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Research Article

International and National Certification Systems: A Comparative Study

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Abstract

In recent years, the face of many professions has changed dramatically. Globalization, altered demographics and the explosion of innovations in information technology have created new opportunities and challenges, even new occupations have arisen to meet the demand. Nowadays, both, public and the private sectors are seeking proof of competence through the certification of new and existing professions. Before licensing a person to practice a profession, requirements for that license should be established. These requirements typically include educational prerequisites and assessments of the knowledge and skill expected of a beginning professional. Then, if a candidate satisfies the educational prerequisites and demonstrates adequate knowledge and skill through tests and performance assessments, an authorized body grants the candidate a license. This paper attempts to compare the existing system of accreditation and certification systems that are available in the national/international level. Thus providing a road map to develop a certification system for engineering faculties in India, where the authors is currently working on.

Keywords: *Benchmarking, Teacher certification, personnel certification*

1. Introduction

Examination of competency has always been an important function in successful organisations. Outcomes of examination provide information on the capability of individuals and organizations to achieve their work and business plans. Certification means a certificate that attests to the fact that an individual is qualified and thus authorized to teach. This process is similar to the process states employ to determine that doctors, lawyers, psychologists, and physical therapists should be licensed to practice their respective professions (Silberhorn, 2003).

Accreditation is the procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific tasks whereas Certification is an asset and an advantage, both for the producer and for the purchaser, consumer or distributor. It gives an incontestable added value to the product or service bearing its mark. The certification systems that are available in the education field are that given by National Board of Accreditation (NBA) for the different courses and that of National Assessment and Accreditation Council (NAAC) for the institutions/universities. This paper attempts to compare the existing system of accreditation and certification systems that are available in the national/international level. Thus providing a road map to develop a certification system for engineering faculties in India, where the authors is currently working on.

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2. Certification

Certification is a simple concept: it is a written testimony that a person has the necessary qualifications to perform the functions that he or she was certified to do. However, the process of determining and obtaining the required qualifications can be complex. A person can be certified in one process or several, and there are many levels and processes where certification can be obtained. Certification can be broadly applied or limited to certain tasks. Employers and individuals can obtain certification based on the qualification services, which can be obtained through a recognized certification agency.

2.1 Importance of Certification

Certification is an asset and an advantage, both for the producer and for the purchaser, consumer or distributor. It gives an added value to the product or service bearing its mark. For the manufacturer or service provider, it means the goods or service, opens up new markets and simplifies relations. For the user, it provides assurance that the product meets defined characteristics or that an organization's process meets specified requirements. Certain product certification marks may represent an assurance of safety and quality. Certification enables one to distinguish apparently identical products or services; it also offers the possibility of appeal in the event of dissatisfaction (Richard, 1994).

3. International Certifications

All successful certification programs have one common element and that is to serve and protect the public's

interest. Many professions require a license to practice such as in medicine, engineering, and accounting. A license is basically a certification program offered by the state. If a profession is licensed, it is generally required that a person have a license to practice in that profession. Certification programs set standards for knowledge, skills, and conduct. These standards define the profession of agronomy, which gives farmers, employers, and government agencies a tool to help them choose professionals with the necessary skills to meet their needs. The public may also file a written complaint against a professional with the potential penalties of their certification being revoked or suspended. In summary, certification programs set standards, measure applicants against those standards, and are responsible for investigating individuals that practice outside of the program's code of ethics. The following are the few examples of present certification systems.

3.1 Welder Qualification and Certification

To become certified the welder must possess the skills necessary to produce a sound weld that is visually acceptable and meets the testing requirements. The Testing Procedure involves the welder making a weld, that is then tested by an Inspector, to ensure that the weld conforms to a particular Code, Standard, or written Welding Procedure Specification (WPS). Testing Methods include Visual inspection, and may involve either destructive or non-destructive testing.

3.2 Association of Chartered Certified Accountants (ACCA)

The ACCA is a British chartered accountancy body with a global presence that offers the Chartered Certified Accountant (Designatory letters ACCA or FCCA) qualification worldwide. The Institute's headquarters are in London with the principal administrative office being based in Glasgow.

Chartered Certified Accountant (ACCA) - Professional Scheme

The Professional Scheme is the primary qualification of the ACCA and, following completion of up to 14 professional examinations and three years of supervised, relevant accountancy experience, enables an individual to become a Chartered Certified Accountant In accordance with ACCA's traditions, there is open access to its examinations.

Certified Accounting Technician (CAT)

This is an introductory accounting technician qualification. Although CAT can be obtained as a standalone qualification, it is often the case that individuals study for CAT as an introduction to accountancy prior to starting the Professional Scheme. It usually takes 1.5 years to complete the Certified Accounting Technician exams. However, there is no restriction on the number of papers that can be attempted in one attempt as per American Society for Quality .

3.2 Microsoft Certified Professional

The Microsoft Certified Professional (MCP) credential is for professionals who have the skills to implement a Microsoft product or technology successfully as part of a business solution in an organization. Exams are administered by independent testing organizations at locations worldwide.

3.3 CCNA Certification

The Cisco CCNA network associate certification validates the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks, including implementation and verification of connections to remote sites in a WAN. CCNA certifications are valid for three years.

3.4 Software Certifications

The recipient is acknowledged as having an overall comprehension of the disciplines and skills represented in a comprehensive body of knowledge for a respective software discipline. Certification demonstrates a level of understanding in carrying out quality assurance principles and practices. Acquiring the designation of

i) Certified Software Quality Analyst (CSQA)**,**
ii) Certified Software Tester (CSTE) and
iii) Certified Software Project Manager (CSPM)

It indicates a professional level of competence in the principles and practices of quality assurance in the IT profession. CSQAs, CSTEs and CSPMs gain recognition as software quality profession, achieve potentially more rapid career advancement, and gain greater acceptance in the role as advisor to management.

3.5 Quality Engineer Certification (CQE) By American Society for Quality (ASQ)

The Certified Quality Engineer is a professional who understands the principles of product and service quality evaluation and control. This body of knowledge and applied technologies include, but are not limited to, development and operation of quality control systems, application and analysis of testing and inspection procedures, the ability to use metrology and statistical methods to diagnose and correct improper quality control practices, an understanding of human factors and motivation, facility with quality cost concepts and techniques, and the knowledge and ability to develop and administer management information systems and to audit quality systems for deficiency identification and correction. ASQ requires recertification every three years.

4. National Certifications

Some of the certifications applicable in the national level are:

4.1 Certification of Professional Engineers

The Institution of Engineers (India), the largest multi-disciplinary professional institution of engineers, had been certifying Professional Engineers (PEs) for over a decade. With increasing globalization and trade in services, enabling free movement of professionals across the world, the necessity of engineers acquiring international level certification has become inescapable. The Institution of Engineers (India), responding to the requirement and in service of engineering profession, has modified systems and procedures of Certification of Professional Engineers in line with international norms and has obtained provisional membership of the Engineers Mobility Forum (EMF). The Professional Engineers so certified to the international level and placed on International Register after due process, would be eligible to practice their profession internationally without additional scrutiny or certification beyond what is applicable to domestic engineers in the receiving countries.

Engineers whose qualification is BE / B.Tech or equivalent, recognized by the Statutory Authority or Government of India and who are having 7 years or more experience, out of which professional experience of 2 years in a responsible position of a significant engineering activity, having membership of a recognized professional society and having maintained continuous professional development at satisfactory level, can submit application in the prescribed format.

4.2 The Bureau of Indian Standards (BIS).

Bureau of Indian Standards (BIS)**,** the National Standards Body of India has been providing service to the Indian industry for more than five decades by way of formulation of national standards and operation of product certification scheme.

Product Certification

The product certification scheme is basically voluntary in nature and aims at providing quality, safety and dependability to the ultimate customer. Conformity is ensured by regular surveillance visits of the units Performance of licensee is monitored by surprise inspections and testing of samples, drawn both from the factory and the market.

ECO Mark

The Government of India had instituted a scheme in February 1991 known as ECO mark Scheme for labeling environment friendly products. The Bureau of Indian Standards administers this scheme.

Quality Management Systems Certification (ISO 9000)

BIS is a national agency authorized to operate Quality Systems Certification in India. It has adopted ISO 9000 series of standards as IS 9000 series Indian Standards, and aligned the procedure for operation of Quality Systems Certification, based on international criteria and is comparable to any other such systems being operated.

EMS Certification

With the growing concern for environment friendly industrial activity, ISO 14000 series of standards have been developed. BIS, after adoption of these standards as national standards, has launched Environment Management System (EMS) Certification.

HACCP Certification

BIS launched HACCP (Hazard Analysis Critical Control Points) based Quality System Certification Scheme as per the requirements of IS 15000: 1998 standard (equivalent to Codex ALINORM 97 / 13A).

Hallmarking of Gold Jewellery

In order to protect consumers against victimization of irregular gold quality. Hallmarking of gold jewellery was launched under BIS Act, 1986. This scheme is voluntary in nature.

5. Accreditation

Accreditation is both a status and a process. As a status, accreditation provides public notification that an institution or program meets standards of quality set forth by an accrediting agency. As a process, accreditation reflects the fact that in achieving recognition by the accrediting agency, the institution or program is committed to self-study and external review by one's peers in seeking not only to meet standards but to continuously seek ways in which to enhance the quality of education and training provided.

6. Accreditation Bodies

Some of the accreditation bodies in India are:

6.1 The National Assessment and Accreditation Council (NAAC)

NAAC's process of assessment is towards holistic, systematic, objective, databased, transparent and shared experience for institutional improvement. NAAC has formulated a three-stage process for assessment and accreditation as given below:

i) Institutional Eligibility for Quality Assessment (IEQA):

In the first step of Assessment and Accreditation, Institutional Eligibility for Quality Assessment (IEQA) is required to be obtained by an applicant institution at the beginning, while it is still in the planning stage for assessment. The benefits of this step for an applicant institution are:

Table 1 Comparison of different certification & accreditation bodies

S.No.	Name of Certifying body	Name of certification	Period of certification	Method of certification
International Certifications				
1	Welder qualification and certification	Certified Welder Technician(CWT)	3 Years	Welding test, separate for each type of weld.
2	Association of Chartered Certified Accountants (ACCA).	1.Chartered certified accountant (ACCA) - professional scheme.	3 Years	14 Examinations
		2.Certified accounting technician (CAT)	1.5 Year	Examinations
3	Software certifications	1.Certified software project manager (CSPM)	3 Years	Online/paper based exam
		2.certified software quality analyst (CSQA)	3 Years	Online/paper based exam
		3.certified software tester (CSTE)	3 Years	Online/paper based exam
4	American Society for Quality (ASQ).	Quality Engineer Certification (CQE)	3 Years	Examinations
5	Microsoft	Microsoft Certified Professional (MCP)	3 Years	Examinations
6	Microsoft	Micro Soft certified Systems Engineer(MCSE)	3 Years	7 Exams
7	CISCO	CCNA	3 Years	CCNA Exam
8	CISCO	CCNP	3 Years	CCNP Exam
National Certifications				
9	The Institution of Engineers (India)	Certification of professional engineers		Examinations
10	The Bureau Of Indian Standards (BIS).	1.Product certification		Filing Application & inspection from BIS
		2.Quality Management Systems Certification		Filing Application &inspection from BIS
Accreditation				
11	National Board of Accreditation (NBA)	Accredited/Not accredited	3Years & 5Years	Filing Application &inspection from NBA
12	National Assessment And Accreditation Council (NAAC)	Accredited/Not accredited	3Years & 5Years	Filing Application &inspection from NAAC

- To get recognized as eligible to apply for the second step comprehensive Assessment and Accreditation process;
- To get feedback about specific improvements to be made for reaching the required quality level from NAAC if it does not qualify in the first step,.
- To receive assistance and suitable mentoring from NAAC in the latter case for enabling it to qualify for IEQA in due course of time.

ii) Preparation of the Self-Study Report by the institution, its submission to NAAC and in-house analysis of the report by NAAC.
iii) Peer Team Visit to the institution for validation of the Self-Study Report followed by presentation of a comprehensive assessment report to the institution. Grading, Certification and Accreditation based on the evaluation report by the peer team (Roy, 2008).

6.2 National Board of Accreditation (NBA)

NBA accreditation is a process of quality assurance, giving credit where it is due for some clearly visible and demonstrable strategies of academic activities and objectives of the institutions, known to be honestly pursued and efficiently achieved by the resources currently available with a potential for continuous improvement in quality for effective growth.

The goal of the NBA is to develop a Quality Conscious system of Technical Education where excellence, relevance to market needs and participation by all stake holders are prime the major determinants. NBA provides the Quality benchmarks targeted at Global and National Stockpile of human capital in all fields of technical education.

7. Personnel Certification

Individuals (personnel) who carry out work that requires special skills, where there is a risk to industry or to public safety, it is important that there is a third party that certifies that they have the skills suitable for the work. This is the concept of personnel certification(Linda, 2004). Personnel certification activities need to be undertaken in accordance with international rules or criteria. If the certification process does not comply with international practice, there is a risk that the work of a person who is qualified in one country may not be accepted in other countries.

Before giving license to a person to practice a profession, it establishes the requirements for that license. These requirements typically include educational prerequisites and assessments of the knowledge and skill expected of a beginning professional. Then, if a candidate satisfies the educational prerequisites and demonstrates adequate knowledge and skill through tests and performance assessments, a candidate can be licensed.

Many universities, recognizing the student as the main consumer of college instruction, have begun to seek his views regarding the quality of teaching. It was shown that students attached primary importance to method of instruction. All students concurred in emphasizing the importance of the teacher's ability to communicate ideas, and his ability to stimulate thinking. The undergraduate students rate teachers by their ability to transmit knowledge rather than according to the university's criteria of research and publication.

Teacher preparation and teacher certification clearly do not conform to the mainstream model of professional preparation and certification.

Today, new teacher graduates begin with less overall preparation than do peers entering other professions (new professional teacher graduates begin to teach with only four years of preparation) (Richard, 1994). They have had to accomplish in four years what other professionals accomplish in six to nine years. Thus, teacher preparation may be delivered according to rigorous standards. Because of the unevenness of teacher preparation, the preparation experience provides an uncertain basis for public confidence in the quality of beginning teachers. As per NAAC, what the certification process should reveal-is whether new teachers can put to work what they have learned, so that their students will learn. A comparison of different personnel certification schemes are given in table 1.

Conclusions

Teaching is simply not a process that consists of application of codified techniques and principles that can be developed in the laboratory or learned in the university class. The critical skills are acquired through experience. In other words, the question is not whether there is a set of skills or knowledge that teachers need to have to be effective, but how teacher's best acquire them. There is much to learn and know about teaching well, but the acquisition of this knowledge through classroom experience cannot be preempted or circumvented. In fact, professional education coursework may have considerable value for enriching the professional development of practicing teachers and in new teacher induction programs.

The scope of this paper is limited to the comparison of different certification systems and accreditation systems in the national/international level.

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