

Evaluation of Quality Assurance Implementation in Sana'a University: The Computer Center as a case

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Abstract— Both the increased demand of higher education in the Republic of Yemen and the vigorously competition of educational institutions in order to meet the demand of the labor market with qualified graduates, the higher education institutions have to work very hard to overcome these challenges by improving the quality of their outcomes and using modern tools. The quality assurance standards are the best tools to ensure the quality of learning outcomes. Sana'a University is one of these education institutions, and it is the largest university in the Republic of Yemen which has more than 80000 students; therefore, it will be a good sample to investigate the quality assurance standards [1].

The research studies and investigates the implementation of quality assurance standards, according to the standards of the Ministry of Higher Education of the Republic of Yemen. The quantitative study used descriptive-analytic approach in order to assess and describe the current situation of Sana'a University - Computer Center (SUCC) as a case study. The questionnaire was used as the data collection instrument method. These questionnaires distrusted to 52 respondents, academic staff and administrative staff. Forty-three respondents replied and three respondents are dropped because they did not complete the survey.

According to the findings and results, and based on the standards of the Ministry of Higher Education in the Republic of Yemen, SUCC does not meet the average level of the implementation of the quality assurance standards. The research conducted a thorough investigation based on the findings, the paper comes up with several recommendations that need to be implemented at SUCC in order to meet these standards.

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Keywords- *Quality, Quality Assurance, Total Quality Control, Quality Assurance Standards; Higher Education; Sana'a University; Yemen.*

I. INTRODUCTION

In order to meet the demand of the labor market with qualified graduate students and also and win over competitive institutions, higher education institutions must implement and keep implementing best processes. The implementation and continuous improvement should cover all components of the educational process such as input, output and processes. According to the international criteria of quality assurance, which contains a set of standards, which can achieve competitive outputs for labor market and challenges of the era [2]. One of the best practices to achieve that is through implementing a quality assurance system that help the top managements to improve the educational institutions and solve the problem efficiently [3]. The Ministry of Higher Education in the Republic of Yemen issued the Standards of Quality Assurance as part of Law 13 2005 and instructed all public and private educational institutions to implement it. As the result of that law, the Council of Academic Accreditation and Quality Assurance was created and its main goals are the establishment and implementation of the appropriate quality assurance standards in all education institutions in the Republic of Yemen [4]. Sana'a University is the first and largest university in the Republic of Yemen, and all other universities public and private look upon it for its roles, regulation, polices, etc. Therefore, implementing quality assurance standards is a big priority in the university to meet the requirements set by the Ministry of Higher Education. Although everyone in the university's management is talking about quality assurance procedures, there are some difficulties in the implementation of these procedures. Both the latest report of The World Bank about the higher education status in the Republic of Yemen [5], and the report of the United Nations Development Programme (UNDP) - Regional Bureau for Arab States (RBAS) on Quality Assessment of Education Programmes in Arab countries [6], state that there is a problem in the quality of higher education in Republic of Yemen. This research investigates and examines to what extent the standards of quality assurance are implemented currently at SUCC was chosen as a case study for the research.

II. RELATED WORK

Quality assurance went through a lot of stages throughout time. The definition might differ from country to another country, but the concepts and process are very similar. These concepts are: Quality Assurance, Total Quality Control, and Quality Assurance Standards. These concepts became very important in the academic arena for a better output.

The issues of quality in higher education have been discussed over the past three decades at different levels in Europe and USA. Then quality assurance system began to replace other systems and considered worldwide at higher education in the 80s [7]. However, this does not mean that there is no concept of quality in higher education before that.

In recent years, quality assurance has become critical in higher education. This importance is seen in the memberships of The International Network for Quality Assurance Agencies in Higher Education (INQAAHE), which started in 1991 with only eight memberships and by 2010. It became more than 200 memberships [8].

Based on the reports from universities and colleges that apply quality assurance in their systems, they become more expandable and have more impact and efficient [9].

The researchers Martin and Stella defined quality assurance “Quality assurance in higher education is a term that refers to the monitoring and evaluation and review of all processes in order to build trust with stakeholders in order to achieve the expectations and meet the minimum requirements”, and also The researchers Martin and Stella assured the objectives of quality assurance is to ensure the academic program and institution internal and external, internal by the institution itself and external by external agency government-related or an association accreditation [10].

Quality assurance is a system that aims to provide security and ensure that the total quality control (TQC) place and practice effectively. Quality assurance system included a set of actions, behaviors, activities and planned to provide a confidence product (good or service) that will meet the particular needs. Okland points that quality is seeking to avoid quality problems through a variety of activities planned and systemic, and build a real system for quality management. It's evaluation of the efficiency of this system and audit and review operations of the system [11].

Quality assurance is a linked to the TQC. As Feigenbaum researcher defines the total quality control as an efficient system to achieve the integration of efforts to develop and improve the level of quality. That is being to design and sustain the level of quality, which is achieved by a combination of all units of the organization. So that, they can produce and provide the service level that provides full and complete satisfaction of the beneficiaries [12].

Hutchines sees that quality assurance focuses on the development and maintenance of a set of documented procedures. That is designed to ensure that activities, developments, and operations, that lead to producing (goods or services) that meet the needs or requirements of beneficiaries [13].

Waters confirms that quality assurance means all functions of the organization to ensure that all level of quality is met what the beneficiaries' wants and needs [14].

In the view of Valley and Al-Tai quality assurance is a set of oversight activities that contact in early (or preventive) and ensure and give confidence. It's not to get deviations of problems or prevent it. It aims to provide quality assessments, and the quality assurance extends to the design of the product and its input of this product to be subjected to the appropriate operations. In order to reach and hand over to the beneficiary and the satisfaction of their needs. The quality assurance conducts the documentation and continuous improvement in all aspects of the system [15].

Quality assurance has got considerable attention from the international organizations such as the International Organization for Standardization ISO. It appeared in its issuance ISO-9000 in 1994, which was focused on a set of elements and requirements for quality assurance system.

After 1994, many researchers conducted to clarify those elements in details, and they reached about three hundred elements and requirement [16].

On the other side, quality assurance has gotten attention of the international award. So most of the international organizations give quality assurance a high score within its calendar elements to let the competitors to achieve it, in order to get the award and ensure the quality assurance exits.

According to Ruben and Sandmeyer, the national productivity award was established as a result of the White House Conference on productivity during the Reagan administration in September 1983. It was to demonstrate the importance of improving quality, productivity, and international competitiveness. In addition, the American quality award has created to be similar to the award in Japan Deming Prize Award by the USA organization standards such as the American Productivity and Quality Center (APQC) and National Advisory Council for Quality (NACQ). These standards became a law in 1987 [17].

The models and techniques use benchmarking, which agencies and organizations use to internalize total quality management (TQM) and continuous quality improvement (CQI) [18].

According to Freed, Klugman and Fife that the state fundamental problems that inhibits the spread of quality techniques like benchmarking in the higher education as (a) the lack of assessment techniques in the higher education, (b) the independence of mutual processes across organizations, and (c) the few leadership training for their staff [19].

Freed, Klugman and Fife (1996) states for the techniques that are seeking answers to fundamental questions to develop quality and productivity in higher education “essential for implementing the quality principles; they make it possible to collect, visualize, analyze, and interpret information to improve a process...some are useful for interpreting numerical data, while others can be applied to verbal data” [18].

The emergence of quality movement and benchmarking are a result of improving both the American productivity and the global competition. Some of the current uses and practices of benchmarking in the higher education are:

- Teaching and Learning Consortium (TLC) at Penn State is an innovation benchmarking effort which teams constructed of department heads, faculty, and students, where they discuss the process of learning process and teaching from different perspective practices. After that, they share these best practices in an internal benchmarking project [19].
- Benchmarking is a key to improving the quality of knowledge transfer come as the recommendation from Elibee and Mason [19].

When initiative examining institutions that vary in their sizes and purpose to establish best practice in the following areas marketing, political and management purposes, Brewer came up with positive outcomes he indicated “where it can be determined that two similar institutions have notable differences, further exploration may reveal which practice is more successful in terms of service to the student and continued feasibility for an institution. At that point, clearer comparisons may be drawn for the purposes of benchmarking” [20].

Clinch pointed out that the top performance were the result of proactive standards, guidelines, policies adopted at superior performing institution that supported best practice performance [21].

According to UNESCO report “without a good training and research system at higher education level, no country could assure a degree of progress compatible with the needs and expectations of a society which economic development is accompanied by building of a culture of peace based on democracy, tolerance, and mutual respect” [22]. This support by the Inter-University Council for East Africa (IUCEA) in order to achieve its objectives the educational institution should continue to provide quality assurance of education [22].

International Institute for Educational Planning (UNESCO) mentioned in its website half of all countries worldwide have created their own quality assurance standards during the last years. Due to several factors as following [23]:

- Due to the wide expansion of higher education system, it resulted in a wide range of providers in the private and public institutions sector, and cross-border institutions.
- The fraud and problems that resulted from globalization made awareness and trustworthy institutions jump in and provide quality education.
- The lack of budget affected the higher education in many countries and made these countries focus more on the primary education, and quality assurance mechanism will ensure continuous improvement in this section.

- Internal quality assurance (IQA) is defined as the institution policies for ensuring that it fulfills its standards and its own purposes.
- The external quality assurance (EQA) is defined as the actions of the external body, and it includes assessment, audit, and accreditations.

Quality assurance has the following two objectives: First, control /accountability that check if the minimum standards are implemented in higher education. Second, quality improvement, which identifies the development processes such as strengths and weaknesses [8].

According to researcher Zakarea , if any educational institute implements the quality assurance system, educational institute will be able to achieve different type of objectives and gain many benefits such as (a) increase the competition ability and sustainability, (b) increase confidence of society in educational institutions, (c) improve the effectiveness and efficiency of the academic and non-academic staff, (d) enhance the loyalty of the academic and non-academic staff, (e) to ensure all the academic activities is going in the right direction, (f) to establish new academic programs to cover the labor market, (g) supporting the knowledge transfer management [24].

III. STANDARDS OF QUALITY ASSURANCE FRAMEWORK BASED ON THE HIGHER EDUCATION IN THE REPUBLIC OF YEMEN

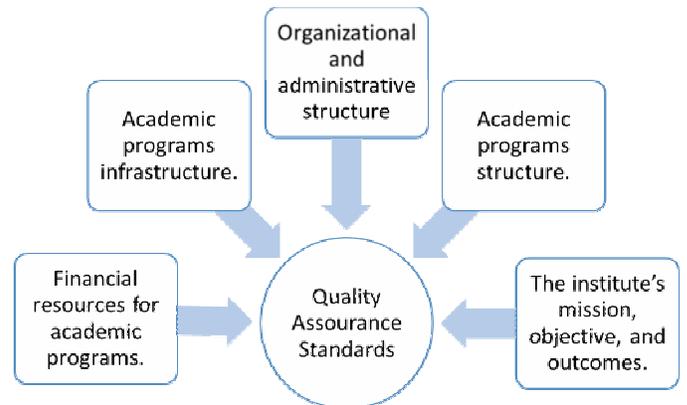


Figure 1: Research Conceptual Framework.

The framework is the first level of quality assurance standards and accreditations for higher education institutions, which is called “initial” created by The Council for Accreditation & Quality Assurance. The framework contains five standards as shown in figure 1. The first standard includes: a mission, objectives and learning outcomes of the academic program. In this standard, educational institutions should have a clear mission, vision, and objectives that should be declared internally and externally and fit with the level of the higher education requirement in the Republic Yemen. The Learning Outcomes of the Academic Programs in the educational institutions should be clearly defined by specialists. It should reflect the nature of the specialization and ensured in the specifications of the curricula and activities. Learning outcomes should ensure the ability of graduates to apply

knowledge and skill when dealing with issues and problems. Also, it should enhance the ability of graduates to act with confidence and responsibility to participate seriously to develop their knowledge and skills and to give graduates the needed knowledge to act sincerely and shows a commitment to community service [4].

The second standard includes: the academic programs in terms of study plans, curriculum, academic staff and admission system. In this standard, the Academic programs should have a clear and specific specification that include basic components and achieve the minimum level of credit hours accredited. Curriculum should be distributed clearly into all academic programs. These academic programs include university requirements, electives, mandatory, compulsory training, and practical service. Curriculum has to cover the requirements of learning outcomes and certificate requirements. Curriculums should be described clearly, and it should include (course No., course name, credit hours, objectives, term, year, prerequisite, description, contact, grade distribution, etc). In addition, it should be documented in a clear and good way, according to international. The institutions should apply a clear system semester or annual like (16 week for semester or 32 weeks for year). It has to have a clear time for each lecture like (60 minutes theoretical and 120 minutes for labs) that comfortable with all policies, regulations and laws of the educational process followed in the Republic of Yemen. The institutions education should have sufficient number of academic and assistants to cave the requirement of the academic programs. Quorum teaching should be distributed to academic members and their assistants according to the applied standards. These institutions should have at least one academic member specialized in each program that is offered. The Percentage of academic members to the number of students should be 1:20. The educational institution must have a clear admission System that defined the capacity and the criteria of each program [4].

The third standard includes: organizational and administrative of the academic programs. In this standard, the educational institution should have an independent administrative and financial system (full autonomy), and it should have an effective management system to implement its activities and programs with high responsibility that doesn't conflict with the laws and regulations. The institution's structure should be clear and commensurate with its size and programs. The executive management should be able exercise its authorities and authority granted according to applicable laws and in flexible manner. All academic and non-academic staff must follow a clear system and must be evaluated and motivated periodically. The educational institution must be giving sufficient authority to prepare academic programs and implement them, and also must be giving sufficient authority to search for financial resources to implement those academic programs. The academic staff should have a full freedom to choose their area of specialization, research, publishing, and academic activities according to regulations and laws [4].

The fourth standard includes: the physical infrastructure necessary for academic programs in terms of the facilities and educational infrastructure. In this standard, the educational

institution should have a sufficient number of classrooms and halls that are equipped with teaching aids and appropriate equipment. The space of classrooms should be suitable to accommodate students. Also the educational institution should have a sufficient number of laboratories that required implementing the academic programs. Laboratories should be equipped with appropriate equipment, tools, and materials (according to the requirements of available and approved programs). The capacity of the laboratories shouldn't exceed more than 20 students. The educational institution should have a sufficient number of offices for the academic and administrative staff with suitable spaces and has meeting rooms for the board and scientific programs meeting. The educational institution should have a library for students and academic staff with enough space and contains variety of sources that linked to the academic programs. The library must contain a variety of electronic sources to provide researchers with required information. The library should have at least 5 modern scientific journals. The educational institution should provide electronic learning resources center to support the educational and research activities like (eBooks, electronic magazines, etc) in all academic programs. The educational institution should train researchers and students, on how they can use the available electronic resources. The educational institution should be linked with the Information Center of the Ministry of Higher Education or any other centers. Computers should be enough to support the academic programs, at least one computer for each academic staff, and one computer for 10 students. Each lab should have at least one data show. The educational institution should have electronic system for admission with qualified staff that is suitable to manage all procedures. There must document and archive all documents of admission individually for each student. Besides, they should provide a variety of records and files based on tasks and activities that are required by the programs offered and all administrative units. The health unit should have the necessary equipment and medical material for first aid and it must have sufficient number of specialized staff. The educational institution should have other facilities like sport facilities, toilets, green spaces, and restaurants (Cafeteria) with sufficient space for academic, administrative, and students [4].

The last one includes: financial resources that required implementing the academic programs. In this standard, the educational institution should have adequate financial resources to implement its activities and programs, according to a clear annual budget. In it, it must include the revenue and expenditure. Annual budget should be evaluated annually. Accounting system should be in accordance with the government accounting system. The accounting system should yield for monitoring and external auditing from Central Organization for Control and Auditing or any accredited organization. For Expenses, the educational institution should have an internal regulation to regulate the exchange of financial resources to achieve its mission and vision and objectives. The educational institution must allocate percentage of its budget for the purposes of scientific research, publishing, training, and scientific conferences and also for scholarships and graduate studies [4].

IV. THE METHODOLOGY

Research methodology is quantitative and used the descriptive-analytic approach. the quantitative data is a data that generally collected from structured questions. According to Sekran, 2006: The descriptive approach seeks to describe the current status of the identified variables or phenomenon.: “a descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation” and “Descriptive studies are also undertaken to understand the characteristics of organizations that follow certain common practices”. The main goal of the descriptive approach is to provide researchers to describe the related perspectives of the phenomena in terms of individual,

organizational, or other perspectives [25, p. 121].The data collection instrument of the research was the questionnaire. The questionnaires distribute in SUCC to the academic staff, and administrative staff. These questionnaires distrusted to 52 respondents, academic staff and administrative staff. Forty-three respondents replied and three respondents are dropped because they did not complete the survey.

V. DISCUSSION AND RESULT

The research uses the mean, standard deviation, ranking, percentage of the implementation, and level of the implementation (Agreement Degree) to find to what degree SUCC implement the quality assurance.

Table 1: The Mean of Implementation of the Five Standards in SUCC.

| Standard Code | Standard Name | N | M | SD | R | PI | LI |
|---------------|--|----|------|-------|---|--------|---------|
| STD_01 | Mission, objectives, and learning outcome of academic programs | 14 | 3.11 | 0.984 | 2 | 52.75% | Average |
| STD_02 | Structure of academic programs | 19 | 3.23 | 1.031 | 1 | 55.75% | Average |
| STD_03 | Organizational and management structure | 12 | 3.10 | 1.011 | 3 | 52.50% | Average |
| STD_04 | Physical infrastructure | 46 | 2.48 | 0.957 | 5 | 37.00% | Low |
| STD_05 | Financial Resources | 8 | 2.83 | 0.984 | 4 | 45.75% | Average |

Table 1 shows the highest score of the implementation in SUCC from the five standards was the standard of the structure of academic programs with mean 3.23, standard deviation 1.031, percentage of implementation 55.75%, and level of the implementation of this standard in SUCC was average level. The second ranking was the standard of the mission, objectives, and learning outcome of academic programs with mean 3.11, standard deviation 0.984, percentage of implementation was 52.75%, and level of the implementation of this standard in SUCC was average level. The third ranking was the standard of organizational and management structure with mean 3.10, standard deviation 1.011, percentage of implementation was 52.50%, and level of the implementation of this standard in SUCC was an average level. The Fourth ranking was the standard of the financial resources with mean 2.83, standard deviation 0.957, percentage of implementation was 45.75%, and level of the implementation of this standard in SUCC was an average level. The fifth ranking was the standard of the physical infrastructure with mean 2.48, standard deviation 0.984, percentage of implementation was 37.00%, and level of the implementation of this standard in SUCC was an average level.

Based on the respondents and Table 1, most of five standards of quality assurance that issued by the Ministry of Higher Education were have an average level of the implementation in SUCC. In another way, SUCC does not apply quality assurance.

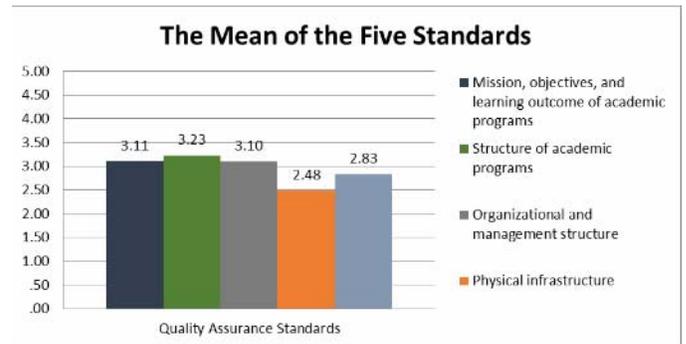


Figure 2: The Mean of the Implementation of Five Standards in SUCC

VI. CONCLUSION AND RECOMMENDATIONS

On the light of the findings, the research finds, and as indicated in Table 1, the level of the implementation of first, second, third, and fifth standards were an average level. The percentage of the implementation of *mission, objectives, and learning outcome of academic programs standard* was 52.75%, the *structure of academic programs* was 55.75%, the *organizational and management structure* was 52.50%, and the *financial resources* were 45.75%. The fourth standard, *physical infrastructure*, has the lowest level of implementation in SUCC with 45.66%. Based on these percentages, the level of implementation of quality assurance standards not adequate. SUCC needs to take major steps in order to implement these standards. Creating a quality assurance unit is the first initiative that the university should be taken so it could start implementing and enforcing the quality assurance standards

within the university. The second initiative that should be taken is to replace the outsourced academic staff with permanent staff. Finally, the SUCC management team should take the initiative to change cultural work and to embed the quality assurance procedure within all its work.

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