled workforce. Technical and vocational education viewed as a “dual system”. It allows the transfer of knowledge, skills, and attitudes through a proper interaction teaching and learning system to maintain a high quality of graduates. The “dual system” would permit a significant integration of apprentices into the workforce arena that reduces the level of youth unemployment and increase skills acquisition. (Gonon, 2017) It is an opportunity to open a gate to labour market and tackling unemployment, particularly among youth. The number of employment youth increased by 4.4 million to 17.5 million. (U.S. Bureau of Labor Statistics report, 2020). The word vocational education is used frequently to refer to “the acquisition of competencies in

Various occupations along with a more broad-based general education that is necessary for taking on a fast-changing world of work”. (NEP. 2020) Technical and vocational education is not just a unique type of education but also a certified type of education that would enhance indigenous capabilities that would be able to manage, maintain, and probably adapt the imported technology to suit local environments. Technical and vocational education refer to “those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life”. (UNESCO 2020) Vocational students required to integrate their experiences from the workplace with what they learn at classrooms and vice versa. (Baartman et al., 2018) Learning that takes place at classrooms at school and colleges can be a valuable knowledge base for vocational students as they enroll at the workplace. (Kilbrink et.al., 2014; Rintala & Nokelainen, 2019) It is different from formal education that is taught in schools, colleges and universities.

Many countries, including developing countries has realized and appreciate apprenticeship as an ultimate solution for providing industries with skilled and semi-skilled workforce.

Apprenticeships is considered as another forms of work interaction learning where students not only use machines and tools but also practice their creativity and talent in a real work environment. It is a type of live learning through coaching and learning by mistake. A study for the Organization for Economic Cooperation and Development (OECD) review and examine different technical and vocational systems revealed that "after a period of relative neglect in many countries, apprenticeship and other forms of work-based learning are experiencing a revival". (OECD, 2018, p. 11) Apprentices can promote in forging connections between technical and vocational institutions and industries and business. (Caruso et. al., 2020)

Interaction between technical and vocational education is highly noted in related literature. (Interreg Europe, 2020, European Commission, 2017, Gerard and Min, 2019). Interaction between both parties (vocational education institutions and industries) in various activities such as: joint research, consulting, problem solving, curriculum development, industrial training programs, intellectual properties, and licensing. The fruitful of such collaboration would be reflected on the quality of technical and vocational graduates as well as the academic staff. In the other hand, from industrial perspective, industry would receive skilled and semi-skilled manpower, solve existing production problems, achieving profits, modifying products, reduce production cost, and contribute, to great extent, to overall country manpower plan.

Teachers' qualifications and commitments play a vital role in the success of technical and vocational education. (Fiftyana, 2018, Serafini, 2018) Teachers with high level of emotional intelligence will demonstrate a positive emotion in tackling existing teaching and learning problems more than those who have a negative emotion. A tradition education system that imposed a rigid teaching and learning techniques would be applicable for those who tend to joint technical and vocational educational system. The transfer of theoretical concepts into practical functions require a highly sophisticated skill. The success of technical and vocational education would, to great extent, relay on the competencies of teachers and trainers. (Jia et. al., 2014)

In Kuwait, according to the Ministry of Planning, the population of 4.5 million people: 1.3 million are Kuwaitis and 3.2 million are expatriates. Expatriates account for approximately 70% of the population. (Ministry of Planning, 2021). As a result, the Kuwaiti government has noted the shortage of indigenous manpower in essential sectors of the economy (oil, electricity and water, hospitals), and thus forged the College of Technological Studies. The main objective is to provide essential sectors with skilled and semi-skills indigenous manpower capable of managing, maintaining, controlling, and probably adapting the imported technology. Thus, reducing dependence on expatriates, the core objective of the country's workforce plan.

3. Research Objectives:

- a. To identify and examine student's perception towards the motive behind enrolling at the CTS.
- b. To identify and examine the CTS student's perception towards the level of knowledge, skills and attitudes obtained before graduations.
- c. To identify and examine industrial perceptions towards the quality of the CTS graduates.
- d. To identify and examine those obstacles (if any) that might affect the quality of the CTS graduates.
- e. Discussions and Recommendations.

The outcomes of the research would indeed guide the management of the College of Technological Studies, CTS, to improve the quality of their graduates. In addition, enhancing the standard of academic staff and enrich their knowledge, skills and attitudes towards strong collaboration with industries. Overall, achieving the CTS objectives in providing industries with skilled and semi-skilled indigenous manpower. Thus, reducing dependence on expatriates.

4. Materials and Methods

4.1 Design

This research consists of a descriptive survey designed to identify and examine student's perception towards the quality of teaching at learning at the CTS. The research would identify whether students acquired the necessary knowledge, skills and attitudes that are suitable to industrial requirements. In addition to, examining Industrial perceptions towards the quality of the CTS graduates. The research would focus on the requirements as well as the obstacles that may hinder the enhancement of the quality of teaching and learning at the CTS graduates as well as methods of strengthen linkage with industries.

4.2 Sample

The research would encompass personal interviews with (4) heads of academic departments at the College of Technological Studies. They are namely, Manufacturing Engineering, Electrical

Engineering, Petroleum Engineering, and Mechanical Power and Refrigeration.

Among the issued that would be discusses are: the level of students readiness to work in industry, students attitudes towards working outdoor, quality of graduates, and communications skills. In respect to industrial sample, the oil sector (5 supervisors) and the Ministry of Electricity and Water (2 supervisors in main power stations) will be selected to examine industrial perceptions towards the quality of the CTS graduates. Among the issue that will be discussed and examined are: graduates' attitudes towards working in industry, level of knowledge, skills, and attitudes, communications skills, respect supervisors, obey orders, finish job on time, and creativity and talent.

A questionnaire will design and tested to a sample of 550 students at the CTS. In all, 500 questionnaires were distributed and 650 were completed. This represents a (91%) response rate. The main objective is to identify and examine their perception of various aspects of the standard of teaching and learning at the CTS.

Among the issue that would be discussed are: whether students have chosen the CTS as a first chose rather than a university, readiness to work long hours, and obligation to complete job on time. Other aspect of teaching and learning would include: whether CTS lecturers' emphasis on creativity, follow health and safety procedures, discussed and analyzed real case studies, enhancing communication skills, and stress on work loyalty. The CTS students were also questioned to evaluate the standard of industrial training. Several issues were discussed, there are: the suitability of the industrial training program before the pandemic, the proficiency of the training, ability to work on machines and tools, and applying health and safety procedures.

4.3 Instrumentation

The target population for this research consists of (4) heads of academic departments at the College of Technological Studies. An interview also made possible with head of industrial. Training program at the CTS. In respect to industry, the oil sector (5 supervisors) and Ministry of Electricity and Water (2 supervisor in main power stations) will be chosen for an in-depth information on the quality of the CTS graduates and the level of work readiness. A questionnaire will design and tested to a sample of 700 students at the CTS.

4.4 Statistics and Parameters

The statistics pertain to the sample. The parameters pertain to an entire population.

4.5 The research parameters/sample are as follows:

(a) Selected (4) heads of academic departments at the College of Technological Studies.

They are namely, Manufacturing Engineering, Electrical Engineering, Petroleum Engineering, and Mechanical Power and Refrigeration.

(b) 700 students at the CTS.

(c) The oil sector (5 supervisors) and the Ministry of Electricity and Water (2 supervisor in main power stations).

5. Research Findings:

5.1 The Characteristic of the Research Sample

Interviews were made with (4) heads of academic departments at the College of Technological Studies. They are namely, Manufacturing Engineering, Electrical Engineering, Petroleum Engineering, Mechanical Power and Refrigeration. The aim was to seek an in-depth

information regarding the quality of the CTS graduates. An interview with (5 supervisor) at the oil sector and (2 supervisor in main power stations). The objective in to examine industrial perception towards the quality of the industrial training programs and the standard of the CTS graduates.

A questionnaire was designed, tested and administered to 550 students at the CTS. In all, 500 questionnaires were distributed and 500 were completed. This represents a (91%) response rate. The main objective is to identify and examine their perception of various aspects of technical and vocational education. In pursuing such objective, respondents were questioned to provide their expectations towards technical and vocational education. The distribution of the selected student's sample was as follows: 55% department of Manufacturing Engineering, 30% department of Electrical Engineering, 10% department of Petroleum Engineering, and 5% department of Mechanical Power and Refrigeration.

5.2 Measuring student's perception towards attending the CTS.

An effort has been made to investigate whether students have chosen the CTS as a first preference for their future career. Surprisingly enough, only 35% of students found to selected the CTS and a first preference for their future job. The majority 65% have indicated that have selected Kuwaiti University as a first chose, but have not been excepted. Students were asked to indicate if they are a graduate student, and 55% have answer "yes".

5.3 Students perceptions towards the quality of teaching at the CTS.

The study also highlighted on measuring student's perception towards the quality of teaching at the CTS. A shown in Table 1, Students seems to strongly agree (95%), that lecturers stress on clarifying course objectives, presented cases studies (75%), and ensuring the application of safety roles. However, students "disagree" that lecturers stress of work loyalty after graduation (70%), student's ability to use machines and tool (45%), developing skills (40%), tackling works ethics (35%), and curriculum development (30%). Overall, when asked to evaluate the level of lecturers and trainers' competencies at the CTS, students have rated "good" but not very good or excellent.

- | | |
|--|--|
| ■ Defining course objectives | ■ Work loyalty |
| ■ Safety procedures | ■ cases studies |
| ■ Curriculum development | ■ Work ethics |
| ■ Skills development | ■ Using machines & tools |

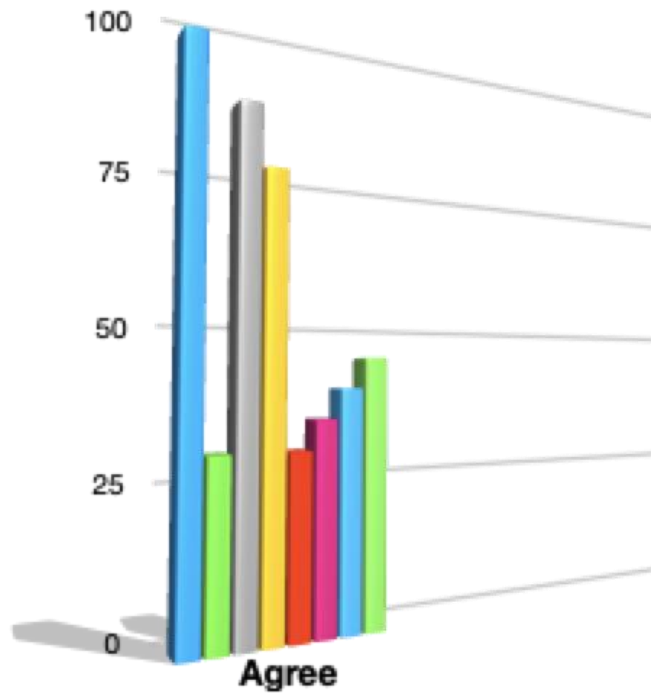


Table 1: Evaluating lecturers performance

5.4 Students perceptions towards the quality of workshops and laboratories at the CTS.

It was essential to identify student's perception towards the quality of workshops and laboratories at the CTS. The majority of the selected students "disagree" that workshops and laboratories have an updated machines and tools (55%), the lack of the right number of machines and tools compare to the number of students (75%), the lack of proper raw material (50%), unsafe working environment (45%), the unavailability of recent notes and work manuals (25%), and unrelated cases studies to industrial requirements (25%). Selected students sample found to "agree" that lecturers and trainers provide different cases (75%), using machines and tool (80%), and solving cases studies (70%).

5.5 Students perceptions towards the quality of industrial training programs.

Students were questioned to evaluate the quality of industrial training program at the CTS. The findings showed that the majority of selected students has "disagree" on a significant issue that have a direct impact of the quality of industrial training programs as well as the quality of the CTS graduates. Students were found to "disagree" on the role of the CTS supervisor in

industrial training program (65%), the ability to use machines and tool in industrial premises (50%), enhancing work ethics (45%), encouraging team work approach (45%), and obtaining the necessary skills (40%). On the other hand, students were found to “agree” on the suitability of the industrial training duration (75%), the availability of work manuals (70%), and the competencies of industrial trainers (70%).

5.6 Measuring student’s perception towards working in industry

An attempt was made to identify if students wish to work in the same field after graduation. Surprisingly enough, 45% of the total selected students sample gave a negative “No” answer.

Students were asked to show their work expectation and whether they are ready to cope with work requirements. The findings presented in Table 2 below.

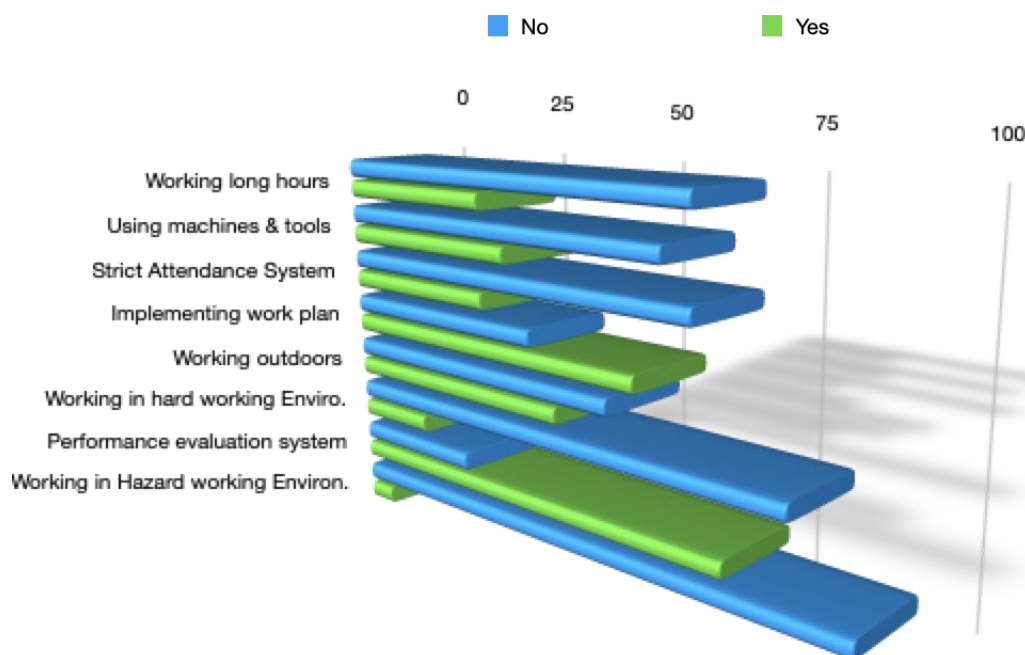


Table 2: Students perception towards working in industry

5.7 Measuring industrial perception to the standard of the CTS industrial training programs.

An effort has been made to examine industrial perception towards the quality of the CTS industrial training program. The oil sector and the Ministry of Water and Electricity has been selected to represent the recipients of the CTS graduates. Due to the sensitively of the two sectors selected to forms the recipients of the CTS graduates and the strict procedures to obtain the relevant information and data that serve the purpose of this research. The author made a hard effort to contact the direct supervisors that are in direct contact with the CTS students and graduates. First attempt was made to assess the quality of industrial training program, and the results is shown in Table 3 below.

Table 3: Industrial perception to the quality of the CTS industrial training program.

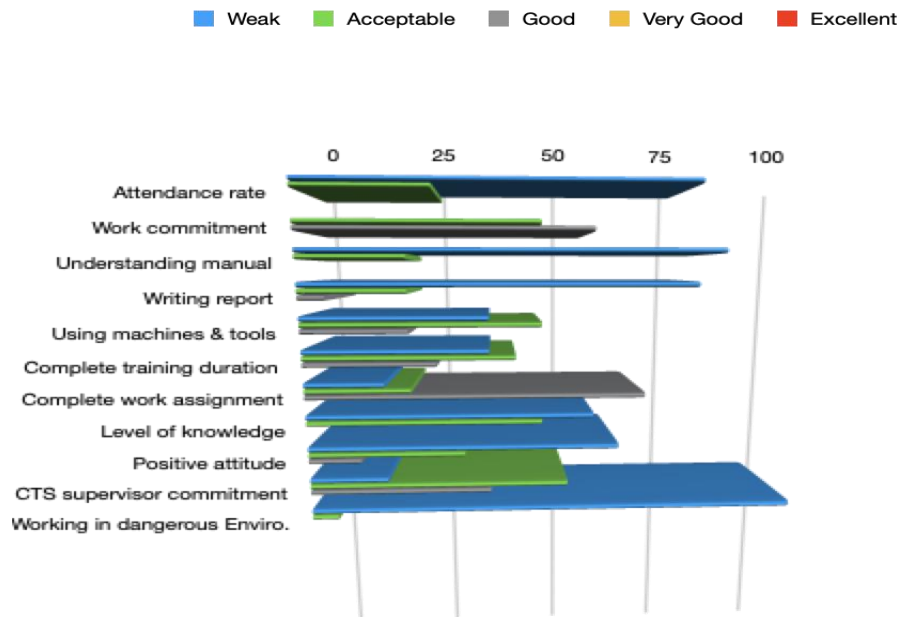


Table 3: Industrial perception towards the quality of industrial training program

5.8 Measuring industrial perception to the standard of the CTS graduates.

A second attempt has been made to measure industrial perception to the standard of the CTS graduates. The results are shown in table 4 below.

Table 4: Industrial perception to the quality of the CTS graduates.

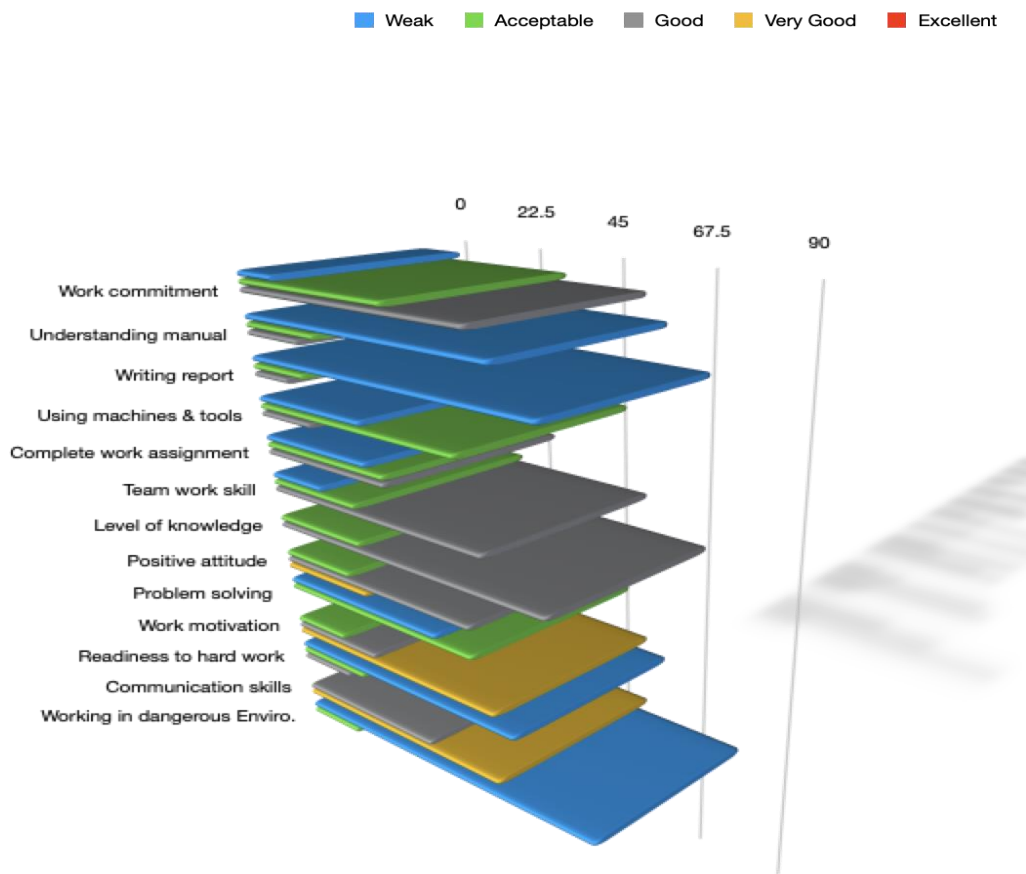


Table 4: Industrial perception towards the quality of the CTS graduates

6. Discussion and Conclusions

Technical and vocational education is a dual system that combine theoretical topics and practical application to serve the need of industries. It is an education were transfer of knowledge, skills, and attitudes occur to enhance career opportunities. It is noted that most of the reputable organization has a mission statement that would devote efforts and time in the same path to follow the core of the strategy. However, in examining the relevant documents concerning the establishment of the College of Technological Studies, CTS, no clear, direct and realistic mission statement was identified. In addition, the CTS strategy lack a proper statement that clarify the main direction the CTS and aspiration that would distinguish and enhance the credibility the college. Surprisingly enough, no sign for a professional and efficient technical and vocational education plan that would indeed contribute significantly in reducing dependence on expatriates. The present plan lacks clear and realistic objectives that form the main objectives of forging the CTS. Despite the availability of the CTS objectives statement, which stress on reducing dependence on expatriates, no mentioned on enhancing the level of

student's knowledge, skills, and attitudes. The role of industry in shaping student's skills is absent and their role is neglected in the CTS objectives statement. Industry must play a vital role in the CTS activities such as: lecturing, seminars, research and development, students' assessment, scheme, curriculum development, upgrading workshops and laboratories, assisting in health and safety procedures and roles, and joint meetings to assess the quality of graduates. The role of management is essential in the success of technical and vocational education. In fact, the structure of the management system and the mentality of those running such unique type of education have a significant influence not only on achieving managerial objectives, but also on the quality of graduates. The success of technical and vocational institution would also depend on the availability of a philosophy that is derived from the mission statement and aim in enhancing the quality of teaching and learning.

The findings on this research showed that despite the realization of the objectives of forging the CTS, its role in reducing the dependence on expatriate, especially in vital sectors such the oil sector and Ministry of Electricity and water, the outcomes are considered below the expectation. Technical and vocational education seems inferior to mainstream education as only 35% of the total selected students' sample have chosen the CTS as a first preference. The majority (65%) had selected Kuwait University instead, but not being accepted. It is well known that technical and vocational education has been perceived as a "back gate" of the university. Despite the government efforts to shape the image on technical and vocational education, students still downed grade and unvalued such type of education. Unfortunately, it is still considered as a low-class educational institution that accommodate students who failed to enroll at the university. Therefore, students seem reluctant to join the oil sector or Ministry of Electricity and Water and the drop rate is continuing to be unacceptable (25%). The majority of those interviewed in industry (90%) stress on the fact that students need to be more patient and willing to work in a hard-working environment. When asked to wish to work on the same field after graduation, 45% of the selected students gave a negative answer "No". An attempt was made possible to investigate whether students can adapt to work environment and the results show a negative attitude towards various aspect of work activities. The majority of the selected students (95%) reject working in a dangerous environment, followed by 85% of the selected students who do not prefer to work in a hard-working environment, and 45% who are ready to work outdoors. In fact, (45%) of the selected students are ready to work with machines and tools. It is worth mentioning that, the nature of work at the oil sector and Ministry of Electricity and Water requires a regular interaction with machines and tool and working outdoors. The CTS must ensure that a large number students who are accepted at the college are ready to work in oil wells and electricity power stations that possess a dangerous working hazard. In Kuwait, the temperature in the summer can easily reach 55% Centigrade in the shade. However, the drop rate is high 20-25%, and there is no guarantee that students who attend the CTS will work in the same area after graduation. The oil sector and Ministry of Electricity and Water still relying on expatriate (e.g., India, Pakistan) who are classified as semi- and skilled workers through a long-term contract. In an interview with two supervisors at the oil sector and one senior supervisor at one of the main electricity power station revealed to the author that there are a quite number of the CTS graduates who are sincerely want to work harder than expected, but the number is low in meeting our demand from indigenous workforce. As a result, they depend on expatriate who can bear the heat of machines and Kuwaiti harsh weather in the summer.

An effort has been made to measure student's perception to the quality of teaching and learning at the CTS. Indeed, the quality of teaching and learning would have a significant effect on the quality of student's readiness to work in related industry as well as the standard of the

CTS graduates. The CTS cannot work in a “black box”. In other word, the CTS has to strengthening their relationship with industry. A strong collaboration in teaching, learning, research and development, updating workshops and laboratories, joint seminars, curriculum development, and solving problems are highly recommended to success in reducing the level of decadence on expatriates. The majority of students (95%) seem to “agree” that lecturers clarify course objectives, present cases studies (75%), and ensure the application of safety rules and procedures. However, large number of students “disagree” on the role of lecturers in enhancing the concept of work royalty (70%), ensuring all students able to use machines and tool (45%), developing new skills (40%), discussing work ethics (35%), and updating curriculum (30%). Overall rating for lecturer’s performance was rated by selected students as “good” but not very good or excellent. Students has the opportunity to evaluate the quality of the CTS workshops and laboratories. The majority of students” disagree” on the standard of the CTS workshops and laboratories. The findings of this research show the lack of updated machines and tools (55%), the lack of right number of machines compare to student’s number (75%), the unavailability of the right quantity of raw materials (50%), unsafe working environment (45%), and unavailability of recent notes and work manuals (25%), and unrelated cases studies that meet industrial requirements (25%). Selected students sample found “agree” that lecturers and trainers provide different cases (75%), using machines and tool (80%), and solving cases studies (70%).

Industrial training program or apprenticeship is an effective teaching and learning of skills that are mostly needed by industries. It is where students spend certain time in industrial premises to gain the necessary knowledge, skill, and attitude that are practice by industries. It is considered as the “window” to the actual activities in industries. Students would have an opportunity to use machines and tools and raw material and transfer theory into practice with close monitoring on their performance. However, the findings revealed that industrial training program that is offer at the CTS has a remarkable deficiency. The majority of selected students “disagree” on the role of their supervisors in industrial training program (65%), the inability to use machines and tool in industrial premises (50%), the absent of information on work ethics (45%), the absent of encouraging team work approach (45%), and thus inability to acquire the necessary skills (40%). However, students were found to “agree” on the suitability of industrial training program duration (75%), the availability of work manual (70%), and the competencies of industrial trainers (70%). Industrial perception towards the CTS industrial training program see to agree of several issues mentioned earlier by selected students, that call for an urgent action to improve the standard of industrial training programs as well as tackling the shortage of semi and skilled indigenous manpower.

Students’ attendance rate at industrial training program has been rated by industries as “weak” by (80%), students work commitment has been rated as “good” by (55%), students understanding manuals has been rated as “weak” by (80%), ability in writing work report has been rated as “weak” by (80%), ability to use machines and tool in industrial premises has been rated “acceptable” by (45%), completing industrial training duration has been rated as “acceptable” by (35%), complete work assignment has been rated as “good” by (75%), students level of knowledge has been rated as “good” by (50%), students positive attitudes has been rated as “weak” (60%), the role of the CTS in industrial training program has been rated as “acceptable by (50%), and students able to work in dangerous environment has been rated as “weak” by (90%). These upsetting findings call for an urgent action from both the CTS management and related industry to meet fac-to-face if there is a sincere believe that the rate of dependence on expatriates need to be overcome or reduce to a minimal level.

These findings would reflect the lack of major issues regarding the quality of teaching, learning, and industrial training program at the CTS. This would strongly reflect the necessity of a professional management skills that is able to create a new philosophy dedicated to collaborative efforts in achieving the CTS objectives in specific and overall, the country manpower plan in general. The reduction of dependence will still continue for year ahead if no serious action is transfer into real tangible outcomes.

An effort has been made to examine industrial perception towards the quality of the CTS graduates. Industries has been rated the ability of students in work commitment as “good” by (50%), understanding work manual has been rated “weak” by (55%), ability to write a work report has been rated “weak” by (66%), using machines and tool has been rated “acceptable” by (45%), complete work assignment has been rated “acceptable” by (35%), team work skill has been rated as “good” by (50%), level of knowledge has been rated as “good” by (55%), positive attitudes has been rated as “good” by (66%), ability in solving problem has been rated as “acceptable” by (45%), work motivation has been rated as “good” by (50%), readiness to work in hard environment has been rated as “acceptable” by (45%), communication skills has been rated as “very good” by (50%), and readiness to work in a dangerous environment has been rated “weak” by (95%). It is very obvious, while examining industrial perception towards the quality of the CTS graduates, that there are issues which need to be highlighted and taking into consideration when a serious and sincere action is about to take place in improving the quality of the CTS graduates. Students who have a low rate of motivation in working in a hard environment must not be accepted at the CTS. In addition, students who do not prefer to work with machines and tools and show no sign for work commitment must be dismissed. On the other hand, the management of the CTS must exert efforts and time in improving the standard of the CTS graduates. The establishment of a strong linkage with relayed industry would not just improve the standard of the CTS graduates but also the academic staff. A regular well organized joint meeting is highly recommended for both parties (the CTS and local industries) to success in reducing dependence on expatriates in those essential sectors. Again, working in a “black box theory” is utterly a failure theory. The need to close the gap between both parties is considered as a “lifesaving” for preserving the image and reputation on the CTS in achieving the setting objectives. It is the credibility of those who run the CTS including academic staff that’s matter. The success of the CTS in proving industry with semi and skills indigenous manpower in limited to the CTS only, but also for the countries overall manpower ultimate aspiration and ambitious. Failing o do so, the country would continue to depend on expatriates for year ahead.

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