ВИМІРЮВАННЯ ТА ПОКАЗНИКИ ЯКОСТІ В ТЕХНІЧНИХ ЗАКЛАДАХ

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MEASUREMENTS AND INDICATORS OF QUALITY IN TECHNICAL INSTITUTIONS

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Анотація. Важливе питання стає якість у сфері освіти. Показники та вимірювання якості освіти забезпечують важливу підтримку для визначення кількох аспектів у навчальних центрах. Відсутність якісних знань та культури, брак робочого процесу та оцінки є основними перешкодами для вдосконалення в технічних навчальних закладах. Більше того, більш глибокі дослідження та дослідження користуються великим потенціалом. Через низку потребу в якісному застосуванні в технічних навчальних закладах; ці установи не відповідають перспективам якості внаслідок відсутності стратегічного планування, чіткого механізму відбору функцій керівництва. Крім того, існує брак структури управління. Метою даного дослідження є вивчення поточного стану якості в навчальних закладах у великому районі Тріполі з травня по листопад 2017 р. З точки зору показників якості та вимірювань, а також впровадження системи якості в цих установах. Дослідження базується на зборі та аналізі даних, наданих кафедрою технічної та професійної освіти. Ця робота була проведена для встановлення та впровадження системи якості у навчально-технічних навчальних закладах. Робота вимагала проведення досліджень галузі досліджень для таких установ, щоб визначити основні аспекти підвищення якості в його базі розвинутих вимірювань та показників. Ця робота також є належним каменем для майбутнього планування впровадження системи якості в установах технічної освіти.

Ключові слова: якість, технічні навчальні заклади, показники якості та вимірювання.

Формат: 0; рис.: 8; табл.: 2, бібл.: 10

Annotation. Quality in education become an important issue. Indicators and measurements to quality in education provide crucial support to determine several aspects in educational centres. Lack of quality knowledge and culture, lack in working process and evaluation are the main barriers to improvement in the technical educational institutions. Moreover, more deep studies and researches are highly in demand. Due to urgent need to quality application in technical educational institutions; these institutions are not appropriate to the vision of quality as a result of absence of strategic planning, clear mechanism for leadership functional selection. Furthermore there is lack in management structure itself.
The aim of this study is to investigate the current position of technical educational institutions within greater Tripoli area from May to November/2017, in terms of the quality indicators, and measurements as well as implementation of quality system in these institutions. The study is based on collecting and analysing data provided by the department of technical and vocational education. This work has been carried out to establish and implement a quality system in technical educational institutions. The work required an investigation of the area of research for such institutions to identify main aspects of enhancing quality departments in technical education regarding to approved measurements and indicators. This work also is a cornerstone for future planning to implement the quality system in technical education institutions.

**Key words:** Quality, Technical Educational Institutions, quality indicators, and measurements.

Formulas: 0; fig.: 8, tabl.: 2, bibl.: 10

**Stating the problem.** Due to urgent need to quality application in technical educational institutions; these institutions are not appropriate to the vision of quality as a result of absence of strategic planning, clear mechanism for leadership functional selection. Furthermore there is lack in management structure itself.

**Analysis of previous research.** Quality in education become an important issue. Indicators and measurements to quality in education provide crucial support to determine several aspects in educational centres. These Indicators and measurements may include study program objectives and tasks, teaching and learning, student’s achievements, teacher’s progress, learning environment, availability in resources, as well as leadership and administration [1]. Information can be classified into descriptive and prescriptive [2]. Evaluating quality in education is sophisticated process. Quality in higher education can be measured by considering certain parameters or indicators; like examination results, facilities and activities [3]. Quality in education is roughly new concept instead of old education efficiency. In higher educational institutions like technical colleges, important decisions advised to be taken upon data and information analysis that have been obtained from pre-prepared measures [4]. Deferent methods to measure quality in higher educational institution have been studied. Measuring indicators involve different characteristics; they are quantitative and work as functional monitor [5]. Many countries have paid high attention to quality assessment and evaluation where quality is a customer focus [6]. Implementation of internal quality assurance system at a technical institution contains the forming standards, procedures, and instructions [7]. Quality analysis relates to the ability to critically analyse the processes of quality development [8]. Quality in educational process is assessment criteria of requirements such as; tools, lecturers, teaching results, and needs. Quality in education is the skill of building and implementing the abilities of using the knowledge in the area [9]

**Unsolved part of the problem.** Lack of quality knowledge and culture, lack in working process and evaluation are the main barriers to improvement in the technical educational institutions. Moreover, more deep studies and researches are highly in demand.

**Main research material.** The work was accomplished via several stages framework as illustrated in figure 1.

![Figure 1. Framework stages](source: compiled by authors)
According to previous framework, a descriptive analysis of collected data including analysis of indicators has been carried out.

Table 1, shows the statistics collected from the field survey of each institution which indicate the numbers of educational departments and personnel.

Upcoming results represent realistic data which are important to identify barriers, advantages, disadvantages that affect planning and processing operations.

### Statistics for each institution

<table>
<thead>
<tr>
<th>Institutes</th>
<th>No. of sections</th>
<th>Faculty members</th>
<th>Associate faculty members</th>
<th>Associate members</th>
<th>Trainers</th>
<th>Employees</th>
<th>Students</th>
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<td><strong>604</strong></td>
<td><strong>1756</strong></td>
<td><strong>18317</strong></td>
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</tbody>
</table>

Source: constructed by authors

From table 1, some vital fields have direct impact to the institutional performances as follows in figures 2, 3, and 4.

Figure 2, reveals the fluctuation in different departments within these institutions. The variance in departments require re-organising of the required departments regarding job needs.

Likely, figure 3, represents the number of employees indicating the variance to the number of students.

Followed in figure 4, the distinguishing between the number of full time and part time staff is exposed.

Re-evaluating of empowering process is required for institutions training.

As overall summary of previous figures; we conclude that technical educational institutions undergo a bulk of challenges and difficulties. These problems reveal the following:

- Resistance to change.
- Lack in organisation structure and job description.
- Lack of motivation and lack of training.
- Lack of self-evaluation methods regarding approved specifications.

Analysis of indicators:

One of the most essential part is to convert obtained results and achieved knowledge into working plans to help with quality in technical educational institutions.

Regarding the sheet forms of evaluation and selected quality indicators, the percentage value of each indicator was calculated to explain the availability of implementing such indicator in the institution.
Table 2, and figure 5, reveal the results of evaluating values in general as well as average percentage for each indicator in series.

The findings of the previous results can lead to real description for better development and performance improvement according to the quality parameters in such fields as illustrated in figure 6.

A group of parameters for each indicator is set to determine the planned objectives in values. Upcoming figure 7, is made to show these indicators and their criteria.

Throughout implementation of last indicators, we understand that technical institutions have a tremendous gaps in application of quality.

Based on field investigation results we found the current situation belong technical educational institutions are in shortage of quality standards; therefore, some field steps to be taken into account to develop and improve the level of performance as illustrated in following figure 9.

**Figure 2. Number of departments in technical education institutions**

*Source: made by authors*

**Figure 3. Number of employees in technical education institutions**

*Source: made by authors*
Figure 4. Number of Faculty members and Associate faculty members

Source: made by authors

Table 2

Results of evaluating values and average percentage for each indicator

<table>
<thead>
<tr>
<th>Institutes</th>
<th>Quality Criteria</th>
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<th></th>
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<td>13%</td>
</tr>
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<td>Higher Institute of Sciences and Technology(HIST2)</td>
<td>Leadership &amp; governance</td>
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<td>13%</td>
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<td>5%</td>
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<td>4%</td>
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<tr>
<td>College of Tourism and Hospitality(CTH)</td>
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<tr>
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<td>37%</td>
<td>9%</td>
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<td>5%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: constructed by authors
Figure 5. General outline of accreditation criteria for the targeted institutes

Source: made by authors

Figure 6. Total results of evaluation

Source: made by authors
An average of 11% indicates deficiencies in the lack of plans, eligible elements, and documentation processes.

An average of 20% indicates deficiencies in job descriptions, regulating administrative and financial processes and administrative and academic leadership.

An average of 11% indicates deficiencies in the description of programs and courses, and the updating of educational programs.

An average of 15% indicates deficiencies in the employment of workers, the development and rehabilitation of workers and mechanisms for evaluating employees.

An average of 17% indicates deficiencies in student registration, support-guidance.

An average of 57% indicates an acceptable infrastructure in facilities and educational support services but needs to provide modern educational and technical tools.

Not appropriated with approved quality requirements

Not appropriated with approved quality requirements

An average of 5% indicates deficiencies in acceptance of quality culture and Mandatory quality legislation.

Source: compiled by authors
These operations in several survey fields were done to achieve final conclusion of quality progression and improvement. The work was done in parallel whereas the results were taken as a total of all together.

**Conclusions.** This work has been carried out to establish and implement a quality system in technical educational institutions. The work required an investigation of the area of research for such institutions to identify main aspects of enhancing quality departments in technical education regarding to approved measurements and indicators. This work also is a corner stone for future planning to implement the quality system in technical education institutions.

**References:**