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Are Lecturers Transferring the Necessary Skills Needed for the Workplace? The College of Technological Studies, Kuwait—A Case Study

Salah Al-Ali,
College of Technological Studies, Kuwait

In the related literature, many authors and observers have confirmed that there has been a considerable gap between what is learned in the classroom and the real- life context of vocational and technical students' present and future workplaces. This unpleasant situation mostly occurs in developing countries where lecturers in vocational and technical education have limited knowledge and experience with real practice in industry. Therefore, their experience is limited to the confines of their institutions. This paper examines whether lecturers take into consideration those fundamental skills required by industry in their classes. In other words, do lecturers know the skills needed for today's workplace? The study also examines the degree of industrial involvement in formulating vocational and technical curriculum, such as the types of knowledge, skills and attitudes that need to be stressed in the classroom. This study consisted of: a review of related literature; a questionnaire that was distributed to a sampling of lecturers at the College of Technological Studies; as well as personal interviews with the head of the department, dean of the Industrial Liaison Office, and the department's trainees' supervisors within local industry. This paper concludes that lecturers must emphasize and develop the needed knowledge, skills, and attitudes required by industries in their course instruction. Otherwise these industries, particularly in Kuwait, will continue to heavily depend on expatriates as "skilled" workers for years to come.

In recent years, industries and businesses have spent billions of dollars yearly to employ trained workers in order to increase profitability by reducing costs associated with on-the-job training and production errors (Ferguson 2007). In fact, the Partnership for 21st Century works in the United States to encourage institutions to incorporate 21st century knowledge, skills and attitudes in educational curriculum. It states:

> In an economy driven by innovation and knowledge... in marketplaces engaged in intense competition and constant renewal...in a world of tremendous opportunities and risks...in a society facing complex business, political, scientific, technological, health and environmental challenges... and in diverse workplaces and communities that hinge on challenges... and in diverse workplaces and communities that hinge on collaborative relationships and social networking...the ingenuity, agility and skills of the United States people are crucial to U.S. competitiveness. (Partnership, 2008, p.1)

Indeed, the success of an economy would depend extensively on the optimal utilization of its human resources.

The Economic and Social Research Council (2005) stated, "Economic success is increasingly based on the effective utilization of intangible assets, such as knowledge, skills, and innovative potential as the key resource for competitive

advantage." Therefore, vocational and technical education should be in the forefront in seeking new strategies and approaches to prepare the workforce of the future. Much of the vitality of vocational and technical institutions resides in the faculty and how professors connect with their students. Faculty must take all opportunities to enhance their teaching skills in their classrooms thus increasing student involvement. Teaching strategies and methods should stress active questioning, activities that encourage cooperative learning, and real case studies that require finding solutions. However, there is a common belief that vocational and technical education is failing to respond to the needs of business and industries, creating a skills vacuum needed in the world of work.

Researchers in the field of vocational and technical education have expressed serious concern that there is an obvious gap between what industrialists want and what the recipients of vocational and technical training receive (Hanne Man& Gardner 2010). This incongruence is due to many reasons, among which are: students are not fully aware of course objectives; students are not listening to their lecturers and advisors; there is a lack of machines and tools in workshops as well as a lack of participation in class exercises; and there is an ineffective appraisal scheme. This makes employers reluctant to hire vocational and technical graduates who seem to lack certain skills. The Occupational Outlook Handbook, 2010, listed these skills mostly needed by employers, in order of importance, "communication skills, analytical skills, teamwork skills, technical skills (as related to major), and a strong work ethic" (Koc& Koncz,2009). Among the skills mostly required by industries and businesses were professionalism, teamwork, oral communications, ethics and social responsibility (Partnership for 21st century Skills, 2008,p.12). Another study has also revealed that reading and writing skills are not enough for a worker to start a job. Critical thinking, communication, collaboration, and creativity are integral (AMA Survey, 2010, p.2).

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. "The College of Technological Studies has established an educational philosophy in order to achieve a strategic national objective; that is, to invest in the people of Kuwait in building a productive future for Kuwait. The role of the college is to design and offer study programs that help develop the graduate with executive capabilities and grant academic credentials from vocational licenses to scientific degrees" (The PAAE&T main Website).

In Kuwait, the need for skilled and semi-skilled national workers is the highest government priority in national human resource development. Expatriates form 69% of the total workforce. In fact, a 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). 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 among 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 6,741Kuwaitis (Ministry of Planning, Annual Statistical Abstract 2009).

Research Objectives

a. To identify and examine lecturers' awareness of the type of knowledge, skills, and attitudes set in their course objectives.

b. To identify and examine the methods used by lecturers in transferring the knowledge, skills, and attitudes to potential students.

c. To measure students' perception and expectation of the standard of teaching, evaluation methods, level of knowledge, skills, and attitudes acquisition.

d. To measure students' perception towards the effectiveness of industrial training programs.

e. To measure industrial involvement in determining the required knowledge, skills and attitudes mostly needed by the recipients of the college's graduates.

The anticipated outcomes of this research is to help decision makers, particularly at the College of Technological Studies, in forming a new strategy and plan that ensures the preparation of an appropriate learning environment for both students and lecturers. In addition, it will set guidelines for both the College of Technological Studies and related industries in enhancing students' knowledge, skills and attitudes that meet the industries present and future requirements.

Research Methodology

The study consisted of: A review of the related literature; a questionnaire that was distributed to a selection of lecturers at the College of Technological Studies (6 lecturers in each of the three departments chosen for the purpose of this study); personal interviews with the heads of three departments (those departments dealing with the oil sector and electricity power stations); dean of the Industrial Liaison Office; and the department trainees' direct supervisors in local industry and at electricity power stations. Research sample was stratified group of (6) lecturers chosen for the purpose of this research in each of the three selected departments. The selection of the departments would be based on that department's service to the oil industry and electricity power stations. These sectors of industry have a vital role in enhancing the country's economy. A personal in-depth interview was conducted with the heads of the three selected departments; the dean of the college; the assistant to academic affairs; the head of the industrial training programs; and graduates' direct supervisors in the industrial sector. The data collected was analyzed by using frequency and cross-tabulation (SPSSX) to answer the research question raised.

Research Findings

The Characteristic of the Research Sample

A questionnaire was sent to a sample of 300 students in each of the three selected departments at the College of Technological Studies and 245 completed questionnaires were returned. This represents 81.6% of the total sample. The percentage of male students was 65.8% compared to 34.2% female students. Kuwaiti students formed 94.5% of the total responding students.

In respect to instructors' sample, six lecturers were selected from each of the following departments: Manufacturing Engineering, Petroleum Engineering, and Electrical Engineering. All respondents were male and 57% were Kuwaiti, and 43% were non Kuwaitis. In respect to qualifications, 71% of selected sample hold doctoral degrees, 5% hold master's degrees, and 24% hold bachelor's degrees. In regards to teaching experience, 67% of the selected sample has more than 18 years of teaching experience, while 14% between 12-17 years, another 14% between 6-11 years, 5% between 1-5 years of teaching experience. However, when asked to indicate number of years working in industry: 29% of the selected sample has no working experience; 14% has less than 1 year experience; 43% has between 1-5 years working experience; 10% has between 6-11 years working experience; and 5% has more than 18 years of working experience. Selected industrialists (three direct supervisors of students) were also interviewed to establish their opinions on the quality of the graduates and the efficiency of the industrial training programs. The selected industries were in the Oil Sector (Kuwait Oil Company, Kuwait National Petroleum Company, and Petrochemical Industries Company).

Measuring Students' Perceptions towards Lecturers' Competencies

An attempt has been made to identify and examine whether lecturers emphasize on main academic issues, such as clarifying course plan to students, defining teaching methods, defining students' expectation approach, and enhancing students' communications skills. The results are shown in table (1).

Table 1: Measuring Lecturers' Competencies

Elements	Agree	Disagree
Defining course plan	80	20
Defining teaching methods	85	15
Defining students expectation	65	35
Encouraging innovation thinking	40	60
Enhancing verbal communication	74	26
Enhancing writing skills	79	21
Building problem solving methods	50	50
Fostering work loyalty	66	34
Respecting superiors	55	45
Respecting colleagues	92	8
Encouraging work accuracy	89	11
Improving work confidentiality	75	25
Coping with work pressure	35	65
Informing of health and safety procedures	81	19
Respecting work time	35	65
Encouraging work initiative	76	24
Practicing time management	25	75
Applying practical cases	45	55
Participating in problem solving	76	24
Recognizing students' differences	72	28
Inviting lecturers from industry	20	80
Developing research skills	50	50
Developing innovative thinking	20	80

The above findings show that lecturers have stressed on some essential issues during their academic courses, while regrettably ignoring other important areas. Among the issues that lecturers have taken into consideration were: defining course plan at the beginning of the course and that was supported by 80% of the responding students; clarifying the teaching methods to students (85% agreed); defining students expectations (65% agreed); enhancing writing skills (79% agreed); encouraging work accuracy (89% agreed); and recognizing students' differences (72% agreed). On the other hand, the research revealed that there are other essential issues that have been either neglected or forgotten by lecturers. Among which were: encouraging innovative thinking (60% disagreed); building problem solving skills (50% disagreed); fostering respect of superiors (45% disagreed); coping with work pressure (65% disagreed); practicing time management (75% disagreed); applying practical cases (55% disagreed); inviting lecturers from industry (80% disagreed); and developing innovative thinking (80% disagreed).

Measuring Students' Perceptions towards the Standard of Industrial Training Programs

An attempt has been made also to examine students' views towards the standard of industrial training programs in related industry. The findings are shown in table (2) below.

Table 2: Students' Perceptions towards the Standard of Industrial Training Programs

Elements	Agree	Disagree
The clarity of objectives	90	10
The suitability of workplace	80	20
College trainers' competences	83	17
Industrial trainers' competences	81	19
The availability of health and safety procedures	87	13
The availability of updated machines and tools	77	23
Enrichment of students' knowledge and skills	83	17
Problem solving skill acquisition	75	25
Diversity in case studies	83	17
The availability of work manuals	66	34
Stress on work ethics	75	25
Enhancement of writing skills	72	28
Suitability of evaluation system	81	19
Development of confidence-building skills	85	15
Development of work ethics	75	25

The above findings showed that majority of the students have "agreed" on all the issues raised regarding industrial training programs. For instance, students overwhelmingly agree that industrial training programs have enriched students' knowledge and skills (83% of total students); contained diverse cases studies (83%); developed confidence-building skills (85%); and informed on health and safety procedures (87%).

Measuring Lecturers' Perception towards the Quality of Teaching

An effort has been made to examine lecturers' opinions towards the quality of teaching. The findings are shown in table (3) below.

Table 3: Lecturers' Perception towards the Quality of Teaching

Elements	Yes	No
Course plans are clarified	90	10
The duration of the course is suitable to its objectives	80	20
Course objectives meet industrial requirements	90	10
Members of industry participate in setting course objectives	80	20
Course objectives are updated	87	13
Updated machines and tools are available	81	19
Defining skills required by industry	95	5
Course objectives require specific machines and tools	76	24
Machines and tools are available in the department	52	48
The methods in transferring knowledge and skills to students are defined	90	10
Students' needs are able to be defined	76	24
Different teaching methods are used	76	24
Real case studies are used	90	10
Proper evaluation method used	81	19
Right machines and tools are available	75	25

Learning environment is suitable	80	20

The above findings indicate without any doubt that lecturers have been taking positively into account those issues related in enhancing students' knowledge, skills and attitudes. For instance, lecturers have ensured that courses are designed to meet industrialist requirements and thus specified the types of machines and tools required to meet such objectives. In addition, lecturers have taken into consideration students' differences and used several cases studies to raise the quality of learning. It is worth mentioning at this point that 80% of the selected lecturers have indicated that they have involved industrialists in determining and updating course objectives. Surprisingly enough, 52% of the selected lecturers have voiced complaint that their department lacks recent machines and tools.

Measuring the Types of Skills that have been transferred to Students

An effort has been made to examine lecturers' opinions towards the types of skills transferred to students in classrooms. First, lecturers were asked to indicate whether course objectives have included specific skills. The findings are shown in table (4) below.

Table 4: Types of Skills included in Course Objectives.

Elements	***Yes***	***No***
Interaction skills	65	35
Analysis skills	80	20
Teamwork approach	95	5
Technical skills	95	5
Ethical skills	100	0
Work commitment	100	5
Writing skills	65	35
Creative thinking	62	38

Lecturers were found to include specific skills in course contents that are meeting industrial requirements. Among which were: ethical skills, work commitment, teamwork approach, and technical skills. As a result, lecturers focused on the transfer of various skills in classroom which are considered significant in upgrading the quality of graduates. Table (5) shows the skills that lecturers transferred to students in classroom and thus have been confirmed by the majority of the selected lecturers. Lecturers were also questioned whether they have stressed on specific skills in classroom and the results presented in Table (5).

Table 5: Types of skills stressed in classroom.

Elements	**Yes**	**No**
Interaction skills	65	35
Facing work stress	70	30
Adapting with weather change (working outdoors)	60	40
Enhancing positive attitudes	75	25
Ethical skills	100	0
Work accuracy	100	5
Writing skills	85	10
Creative thinking	90	10

Time management	100	0
Listening skills	71	29
Respecting colleagues	75	25
Work confidentiality	90	10
Health & safety procedures	85	15
Following Rules	80	20
Work loyalty	70	30
Meeting work standards	60	40
Coping with technology change	65	35

Measuring Industrial Perception towards the Quality of Graduates

In the oil sector, four senior supervisors of graduates in different departments were interviewed. All rated graduates' commitment to work as "good" while acknowledging there is a penalty imposed on those who fail to attend work on time. In respect to work initiative, all supervisors stressed the need to push graduates to complete the work assigned and ensure allocated tasks finished on time. Graduates were also found, in some cases, to either forget or ignore orders from their direct supervisors, especially if his direct supervisor is not a Kuwaiti nationality. Surprisingly enough, all direct supervisors noticed a lack of knowledge and skills for those graduates from the College of Technological Studies. This was worsened by the unfamiliarity of graduates with the type of machines and tools used in oil industry. Selected direct supervisors gave a "negative" answer to collaborating in the past with the College of Technological Studies. In fact, they said they were eager to provide assistance to the college's management and faculty. However, they feel that they have been either forgotten and/or ignored. It is worth mentioning at this point, that graduates direct supervisors are in strong favor of employing non Kuwaiti manpower and thus do not overly support to some extent the concept of relying on Kuwaiti manpower.

In respect to measuring the perception of graduates on direct supervisors in the Ministry of Electricity and water, interviews with six graduates' direct supervisor were conducted in Doha Power Station and Al-Zoor Power Station. All interviewed direct supervisors rated graduates attendance at work on time as "good." When asked to rate graduates work initiative, graduates' direct supervisors were varied in their answers. Only two graduates were rated as "very good," compared to four graduates rated as "good" by their supervisors. Despite such ratings, all supervisors admitted that graduates must be encouraged and, in most cases, forced to complete the work assigned by direct supervisors. In respect to obeying direct supervisors orders, all selected supervisors rated graduates as"good." Graduates seem to follow health and safety procedures well and thus were rated "very good." Surprisingly enough, all selected supervisors have rated the level of graduates knowledge and skills in their field as "very poor." Selected supervisors stress the need for graduates to absorb the concepts of respect for and enjoyment of the type of work performed. They added, "Graduates dislike the type of work and must be trained on how to cope with working with machines and tools and exposure to high temperatures." Again, these selected supervisors rejected the idea of replacing non-Kuwaitis with Kuwaitis for in such vital sector. They all agree that the majority (90%) of graduates dislikes the type of work and is also unable to show a sincere willingness to continue working for long periods in this type of field.

In respect to collaborations with the College of Technological Studies, all selected supervisors have indicated that they have no contact with the College of Technological Studies. In fact as one of the interviewed supervisor stated, "We hope to have some sort of contact with the College so that we can work together to improve the standard of graduates. We received graduates that not only lack the necessary knowledge, but also have little or no skill to deal with related machines and tools that they are supposed to be trained for in college."

Conclusions

It is imperative is for vocational education to be significantly more responsive to the actual needs of industry. In fact, vocational education

is considered invalid if it fails to meet the needs and expectation of students, instructors, government and industry. In developing countries (e.g. Kuwait, Saudi Arabia, and United Arab Emirates), the need for skilled and semi-skilled national manpower is one of the main government priorities— aimed at overcoming and/or reducing dependence on expatriates. This would imply, from the point of view of vocational educators that students need quality education and training in order to satisfy the competency levels required by industry. Therefore, vocational education philosophy, strategy, and planning must be thoroughly assimilated by management, instructors, staff, students, and industry. Vocational educators and related industrialists must work jointly towards one objective, then constantly review, monitor and evaluate their performance. The success or failure of vocational educators is highly dependent on industries' perception of the quality of graduates. In other words, any positive outcome depends on whether the graduates from vocational and technical institutes/colleges have the competency levels required by industry. Lecturers seemed to stress on some essential issues related to course contents but may forget or ignore other significant issues. This is especially true of those issues related to enhancing students' skills that are needed most by industry. For example, the lack of contact and experience using up-to-date machines and tools does indeed pose a threat to the quality of the graduates from the College of Technical Studies sends into the work force. This was confirmed by more than a half of the selected lecturers and students. In fact, another problem was the availability of the right number of machines and tools that match the number of students in either workshops or laboratories. Such inconvenient situation does indeed hinder the transfer of needed skills to students.

On the other hand, it seemed that lecturers are well aware of the need to include significant skills in course objectives such as communications skills, technical skills, and ethical skills which is expected to be reflected in the behavior of those students working in their specific industry. The management of the College of Technical Studies must keep in close contact with the supervisors in related industries when setting course objectives so to ensure that students are learning constructive skills. Closing this instructional/practical gap between vocational training and actual work practice will be crucial to encourage industries—such as the oil industry and ministry of electricity and water— to build a stronger Kuwaiti work force rather than rely on expatriates in the years to come.

Author Biography

SALAH AL-ALI is a professor at the Department of Manufacturing Engineering, College of Technological Studies, Kuwait. He received his Ph.D. from Newcastle Upon Tyne, UK. His research interest on technology transfer and vocational and technical education. He has published in many referee journals and participated in international journals. He has (13) patent certificates and (10) design certificates from the Patent Office in the UK.

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