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IDENTIFICATION OF SKILLS GAP BETWEEN SCHOOL-BASED LEARNING AND WORK-BASED LEARNING IN TECHNICAL AND VOCATIONAL EDUCATION IN BAHRAIN

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ABSTRACT

The paper presents the identification of the existing skills gap between school-based learning (SBL) and work-based learning (WBL) in technical and vocational education (TVE) system in Bahrain. Several surveys have been formulated and the first author has elicited the response of the various stakeholders namely: the teachers, specialists from human resources departments of industrial collaborators and industrial supervisors. The aim of this exercise was to find out the stakeholders' perceptions about the existing gap between the students' skills and industry requirements in three skills dimensions; cognitive, psychomotor, and affective. The surveys' responses were statistically analysed and it was obvious that a considerable skills gap exists between the industrial requirements and labour market skills.

Keywords – School Based Learning (SBL) – Work Based Learning (WBL) – Technical and Vocational Education (TVE) – employability skills gap

INTRODUCTION

The main objective of TVE in Bahrain is to equip Bahraini graduates with employability skills required for various industries such as petroleum industry, electronic and telecommunication engineering, building services, mechanical engineering, and computer technology. This is achieved through a two tier system of education (TVE Directory, 2004) which includes SBL and WBL. SBL comprises of specialised technical modules (for industry specific skills) and supportive modules (for generic employability skills) (TVE Directory, 2006). The WBL is intended to equip the graduates with skills in the cognitive, affective and psychomotor learning domains required for their successful future careers.

The survey's results have indicated that there is a gap between the requirements of the industry and the knowledge, attitude, and skills of the graduates. In this paper the results will be analysed to quantify the employability skills gap and recommendations are made to close the gap through the modification of SBL and WBL structure in a typical technical and vocational learning system.

METHODOLOGY

Quantitative data collection was carried out in this paper to gain an insight into the skills, knowledge, and qualities that industries look for when students join their workforce during WBL and for future recruitment. The aim was to test the skills competency, knowledge, and attitude through the Bloom's Taxonomy by assessing the effectiveness in its three dimensions; cognitive, affective, and psychomotor. (Anderson and Krathwohl, 2001)

Three surveys were designed to elicit the responses from teachers, personnel from human resources departments from industry, and Industrial supervisors. The Surveys have been developed with two parts:

- Part one contained 5 questions on personal details. The questions were on respondents' gender, age, years of experience, and the employment title within the department of the organisation. This section has given data on the sample population including demographic (age and gender) of people involved in TVE system and industrial companies.

Part two of the survey was designed with a 5-point Likert Scale (Cooper and Schindler, 2006) to test the employability skills competencies through the Bloom's Taxonomy by assessing the effectiveness in its three dimensions namely; cognitive, affective, and psychomotor (Anderson and Krathwohl, 2001). There were 43 questions in part two which have been carefully selected to test skills requirements in a variety of conditions. It has been ensured that the responses would enable a critical analysis of the skills required and their relative importance. Moreover, the questions were formulated to cover all the learning levels of Bloom's dimensions. To bring out more depth into the analysis and to propose an effective employability skills model for Bahraini market's specific needs, the components (elements) of employability skills on offer (existing employability skills models) as

well as the skills required (from the surveys' results), a number of employability skills components were introduced and sub-divided into the three dimensions of Blooms. Care has been taken to avoid overlap of skills.

The surveys were distributed to the different stake-holders as per the details given below:

a- Teachers: There were 35 teacher respondents who have gave their opinions on students' learning levels according to cognitive, affective and psychomotor dimensions. The respondents included teachers who deliver theoretical and practical modules during SBL and teachers who mentor and monitor students during their WBL programmes. This part of the investigation was carried out to evaluate and compare the knowledge, attitude, and skills developed by SBL and those required during the WBL.

b- Human resources departments from industry: 15 respondents have indicated the level required in industry from students. This part of investigation enabled formulation of the expectations of industry during work based learning.

c- Industrial supervisors: A sample size of 15 industrial supervisors has determined the skills, level of attitudes and knowledge that the students displayed during WBL. The survey was designed to bring out clearly the students' skills in relation to the three dimensions from SBL and to estimate the skills that were gained through WBL.

In total, there were 65 respondents varied in terms of demographics such as gender and age. This allowed for unbiased sample population to be collected and analysed with nominal chance for error among the overall results (Martin et, al. (2000).

Gender - The majority of respondents were male (55%) and (45%) were female. Engineering industrial sector is still a male bastion in Bahrain. (TVE Directory, 2006). In addition, Most of the female respondents were from human resources departments.

Age - 40% of respondents were aged 21-29, 46% were aged 30-39, 10% were aged 40-49, and only 4% were aged 50-59. This shows that most of the respondents were in the age bracket of 21-39.

SURVEYS FINDINGS

The data of the surveys were analysed with the help of the Statistical Package for the Social Sciences (SPSS) version 15. The analyses have been done by quantifying the frequency distributions and determining the most average response. Also, the average positive responses (TPRF) were analysed in order to bring more depth in data analysis findings. For the purpose of this paper, only final results were presented.

Figure 1 indicates the responses from three different stake-holders namely: teachers, industrial supervisors, and human resources in order to bring out clarity. The figure shows the mean value in the Y axis against the three dimensions of Bloom's: cognitive, affective, and psychomotor in the X axis.

In the cognitive domain, the mean score given by the teachers is 2.8, where the industrial supervisors have given a score of 2.7 and 3.5 by the human resources people. This clarity shows that skills requirements by the human resources are not met by the skills performed in SBL and WBL.

Regarding the affective domain, the mean values of teachers, human resources and industrial supervisors are 2.8, 4.3, and 3.1 respectively. The mean scores show that the skills level of students has been improved in WBL programme (from industrial supervisors' respondents) compared to skills level in SBL (from teachers' respondents). However, the level of skills required by human resources still higher than the skills performed in SBL and WBL.

In psychomotor domain, the mean score given by teacher is 3.2, where industrial supervisors have given a mean score of 2.8. The human resources respondents mean score is 3.6 which exceed the skills level performed in SBL and WBL.

From the above discussion, it can be concluded that the human resources requirements are most critical in the affective domain where the skills level available in SBL and WBL is far less. In the psychomotor and cognitive domains, it is shown that the skills level required by the industrial companies are higher than the skills level performed during SBL and WBL but less than in affective domain.

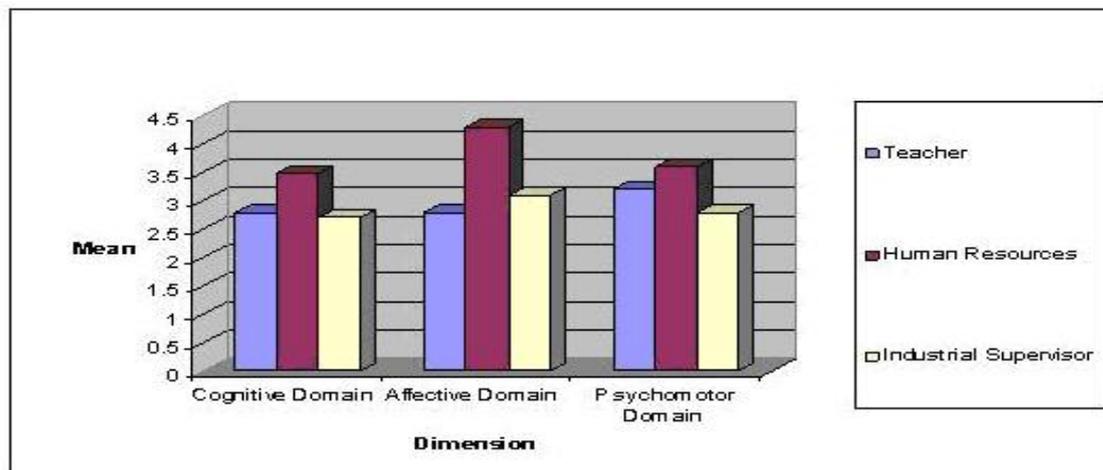


Figure 1 – Answers’ classification by categories of dimensions

To bring out more depth into the analysis, the employability skills components which have been integrated within the three learning domains questions of Bloom’s have been divided into three sets of skills:

Supportive skills – It includes the skills that should be delivered to students during SBL and WBL. The supportive skills consist of five components namely: cultural awareness, emotional intelligence, social competencies, cognitive proficiency, and career planning and development.

Academic and technical skills – It contains two components namely: soft skills and technical skills. These skills give the basic competencies for TVE students as should be delivered to them during SBL before they go to the WBL programme.

Specific job related skills – It is totally relied on students’ level of competencies gained from the academic and technical skills. These skills relate to students’ skills used in analysing practical situations using their previous knowledge from SBL, in gaining specific industry skills, and producing high quality work during WBL. The components are specific technical skills and workplace proficiencies.

Figure 2 shows the stake-holders’ positive responses to the five components of the supportive skills. All the respondents from human resources have given a positive response to the cultural awareness component (100%) where only (47%) of teachers’ respondents and (73%) of industrial supervisors’ respondents have given positive responses to this component. The results indicate that the required skills level by human resources is higher than what has been performed in SBL as well as in WBL.

Regarding the emotional intelligence component, (81%) of human resources people gives positive response to this skills component, where only (25%) of teachers and (20%) industrial supervisors give positive responses. The results show that more work should be done in SBL and WBL to order to achieve the required level given by human resources.

In social competencies, the highest positive response is indicated by the industrial supervisors (69%) where the required level by the human resources is only (63%). The teachers’ positive response is (54%) which less than what is required by the human resources.

Teachers have the highest positive responses (47%) compared to other two respondents in cognitive proficiency. Only (27%) and (25%) of human resources and industrial supervisors give positive responses respectively.

In career planning and development, (60%) of human resources show positive response to this component, as only (23%) of teachers respondents give positive response where (55%) of industrial supervisors indicate positive response to this component.

The above discussion shows that the level required from the supportive skills from human resources positive response is greater than the performed level in SBL (from teachers’ positive responses) and WBL (from industrial positive responses). Human resources rank the components of supportive skills from the highest positive responses to the lowest positive response respectively: cultural awareness, emotional intelligence, social competencies, career planning and development, and cognitive proficiency.

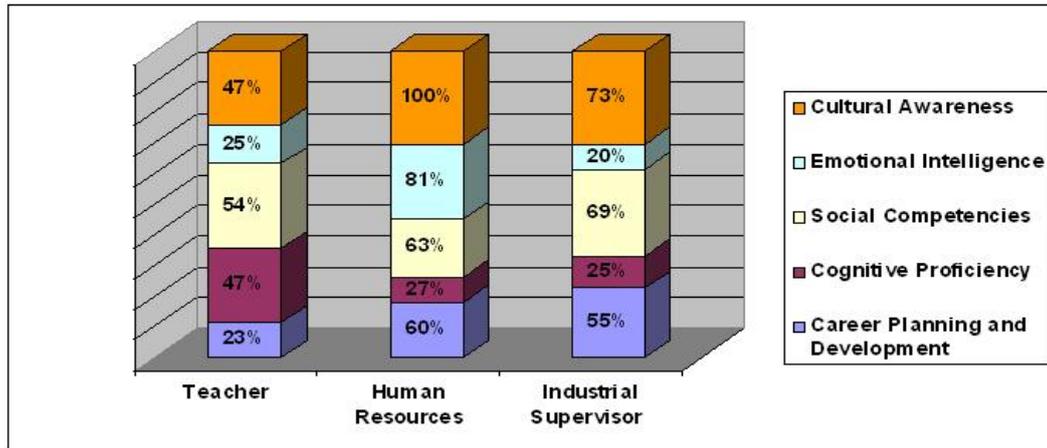


Figure 2 – The Average of the Positive Responses in Supportive Skills

Figure 3 presents the positive responses of the three stake-holders regarding the two components of the academic and technical skills: soft skills and technical skills.

In soft skills, the positive response from teachers is (42%), where industrial supervisors give an average of positive responses of (41%). However, the positive response from human resources is greater than the other two stake-holders (81%).

Regarding the technical skills component, teachers indicate that the technical skills level (57%) is greater than the soft skills level in SBL. Industrial supervisors have the value of (43%) which is almost the same level that performed in soft skills in WBL. However, the human resources positive response gives (81%) where the level performed in SBL and WBL is far less.

From the above explanation, human resources prefer capable students in both soft skills and technical skills as the required skills level by the industry is much higher than the students' performance during SBL and WBL.

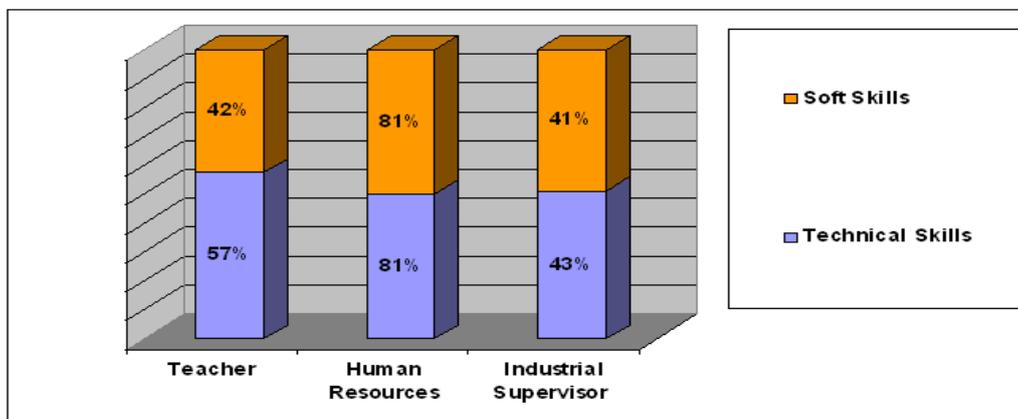


Figure 3 - The Average of the Positive Response in Academic and Technical Skills

Figure 4 shows that the average positive response to the specific technical skills and workplace proficiencies from the three stake-holders point of view.

In specific technical skills, human resources respondents give an average (60%) for their positive responses regarding this component, where teachers and industrial supervisors give the values of (54%) and (55%) respectively. The results indicate that the industrial requirements are slightly higher than the level performed in SBL and WBL.

Industrial supervisors give the highest positive response (75%) regarding the workplace proficiencies component. The required level from this competency is (71%) which is slightly lower than what students perform during WBL and higher than their performance in SBL (41%) from teachers' positive responses.

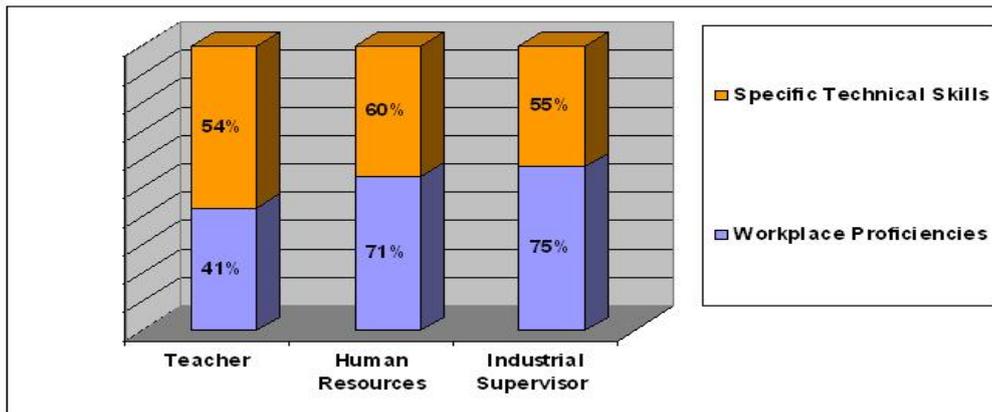


Figure 4 - The Average of the Positive Response in Specific Job Related Skills

The quantitative findings indicate that TVE faces a number of challenges linked to the delivery of appropriate courses and training sessions in SBL and WBL. The findings should allow the development of the right skills required by the modern industry.

Figure 5 shows that the learning and knowledge required by the labour market in Bahrain exceed the learning and knowledge level performed during SBL and WBL. Therefore, TVE system in Bahrain is serving a number of visible needs to the existing labour market (companies which train the students during WBL programmes). However, there are also other requirements which need to be served in TVE learning processes in order to meet the requirements of the modern labour market.

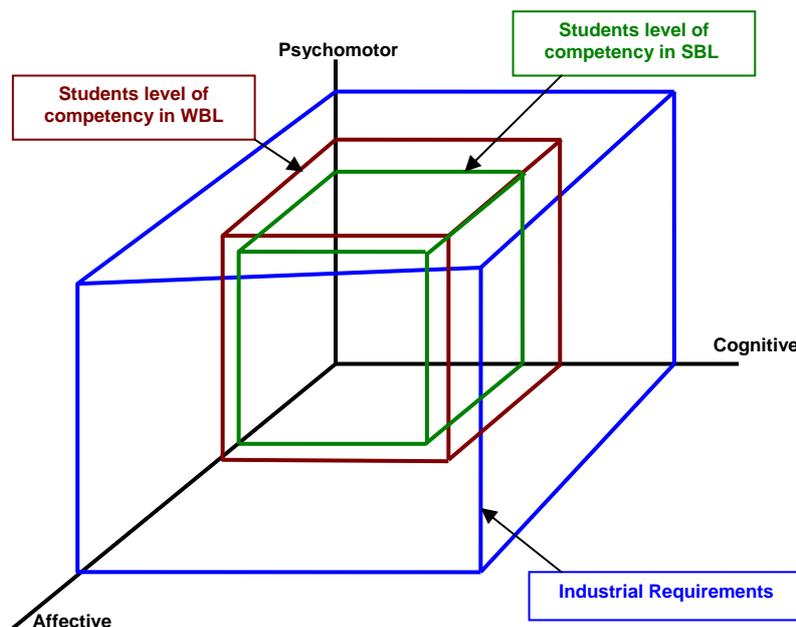


Figure 5 – Comparison between SBL, WBL Competencies and Industrial Requirements
CONCLUSIONS

The identification of the skills gap between SBL and WBL in TVE system in Bahrain represents the initial stage of the research project. The existing skills gap between school-based learning (SBL) and work-based learning (WBL) in technical and vocational education (TVE) system in Bahrain was identified by eliciting the response from teachers, human resources specialists from industry, and industrial supervisors on well designed surveys. The surveys' design and quantitative analysis of the answers was concentrated on bring out skills cognitive, affective and psychomotor domains. The findings have shown that TVE students lack in affective skills most. The future step of the research project will be the design of an employability skills model which will be the basis for the innovation and renewal in TVE in order to reduce / eliminate the gap between employers' needs and the output of educational institutions.

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