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March 28-31, 2019, Colombo, Sri Lanka

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An Approach to Recognize Non-State Higher Education Service Providers in Sri Lanka

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Abstract:
In the recent years, the non-state higher education sector of Sri Lanka is growing rapidly. Some institute offer only local degrees approved by the Ministry of Higher Education and another group of institutes offer both locally approved degrees as well as foreign affiliated degrees. The third group of institutes act as a service provider for foreign degrees only. However, there is no proper quality assurance and accreditation process is carried out to validate the quality of these non-state higher education service providers and their programs offered. In this paper we are proposing a systematic approach with a framework for recognizing and accrediting non-state higher education service providers and their programs in Sri Lanka.

1. Introduction

A quality higher education is more important than ever before, in both industrialized and developing countries. Therefore, higher education frameworks that ensures high quality, occupy an important place on national policy agendas. In Sri Lankan state university context, the state universities have been practicing a self-quality assurance and self-accreditation process, where the state universities have their own guidelines to assure the quality of their institutes or programs.

However, even though there are many non-state higher education service providers in Sri Lanka, and some of them are even providing cross border education, there is no proper self-quality assurance and self-accreditation process carried out. These non-state higher education service providers offer certifications, diplomas and degree status to their students. Even though the non-state sector of Sri Lanka consists of over 50 institutes, there are only 16 institutes that are approved by the Non-State Division of Ministry of Higher Education in Sri Lanka. Hence, students, parents and potential employers are uncertain of the quality of these non-state higher education institutes and their programs. Because of these reasons, it is very important to have a general recognition/accreditation process for non-state higher education service providers can refer to, when assessing the quality of the higher education institute or program. Recognition and accreditation will enable the non-state higher education service provider to show the public that they have been reviewed by external panels and have met the standards required by the accrediting agencies.

In this paper we are proposing a systematic approach with a framework for recognizing and accrediting non-state higher education service providers and their programs in Sri Lanka. The framework involves the combination of three functions.

First, all providers awarding certifications, diplomas and degree to students are required to implement a quality assurance system, agreed by the University Grant Commission (UGC) of Sri Lanka. A

provider should able to demonstrate its capacity to monitor, evaluate and improve the quality of programs and services it offers to the students. Providers who demonstrate this ability is qualified to register with UGC and offer certifications, diplomas and degree awards.

Once a service provider has demonstrated its capabilities in quality assurance and registered with UGC, UGC validates the programs offered by the service provider. The major factors to be assessed by UGC are, facilities, equipment and learning resources to make sure that the service provider has adequate resources in the institute to maintain the quality of academic and other aspects of the institute. The criterion of teaching learning and evaluation will also be evaluated as they provide evidences of competence of the academic staff members.

After the initial validation of the programs, over the time, the UGC monitors the programs to make sure that the service provider maintains the quality in its programs as well as institute. Monitoring is a multi-faceted system of gathering information on providers' programs, services and the implemented quality assurance systems. Depending on how the service provider is maintaining the quality, the validated quality assurance procedures can be reviewed.

Finally, service providers are responsible for establishing procedures for internal quality assurance. The primary source of internal quality improvement is the internal monitoring and evaluation of programs and services. A process designed specifically for an institute, will easily facilitate locally driven, continues improvements in the internal quality.

2. Non- State Higher Education Service Providers Assessment Process

As mentioned in the introduction section, the proposed framework for recognizing and accrediting non-state higher education service providers and their programs involves combination of three functions. These functions are proposed to carry out as four stage process. Each step of the process is defined as follows:

I. Preparation of the Self-Assessment Report (SAR) by the service provider on the given criteria identified by the UGC.
II. Validation of the SAR by an external peer review team who would make an on-site visit to the provider institution.
III. Submission of the reviewers' final report highlighting strengths and weaknesses and good practices prevailing in the institution or program with one of the grading of "Good", "Satisfactory", and "Unsatisfactory" assigned for each criterion along with an overall grading and recommendations for improvements.
IV. The service provider should adhere to the recommendations of the external peer review team's report. The UGC should follow up the quality improvement actions taken by the service provider, if the grading earned for any criterion is "Satisfactory" or below.

In the following sub-sections, we are going to describe the above four steps in detailed.

3. Preparation of the Self-Assessment Report (SAR) by the service provider

The first step of the assessment process is, preparation of the SAR by the service provider. The SAR should contain information as follows:

I. Organization and management details

II. Current quality assurance systems, facilities
III. Equipment and learning resources
IV. Staff recruitment and development process
V. Programs offered by the service provider and the fee structure.

For the organization and management details, the service provider can include evidences for good practices in governance and administration and evidence for good practices in financial planning and management.

The governing body of the service providers' institute provides effective leadership in the interests of the institution and its clients, through well-developed policies and processes for accountability. Senior administrators lead the activities of the institution effectively within a clearly defined governance structure. Their activities are carried out within a framework of well-defined policies and regulations that ensure financial and administrative accountability. The evidences for the quality of governance and administration can be obtained from the meeting minutes of the institutes' governance bodies such as the faculty board meetings, director board meetings, in terms of the decisions taken by them to assure quality in their institute. Also evidences for the quality of policy and regulations, and organizational working environment can be gathered by conducting a survey or discussion with staff and students.

Financial resources should be adequate for the programs and services offered and efficiently managed aligning with program requirements and institutional priorities. Effective systems can be used for budgeting, accountability, that provides flexibility and effective risk management. The evidences for the quality of financial planning and management can be obtained from budget statements and audit reports together with relevant expenditure ratios such as staff and faculty salaries to total costs, and investments on items such as student services, learning resources, and equipment.

With respect to the current quality assurance systems, the service provider can include details on institutes' quality assurance mission and policies, quality assurance procedures designed to implement the policies, internal monitoring systems and self-evaluation systems.

A policy is a documented statement of a providers' principles and approach to the area of education/training. It should be consistence with the providers' overall mission and should provide an underpinning rationale for staff working in the institute. It is also a tool which a provider can use to inform current and prospective learners of what they can expect from the provider. A policy must be broken down into one or more clear and coherent processes, so that it can be implemented easily. The statements of how these processes are carried out are the procedures. Once policies and procedures are developed and implemented, the next phase of quality assurance process for the provider is, to monitor their effectiveness regularly. Internal monitoring can be done with the internal quality assurance units of the provider and the details can be included in the SAR.

For facilities, equipment and learning resources information, the service provider can include evidences for good practices in facilities and equipment and good practices in learning resources information.

Facilities are designed or adapted to meet the requirements for teaching and learning in the programs offered by the institution and offer a safe and healthy environment for high quality education. Use of facilities should be monitored to assist in planning for improvements in future. Adequate provision is made for classrooms, laboratories, computer technologies and research equipment used by academic staff and students. Also, appropriate provision is made for associated services such as food services, extracurricular activities and student accommodation etc. Evidence about the quality of infrastructure, facilities and equipment can be obtained from planning documents. Condition assessments and maintenance schedules provide information about the quality and maintenance of facilities and major equipment. Regulations and codes of practices related to use of facilities and expensive equipment provide evidences of good management practices and security arrangements. Performance indicators such as as ratings on surveys of user satisfaction, statistics on equipment breakdowns also shows the quality of facilities available.

Learning resources including libraries and provisions for access to electronic and other reference materials should be adequate with requirements of the institutions' programs and provided at an adequate level. Library and associated IT facilities should be accessible at any time to support independent learning, with assistance provided in finding materials required. Facilities should be provided for individual and group studies in an appropriate environment. The services should be evaluated regularly and improved in response to systematic feedbacks from academic staff and students. Evidences for the quality of learning resource provisioning can be obtained from user satisfaction surveys, rates of students accessing and using course reference materials and details of times when facilities are available for use of students and academic staff etc. Also, the service provider can use information about orientation programs for new students and responsiveness to requests from groups of stakeholders as evidences.

One of the key determinants of the quality of programs or services is the ability of the people employed in its development and delivery. It is essential that every provider has a systematic approach to the recruitment process and professional development of the staff engaged in programs and services delivery. The provider should ensure that the staff have enough experience and expertise to fulfil their designated roles. Providers should also ensure that staff members have access to support and development opportunities based on a systematic approach which identifies their training and development requirements. Evidences for the quality of staff recruitment and development process can be the policies and procedures documents that describe each of these processes.

Once the SAR is duly completed, the service provider can submit it to UGC and get registered with UGC.

4. Validation of the SAR by an external peer review team

The most important outcome of the process of recognizing and accreditation is the "Grade" earned by the institution/program along with the detailed report prepared by the external peer review tam at the end of the on-site visit.

The external peer review process commences its activities with the receipt of the SAR by the UGC. The UGC appoints the external peer review team and the composition and the size of the team should

depend on the nature of the service provider, number of programs, student etc. The external peer review team should visit the institute and conduct an on-site assessment, based upon the SAR. The team is expected to carry out thorough assessment of the institution's/program's quality and integrity, checking the validity of submitted SAR and gathering more details from on-site interviews.

The chairperson of the external peer review team has the responsibilities of overall planning and organizing the assessment process. The chairperson should assign responsibilities to the other members in the team, taking into consideration their expertise, ensuring, that the team members do the assessment with the intention of helping the service providers' institution to grow qualitatively. The chairperson must ensure that all statements in the final assessment report are factually accurate and can be supported by evidences, where ever possible with more than one example.

The team members of the external peer review team should go through the SAR thoroughly and based on the details of SAR, they should come up with a tentative evaluation of the institution/program. During the visit to the institution, the team members should collect evidences to support the validity of the claims made in the SAR. This includes preparing a list of strengths and weaknesses under each criterion of the evaluation. The team members should be aware with the policies, rules and regulations related to external peer review process, that has been defined by the UGC and adhere to those rules and regulations. They should maintain a friendly and cordial atmosphere throughout the on-site visit at the institution.

5. Submission of the external peer reviewers' final report

At the end of the on-site visit, the external peer review team should make a collective judgment about the status of the institution and its programs and finalize the assessment report. The team is expected to give the institution an opportunity to discuss and find ways of consolidating and improving the academic environment. Though the assessment and accreditation exercise are based on mutual trust, visiting the institution/program becomes essential in order to make an objective judgment about the standing of the institution/program.

The reviewers' final report should include an in-depth analysis of the performance of the institution in four sections: Preface, Criterion wise analysis, Overall judgment and Recommendations and conclusion

The Preface section should provide a summary of the purposes and aims of the external peer review process along with how the external review process was carried out. In addition, it can describe the distinctive characteristics of the institution/program, such as the goals of the educational policy of the institution, mission statement and social accreditation etc.

In the criterion wise analysis section, the external peer review team makes one of following three judgments for each criterion defined in the Table 1, by taking into consideration all strengths, weaknesses and good practices of each aspect.

- *Good:* The team should highlight strengths and good practices
- *Satisfactory:* There should be at least one weakness in the respective aspect considered

- *Unsatisfactory:* There will be hardly any data to support strengths and good practices in the respective aspect considered

Aspect Reviewed	Judgment Assigned
Organization & Management	
Providers Quality Assurance System	
Facilities & Equipment and Learning Resources	
Staff Recruitment and Development	
List of Programs and its fee structure	

Table 1: Criterion wise analysis

The overall judgement section of the report must highlight the strengths as well as the areas in which improvement needs to be made considering the institutional performances.

The analysis presented in the overall judgement section serves as the basis for the recommendations and conclusion section which consists of the external peer review teams 'recommendations to the institution to improve the quality of the institution and its programs.

6. Follow up stage

Once the external peer review teams' report is received by the UGC, the UGC should inform the service provider about the results of the evaluation process. The service provider should go through the external peer review teams' report and take actions to adhere to the recommendations made by the review team. The UGC should regularly monitor the service provider to ensure that all the recommended actions are taken, and the institution quality is improved with the process.

7. Conclusion

Even though the non-state sector of Sri Lanka consists of over 50 institutes, there are only 16 institutes that are approved by the Non-State Division of Ministry of Higher Education in Sri Lanka. It is very important to have a general recognition/accreditation process for non-state higher education service providers can refer to, when assessing the quality of the higher education institute or program. Recognition and accreditation will enable the non-state higher education service provider to show the public that they have been reviewed by external panels and have met the standards required by the accrediting agencies. In this paper we have proposed a systematic approach with a framework for recognizing and accrediting non-state higher education service providers and their programs in Sri Lanka.

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Campus Management System (CMS): a tool to ease Continual Quality Improvement (CQI) implementation process in Outcome Based Education (OBE) Approach

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Abstract
Outcome Based Education (OBE) has turned into the standard practice in Higher Education Institutions particularly for those that offer Engineering Programs. The OBE is the approach that target program objectives after completion of any degree program. To achieve program objectives, the curriculum is designed in such a way that student get learned all Program Learning Outcomes (PLOs). This research reveals the effectiveness of our In-house Oracle based Campus Management System (CMS). The measurement of Course Learning Outcome (CLO) and PLO is a lengthy and complicated process, but implication of technology made it easier. The system generates the course wise attainment of CLOs and their respective PLOs on basis of formal assessment. Based on these reports the course instructor is required to provide CQI plan for their specific course. This CQI plan will be used for improvement. The PLOs are also assessed through Graduating Student Survey (i.e., self-assessment) that is prescribed by Higher Education Commission (HEC), Pakistan. The result reveals the rejection of null hypothesis for equal means against all PLOs i.e. the attainment of PLOs after implementing CQI plan has increased.

Keywords: Outcome Based Education (OBE), Higher Education Commission (HEC), Program Learning Outcomes (PLOs)

1. Introduction

Outcome-based Education (OBE) has become a dominant feature in the endorsement of engineering degrees offered by institutions of higher education at global level. For example, the valuation and appraisal of students' learning results are the over-all standards set by the Accreditation Board for Engineering and Technology (ABET) (ABET 2012) in the United States, as well as the Australian Graduate Attributes set by the Engineers Australia (2005).The main reason for this high level of worldwide implementation and acceptance is due to the fact that OBE promotes a pattern shift from outdated practices of course credit accretion to an emphasis on the learners' accomplishment in extraordinary learning and the mastery of intellectual thinking abilities. This is supposed to be an improved extent of the learners' attainment in accomplishing the main needed skills. Within an institute, OBE application requires the reformation of the informative program, courses, syllabus, valuation and recording systems (Malan 2000). In the 1950s, the work of Bloom (1956) and his contemporaries in rising classifications for educational goals became important. The taxonomies finally became principles which were then used in the preparation of precise aims and the progress of aimed standards to create the learners' accomplishment of satisfactory standards in contradiction of the anticipated learning conclusions. Bloom's work, particularly in addressing the reasoning sphere, remains contributory in the assessment of OBE. In his work, Killen (2000) emphasized the importance of linking assessments to long-term and significant outcomes expected of the learners, or to the short-

term permitting results which were resultant from these long-term conclusions. There are two main kinds of results in OBE, as defined by Killen (2000). The first stresses on measurement of homework, examination outcomes, proportions of course accomplishment and occupation upon completion, while the second performance gauge is less concrete, commonly required the learners to direct what they have gained and able to achieve as an outcome of concluding their learning. OBE complies of four key philosophies (Brandt 1992): transparency of focus, extended prospect, high potentials and project down. Transparency of focus needs gearing the expansion of course towards the results anticipated of the learners. These should not be temporary goals (weekly, semester or yearly) but end outcomes that learners would attain upon graduation and elsewhere. This also stresses on the requirement to follow unceasing growth all over the career. The next attitude, prolonged chance, targets to deliver learners with numerous methods to attain the learning products. Methods such as speeches, classes, assessments, sessions and workshops, business visits and discussions, manufacturing attachment, departmental conference, learner sharing gatherings and oppositions are approved within the OBE outline. The high prospects attitude needs every learner to reliably attain high level of conduct. Learners must advance a mechanical awareness set and a sharp mind to deal glitches. They must employ the industrial values and common sense professionally to follow consecutive opinions. The final approach, venture down, needs all course approach and training actions to fulfil the results from top to bottom ranks. The valuation of the general attainment comprises a connection to longstanding institutional result of the learner, e.g. the longstanding Program Educational Objective (PEO) must be calculated for duration of at least five years from graduation. Another main component in OBE emphases on the value declaration of the teaching system. Quality measurement is significant in engineering education The Higher Education Commission Pakistan guarantee that the purpose of any engineering course is attained and to recognize key extents for improvement. There is a requirement to create a continual quality improvement (CQI) framework for engineering teaching to report the problem of skillset disparity amid the trades and institutes, as stated in latest investigations. Pakistan Engineering council (PEC) is an interim cosigner to the Washington Accord and to be able to get the regular membership status, PEC strived for the implementation of outcome-based education (OBE) as compared to the current traditional teaching approach in the engineering degree awarding institutes (ADI) in Pakistan.

2. Literature Review

From the management perspective OBE was applied and executed in all departments and it resulted in a change in both administrative and educational strategy and procedure. The heads of the department also made professional changes as required according to the need of students' development requirements and since the change requires support from the teachers so the heads took initiative to collaborate with the faculty (Chan, 2009).Kaliannan et al, (2012) in their paper discussed that learners are able to measure their abilities and learning outcome for each and every course they choose, it helps them to assess their own accomplishment for that particular course in terms of their determination and actions and the time they have spent throughout the semester. Not only, this but lecturers also able to measure their performance and take necessary actions for further advances required in their teaching methodology. (Kaliannan et al, 2012).

OBE works through assessment process by means of evaluation system, to evaluate PO two survey methods have been designed namely direct and indirect survey. Indirect survey is divided into two, industrial attachment survey and alumni survey, while direct survey is divided into student assessment

survey and end of semester survey which is designed to evaluate student's performance in course, these surveys support to detect effect of OBE in all engineering subjects which are being offered. (Thamrin, et al 2010).

Perlita, et al (2017) inspected in their paper, application of outcome-based education in institutes and recognized areas of strength and opportunities for development. The faculty and learners stated that OBE entertains the attainment of relevant course information, increase in critical thinking and problem-solving skills. They also believed that assessment practices involve a mix of both objective and performance-based types. Adoption of OBE in universities in Philippine has also been discussed in the paper along with the factors involved. First is growth in international trend in acceptance of OBE as outline for confirming the alliance of course, guidelines and evaluation to ensure graduates to achieve degree level expectations. Secondly, the idea of a borderless education has achieved worldwide acceptance among educational institutes because of globalization. However, learners who are prepared with abilities at par which are according to international standards are expected to flourish in their professional life and establish more global flexibility. OBE curtails from the requirement of establishing morals and levels for outcomes of learning and training according to Philippine Qualification context (Perlita, et al 2017).

Continuous Quality Improvement guidelines ensure that the objective of engineering course is attained. It also supports to build a match between industries and institutions; Participants and related factors also play major role in establishing learning environment; these factors can be advanced teaching style, evaluation and response over learner's abilities and achievement leading to a sound professional career growth. It is also debated that Defining learners' contentment level in their accomplishment of PEO in the survey is an integral part in concluding the loop of the CQI procedure inside the framework of OBE (Tshai, et al 2014)

4. Methodology

Assessment is an analytical process. It determines whether the course learning objective have been met or not. There are two important types of assessment in OBE approach. The first through examination result and second through self-assessment i.e. though surveys in which students are required to express what they learnt at the time of their graduation. In this article we have analyzed the attainment of PLOs by two methods. First, we analyzed the attainment of PLOs by formal assessment. Secondly, we analyzed the attainment of PLOs through graduating student survey.

The Literature review shows that course wise PLOs attainment have been measures by examination result. The assessment sheet was prepared on excel. We have implemented the whole technique in our in-house Oracle based CMS. In this article we have selected a specific course i.e. Electronic Devices and Circuit that was offered for 2nd semester of Fall-2017 batch students.

5. Analysis

As already mentioned that the OBE approach initiates with defining the outcomes that are necessary for the market. There are three categories of outcomes namely, the Programme Educational Objective (PEO), Programme Learning Outcomes (PLO) and the Course Learning Outcomes (CLO). The PEO have been measured by the graduates after five years working in the industry, the PLO have been

measured at the time of graduation while the CLO have been measured at the end of each semester. Table 1 and table 2 shows the PEO and PLO statements for BE Electrical Electronics Engineering Program of Indus University. The CLOs have been defined for all courses Table 3 shows the example of CLO for a specific course (i.e. Electronic Devices and Circuit) of BE Electrical Engineering Program. The CLOs of all courses are mapped with respective PLOs (example seen in table 3). Therefore, the attainment of CO's for all courses should contribute to the overall attainment of the PLOs and PEOs.

S. No.	PEO Statement
1	Graduates should have effectiveness to demonstrate solid engineering knowledge through analysis, synthesis, design and entrepreneurial skills for qualifying them to get immediate employment or postgraduate studies.
2	Graduates should effectively exhibit professionalism, leadership quality and teamwork through communication skills in multidisciplinary engineering environment.
3	Graduates should make contributions to knowledge and establish best engineering practice through research and development, as to assume positions of technical and/or managerial leadership as their careers develop.
4	Graduates should express an ethical commitment to the community and the profession through involvement with professional organizations and society.
5	Graduates should engage in lifelong learning that will enable them to continue their professional development either through advanced course work or continuing self-directed learning and development activities.

Table 1: Programme Educational Objectives (PEO) of
BE Electrical Electronics Engineering Program

PLO #	PLO Statement
PLO-1	Engineering Knowledge
PLO-2	Problem Analysis
PLO-3	Design/Development of Solutions
PLO-4	Investigation
PLO-5	Modern Tool Usage
PLO-6	The Engineer and Society
PLO-7	Environment and Sustainability
PLO-8	Ethics
PLO-9	Individual and Team Work
PLO-10	Communication
PLO-11	Project Management and Finance
PLO-12	Life-long Learning

Table 2: Programme Learning Outcome (PLO) of BE Electrical Electronics Engineering Program

Course Outcomes(CO)	CO Description After completion of this course students will be able to:	Program Outcomes (PO)
CLO-1	Understand the properties of semiconductor devices, Diodes and discuss their biasing, models & operations	Engineering Knowledge (PO-1)

CLO-2	Classify various types of diodes their working principle and applications	Engineering Knowledge (PO-1)
CLO-3	Study and Implement BJT and FET as an amplifier & switch through illustration of their structure & operation	Engineering Knowledge (PO-1)
CLO-4	Analyze and differentiate various applications of BJT and FET	Problem Analysis (PO-2)

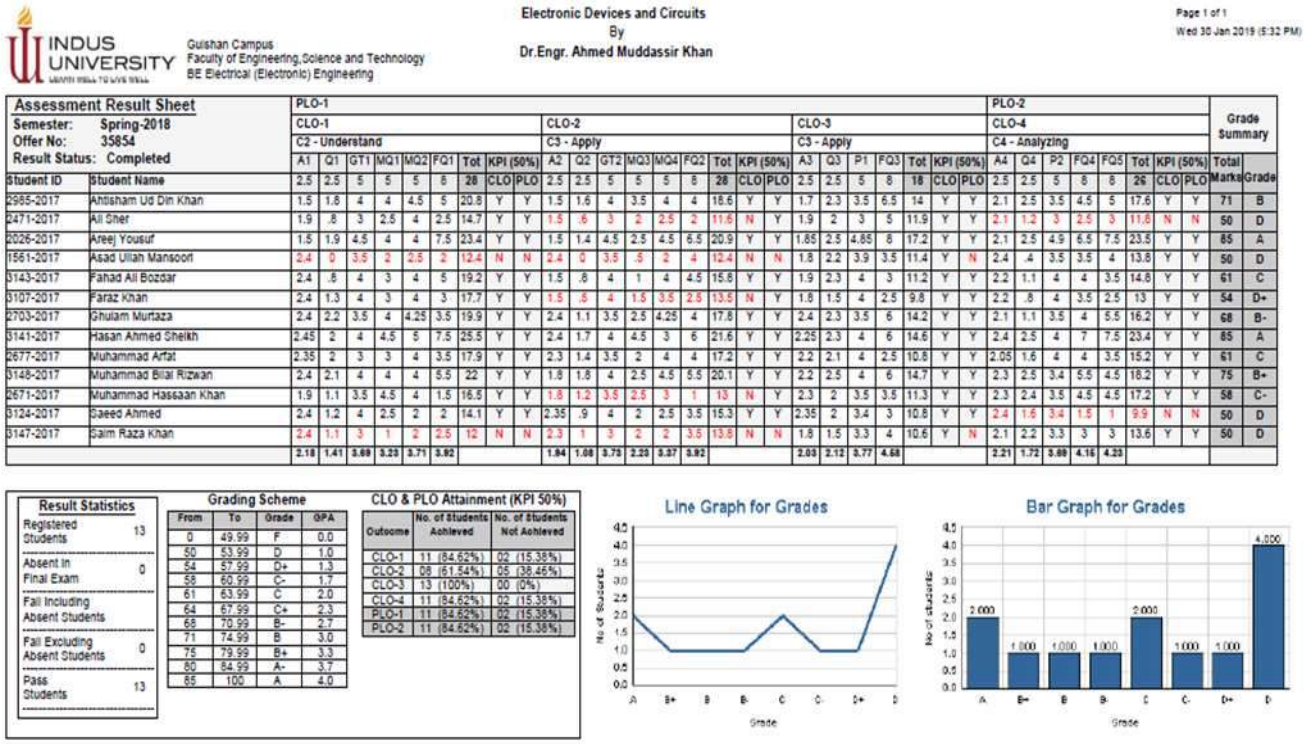
Table 3: Course Learning Outcome (CLO) of Electronics Devices & Circuits

6. Analysis through formative assessment:

The course outcome attainment result for courses has seen in Figure 1. The attainment of COs and POs have been assessed through these reports. The result of all formal assessments i.e., final term, midterm, assignments, lab reports, quizzes etc are all combined. The analysis on these parameters is carried out to obtain the students competencies or attainment of each CLO and their respective PLO.

As seen in the report the students who did not attain the certain level of PLOs are highlighted with red color. The overall combined result are also mentioned in figure 1. Any flaws on the level of attainment of the outcomes must be addressed for future improvement called Continual Quality Improvement (CQI) Plan as shown in figure 2. The continual quality improvement (CQI) plan has been filled up by the faculty member to the relevant academic's staffs and coordinators. This information will be used to improve deficiencies as shown in figure 2. But in the selected course the overall CLO have been achieved by the class therefore there is no such improvement is required for the courses (seen in figure 2). But when the PLO attainment is below 50% KPI then it will be paid extra attention in next CQI plan.

Figure 1: OBE Assessment Result Sheet generated by Campus Management System (CMS)



INDUS UNIVERSITY
Gulshan Campus
Faculty of Engineering,Science and Technology
BE Electrical (Electronic) Engineering

Electronic Devices and Circuits
By
Dr.Engr. Ahmed Muddassir Khan

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Wed 30 Jan 2019 (5:32 PM)

Assessment Result Sheet
Semester: Spring-2018
Offer No: 35854
Result Status: Completed

		PLO-1																								PLO-2										Grade Summary	
		CLO-1								CLO-2								CLO-3								CLO-4											
		C2 - Understand								C3 - Apply								C3 - Apply								C4 - Analyzing											
		A1	Q1	GT1	MQ1	MQ2	FQ1	Tot	KPI (50%)			A2	Q2	GT2	MQ3	MQ4	FQ2	Tot	KPI (50%)			A3	Q3	P1	FQ3	Tot	KPI (50%)			A4	Q4	P2	FQ4	FQ5	Tot	KPI (50%)			
Student ID	Student Name	2.5	2.5	5	5	5	5	28	CLO	PLO		2.5	2.5	5	5	5	5	28	CLO	PLO		2.5	2.5	5	5	18	CLO	PLO		2.5	2.5	5	5	5	26	CLO	PLO	Total Marks	Grade
2985-2017	Antisham Ud Din Khan	1.5	1.8	4	4	4.5	5	20.8	Y	Y		1.5	1.6	4	3.5	4	4	18.6	Y	Y		1.7	2.3	3.5	6.5	14	Y	Y		2.1	2.5	3.5	4.5	5	17.6	Y	Y	71	B
2471-2017	Ali Sher	1.9	.8	3	2.5	4	2.5	14.7	Y	Y		1.5	.6	3	2	2.5	2	11.6	N	Y		1.9	2	3	5	11.9	Y	Y		2.1	1.2	3	2.5	3	11.8	N	N	50	D
2026-2017	Areej Yousuf	1.5	1.9	4.5	4	4	7.5	23.4	Y	Y		1.5	1.4	4.5	2.5	4.5	6.5	20.9	Y	Y		1.65	2.5	4.65	8	17.2	Y	Y		2.1	2.5	4.9	6.5	7.5	23.5	Y	Y	85	A
1561-2017	Asad Ullah Mansoori	2.4	0	3.5	2	2.5	2	12.4	N	N		2.4	0	3.5	.5	2	4	12.4	N	N		1.8	2.2	3.9	3.5	11.4	Y	N		2.4	.4	3.5	3.5	4	13.8	Y	Y	50	D
3143-2017	Fahad Ali Bozdar	2.4	.6	4	3	4	5	19.2	Y	Y		1.5	.8	4	1	4	4.5	15.8	Y	Y		1.9	2.3	4	3	11.2	Y	Y		2.2	1.1	4	4	3.5	14.8	Y	Y	61	C
3107-2017	Faraz Khan	2.4	1.3	4	3	4	3	17.7	Y	Y		1.5	.6	4	1.5	3.5	2.5	13.5	N	Y		1.8	1.5	4	2.5	9.8	Y	Y		2.2	.8	4	3.5	2.5	13	Y	Y	54	D+
2703-2017	Ghulam Murtaza	2.4	2.2	3.5	4	4.25	3.5	19.9	Y	Y		2.4	1.1	3.5	2.5	4.25	4	17.8	Y	Y		2.4	2.3	3.5	6	14.2	Y	Y		2.1	1.1	3.5	4	5.5	16.2	Y	Y	68	B-
3141-2017	Hasan Ahmed Sheikh	2.45	2	4	4.5	5	7.5	25.5	Y	Y		2.4	1.7	4	4.5	3	6	21.6	Y	Y		2.25	2.3	4	6	14.6	Y	Y		2.4	2.5	4	7	7.5	23.4	Y	Y	85	A
2677-2017	Muhammad Arfat	2.35	2	3	3	4	3.5	17.9	Y	Y		2.3	1.4	3.5	2	4	4	17.2	Y	Y		2.2	2.1	4	2.5	10.8	Y	Y		2.05	1.6	4	4	3.5	15.2	Y	Y	61	C
3148-2017	Muhammad Bilal Rizwan	2.4	2.1	4	4	4	5.5	22	Y	Y		1.8	1.8	4	2.5	4.5	5.5	20.1	Y	Y		2.2	2.5	4	6	14.7	Y	Y		2.3	2.5	3.4	5.5	4.5	18.2	Y	Y	75	B+
2671-2017	Muhammad Hassaan Khan	1.9	1.1	3.5	4.5	4	1.5	16.5	Y	Y		1.8	1.2	3.5	2.5	3	1	13	N	Y		2.3	2	3.5	3.5	11.3	Y	Y		2.3	2.4	3.5	4.5	4.5	17.2	Y	Y	58	C-
3124-2017	Saeed Ahmed	2.4	1.2	4	2.5	2	2	14.1	Y	Y		2.35	.9	4	2	2.5	3.5	15.3	Y	Y		2.35	2	3.4	3	10.8	Y	Y		2.4	1.6	3.4	1.5	1	9.9	N	N	50	D
3147-2017	Saim Raza Khan	2.4	1.1	3	1	2	2.5	12	N	N		2.3	1	3	2	2	3.5	13.8	N	N		1.8	1.5	3.3	4	10.6	Y	N		2.1	2.2	3.3	3	3	13.6	Y	Y	50	D
		2.18	1.41	3.69	3.23	3.71	3.92					1.94	1.08	3.75	2.25	3.37	3.92					2.03	2.12	3.77	4.68					2.21	1.72	3.89	4.16	4.23					

Result Statistics

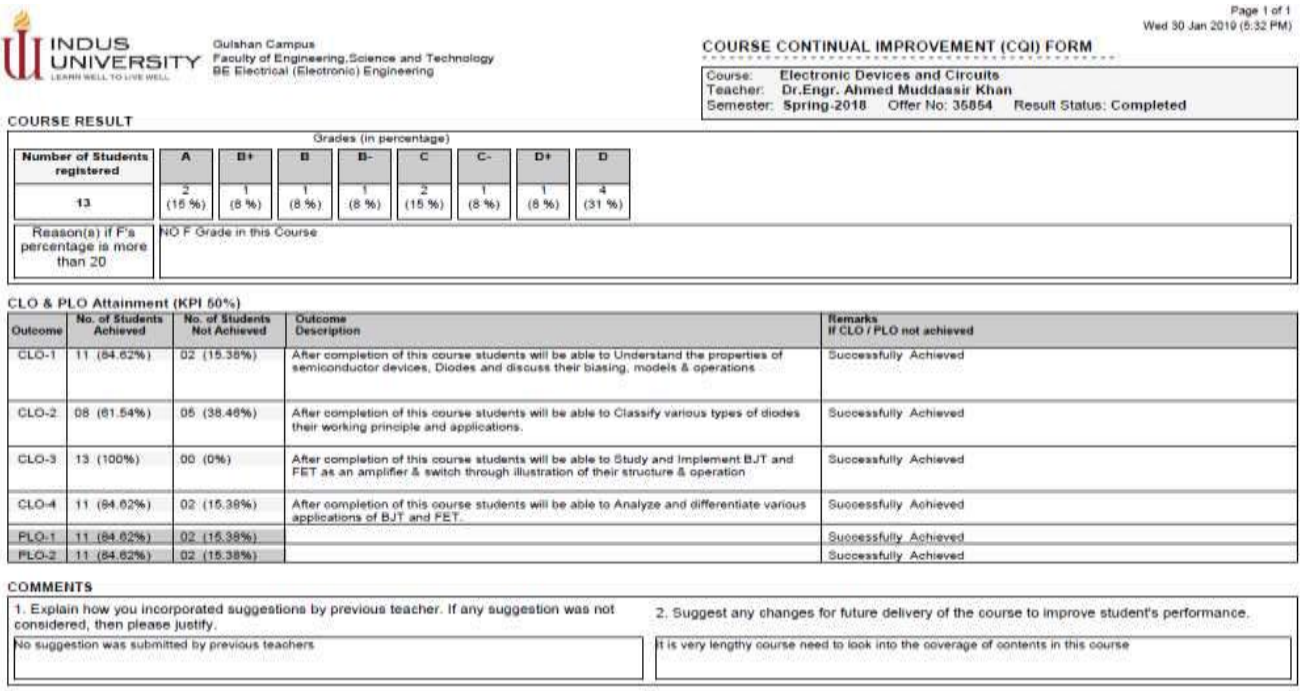
Registered Students	13
Absent in Final Exam	0
Fail Including Absent Students	
Fail Excluding Absent Students	0
Pass Students	13

Grading Scheme

From	To	Grade	GPA
0	49.99	F	0.0
50	53.99	D	1.0
54	57.99	D+	1.3
58	60.99	C-	1.7
61	63.99	C	2.0
64	67.99	C+	2.3
65	70.99	B-	2.7
71	74.99	B	3.0
75	79.99	B+	3.3
80	84.99	A-	3.7
85	100	A	4.0

CLO & PLO Attainment (KPI 50%)

Outcome	No. of Students Achieved	No. of Students Not Achieved
CLO-1	11 (84.62%)	02 (15.38%)
CLO-2	08 (61.54%)	05 (38.46%)
CLO-3	13 (100%)	00 (0%)
CLO-4	11 (84.62%)	02 (15.38%)
PLO-1	11 (84.62%)	02 (15.38%)
PLO-2	11 (84.62%)	02 (15.38%)



INDUS UNIVERSITY
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Gulshan Campus
Faculty of Engineering,Science and Technology
BE Electrical (Electronic) Engineering

Page 1 of 1
Wed 30 Jan 2019 (5:32 PM)

COURSE CONTINUAL IMPROVEMENT (CQI) FORM

Course: Electronic Devices and Circuits
Teacher: Dr.Engr. Ahmed Muddassir Khan
Semester: Spring-2018 Offer No: 35854 Result Status: Completed

COURSE RESULT

Grades (in percentage)

Number of Students registered	A	B+	B	B-	C	C-	D+	D
13	2 (15 %)	1 (8 %)	1 (8 %)	1 (8 %)	2 (15 %)	1 (8 %)	1 (8 %)	4 (31 %)

Reason(s) if F's percentage is more than 20: NO F Grade in this Course

CLO & PLO Attainment (KPI 60%)

Outcome	No. of Students Achieved	No. of Students Not Achieved	Outcome Description	Remarks If CLO / PLO not achieved
CLO-1	11 (84.62%)	02 (15.38%)	After completion of this course students will be able to Understand the properties of semiconductor devices, Diodes and discuss their biasing, models & operations	Successfully Achieved
CLO-2	08 (61.54%)	05 (38.46%)	After completion of this course students will be able to Classify various types of diodes their working principle and applications.	Successfully Achieved
CLO-3	13 (100%)	00 (0%)	After completion of this course students will be able to Study and Implement BJT and FET as an amplifier & switch through illustration of their structure & operation	Successfully Achieved
CLO-4	11 (84.62%)	02 (15.38%)	After completion of this course students will be able to Analyze and differentiate various applications of BJT and FET.	Successfully Achieved
PLO-1	11 (84.62%)	02 (15.38%)		Successfully Achieved
PLO-2	11 (84.62%)	02 (15.38%)		Successfully Achieved

COMMENTS

1. Explain how you incorporated suggestions by previous teacher. If any suggestion was not considered, then please justify.
No suggestion was submitted by previous teachers

2. Suggest any changes for future delivery of the course to improve student's performance.
It is very lengthy course need to look into the coverage of contents in this course

Figure 1: OBE Assessment Result Sheet generated by Campus Management System (CMS)

7. Analysis through graduating Survey

For this analysis we have conducted graduating student survey that is prescribed by Higher Education Commission (HEC) of Pakistan. The students enrolled in the last semester of their degree program were filled this survey. The batches i.e., Fall-14 and Spring-15 students were participated in this analysis. We have mapped the graduating student survey parameters to the PLO as shown in table 4. By the results of this survey, we obtained the level of attainment of PLOs for the batches of Fall-14 and Spring-15 students (by self-evaluation). We then apply one tailed t-test to compare the means against all PLOs. We have seen the rejection of null hypothesis for equal means at 5% significance level against all PLOs i.e., the attainment of PLOs after implementing CQI plan has increased.

Parameters Graduating Survey	POs
The program is effective in developing analytical and problem solving skills	PO-1
Ability to analyze and evaluate data Research & Quantitative skills	PO-2
The program is effective in developing planning abilities	PO-3
Ability to analyze and evaluate data	PO-4
Ability to analyze and evaluate data	PO-5
Research & Quantitative skills	PO-6
Research & Quantitative skills	PO-7
Appreciations of the ethical values	PO-8
The program is effective in enhancing team-working abilities Independent thinking Ability to work in teams	PO-9
The program is effective in developing oral & written communications skills	PO-10
Professional development Time management skills	PO-11
Provide the strong foundation necessary to build career startup Professional development	PO-12

Table 4: Graduating Student Survey mapping with PLOs

	Fall-2014	Spring-2015	T-Value
PO-1	3.33	3.2	0.150542
PO-2	3.00	3.8	-0.95732
PO-3	3.33	3	0.386334
PO-4	3.00	3.8	-0.78446
PO-5	3.00	3.8	-0.78446
PO-6	3.00	3.8	-1.05654
PO-7	3.00	3.8	-1.05654
PO-8	3.33	3.4	-0.09386
PO-9	3.45	3.402	0.075199
PO-10	3.67	3	1.450953
PO-11	3.17	3.5	-0.35749
PO-12	3.50	3.4	0.193047

Table 5: t-value statistics PLO attainment through graduating student survey

8. Results and Discussion:

In recent era we all know that knowledge is power, and data is money. To store the data; Campus Management System (CMS) is now the necessary element for any organization. The Indus University has its own Oracle based In-house Campus Management System (CMS). we have implemented the outcome base education (OBE) approach in CMS. The complete consolidated reports have been prepared through the CMS. The instructor is just advised to fill the Continual Improvement Plan for specific course. The CQI plan will be used for further improvement. We have considered an example of specific course i.e. Electronics Circuits & Devices. The CMS generated report has been used to see the level of attainment of PLOs. The instructor is required to fill the CQI plan against the PLO that was not achieved by the students in specific course. The whole CQI approach have been implemented in CMS. In short, Campus Management System (CMS) is a tool that eases the implementation of Continual Quality Improvement (CQI) plan in outcome-based education (OBE) approach.

9. Recommendations and Future Research:

This research reveals the effectiveness of our In-house Oracle based Campus Management System (CMS). The measurement of CLO and PLO is a lengthy and complicated process. The technology implication made it easier. The whole OBE technique have been implemented in CMS. The system generates the report and CQI were prepared accordingly. The OBE have been implemented in Indus University from Fall-2014. Currently, we analyzed Course Learning Outcomes (CLO) and Program Learning Outcomes (PLO) and based on these we prepared CQI plan. But we still required to know the attainment of Programme Educational Objective (PEO) when our graduates will serve 5 year in their professional career. Therefore, future research required on PEO attainment level and based on the result of those PEOs attainment CQI needs to be prepared and implemented to improve the quality of Engineering Program.

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Collaborative Cross-border Joint Quality Assurance: Good Practices and Challenges

Dr. Fabrizio Trifiro', UK's Quality Assurance Agency for Higher Education (QAA)
Dr. Clara Chong, Hong Kong Council for the Accreditation of Academic and Vocational Qualifications (HKCAAVQ)

Abstract

This paper aims to share with the international quality assurance community the successful experience of the UK's Quality Assurance Agency for Higher Education (QAA) and the Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ) in conducting a joint quality assurance exercise of UK higher education delivered in Hong Kong, which resulted in QAA's recognition of HKCAAVQ's accreditation decisions for UK provision in China, Hong Kong. The intention of the paper is therefore that of contributing to promote recognition of quality assurance outcomes internationally by looking at a concrete example of inter-agency cooperation, discussing challenges and best practices, and identifying prerequisite elements and factors for recognition. This case study in inter-agency cooperation will be set in the context of recent international initiatives aimed at strengthening cross-border cooperation in the quality assurance of transnational education (TNE).

1. Introduction

Quality assurance bodies have little choice today but to work together to address the challenges and size the opportunities associated with the internationalization of higher education and growing cross-border higher education. A number of recent international initiatives have called for and tried to facilitate strengthened cross-border cooperation in the quality assurance of transnational education (TNE). These include the Toolkit for quality assurance agencies 'Cooperation in Cross-Border Education', developed as part of the European Union funded project Quality Assurance of Cross-Border Higher Education (QACHE), as well as the QACHE follow-up study carried out by the QAA with INQAAHE funding aimed at looking at the obstacles and facilitating factors for cross-border cooperation. Two recent networks have also been created to focus specifically on facilitating inter-agency cooperation, the Cross-Border Quality Assurance Network (CBQAN) and the Quality Beyond Boundaries Group (QBBG). This paper aims at illustrating the recent successful experience of the QAA and HKCAAVQ in carrying out joint quality assurance of UK higher education provision in China, Hong Kong in the spirit of these recent initiatives. Significantly, this joint exercise has allowed QAA to recognise HKCAAVQ accreditation decisions for the purpose of UK quality assurance, thus avoiding unnecessary duplication of regulation whilst ensuring that learning experience of UK TNE students is safeguarded.

2. Background

HKCAAVQ and QAA have a long history of cooperation underpinned by a bilateral Memorandum of Understanding, which has been recently renewed in 2016, as well as by participation in international networks such as INQAAHE and APQN, as well as CBQAN and QBBG. Both agencies are committed to establishing a strategic alliance to enhance external quality assurance in both jurisdictions and improve the quality of higher education in the United Kingdom and Hong Kong. This commitment includes seeking to strengthen cooperation in the quality assurance of UK TNE in Hong Kong. To this

end, QAA and HKCAAVQ conducted two pilot joint quality assurance exercises as part of QAA's 2018 review of UK TNE in China Hong Kong, and HKCAAVQ's planned accreditation of a number of UK programs delivered in Hong Kong.

3. Approach

For the purpose of the joint exercises QAA and HKCAAVQ set up a joint panel, with QAA TNE reviewers also acting as full members of the HKCAAVQ accreditation panel. In this way, playing a dual role, the joint reviewers were able to use information collected as part of the HKCAAVQ accreditation process to inform the QAA TNE review. This allowed the two agencies to reduce information collection burden, and to avoid having to carry out two separate site visits.

The successful realization of the joint quality assurance exercises was built on a number of steps aimed at overcoming the challenges associated with the different approaches adopted by QAA and HKCAAVQ. The proposed paper aims to share with the international quality assurance community how the two agencies have addressed these challenges.

For instance, QAA and HKCAAVQ started sharing from the very beginning information to enhance mutual understanding of the respective quality assurance processes and standards for transnational education. This included briefing sessions to help staff and review panel members in the two quality assurance agencies understand the key features of the respective operating frameworks.

Data and intelligence about UK TNE in Hong Kong were also shared from the start to facilitate the identification of the sample of UK provision to be looked at as part of QAA TNE review and the provision which could fall under the scope of the joint quality assurance exercise.

A preliminary desk-based comparability study was conducted to benchmark the standards and reference points underpinning the HKCAAVQ accreditation process and QAA TNE review.

Different forms of briefing activity were also carried out to help UK providers understand the process and approach of the joint quality assurance exercises. A particular challenge in this regard was represented by the difference in focus and intended outcomes of the two agencies' processes, with HKCAAVQ's processes aimed at program level accreditation while QAA's TNE review processes being enhancement oriented and looking at a broader institutional and strategic level.

The most significant outcome of these joint quality assurance exercises has been that the participation of QAA reviewers in HKCAAVQ accreditation panels acting on behalf of both agencies facilitated the benchmarking of standards and processes through their practical implementation. On this basis, it was possible to conclude that HKCAAVQ accreditation decisions can be relied upon by QAA for UK quality assurance purposes as a guarantee of robust quality assurance of UK TNE in Hong Kong. This means that QAA can recognise HKCAAVQ accreditation decisions, avoiding the need of future review of UK TNE provision, already accredited by HKCAAVQ. This is a big step toward enhancing the efficiency of the quality assurance of cross-border provision, avoiding unnecessary duplication.

More generally the successful example of cooperation between QAA and HKCAAVQ required flexibility, innovative thinking, regular communication, and understanding each other specific operating environment. The two agencies cooperated closely through all the stages of the QAA TNE review process. Such close cooperation allowed both agencies to deepen reciprocal understanding, and to strengthen reciprocal trust in each other's quality assurance systems. Cooperation has also extended to the dissemination of the findings of the joint quality assurance exercise. The two agencies have co-organized a conference on cooperation in quality assurance event in Hong Kong, contributing also to a broader conference looking at the issue of cooperation in the quality assurance of cross-border higher education in the East Asia context. This proposed paper to the 2019 INQAAHE conference will allow the two agencies to disseminate the lessons learned more widely contributing to promote recognition of quality assurance outcomes internationally by looking at a concrete example of successful inter-agency cooperation.

Comparisons of QA systems, Review standards and Procedures, and Transparency in Taiwan and Indonesia Regions: Capacity Building for Transnational Education

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Abstract
Cross-border higher education resulting in the increased mobility of students, academic staff, programs, institutions, and professionals has grown considerably in global times. Therefore, how to ensure that the quality of programs has met the local and international standards simultaneously has become a great challenge in many nations.

Based on the mentioned above, Taiwan and Indonesian QA agencies, Higher Education Evaluation and Accreditation Council of Taiwan(HEEACT)and National Accreditation Agency for Higher Education (BAN-PT)completed a comparative study by document sharing and workshops holding in order to build trust and understanding on each other's Higher education(HE) and QA systems. Furthermore, to develop a Transnational Education joint monitoring model to promote student mobility.

Key words: Transnational Education, Capacity Building, Quality Assurance, Quality Assurance agency, QA system, Review standards, Review procedure, Transparency

1. Introduction

Growth in the internationalization of higher education is driving the expansion of tertiary systems and institutions throughout the world. It propels transnational education as well as cross-border collaboration and growing levels of student mobility (Daniel, Kanwar, & Uvalić-Trumbić, 2009; Moor & Henderikx, 2013; Y. C. Hou et al., 2015). 10There are several types of cross-border tertiary education, including twinning, franchising, joint and double/dual degrees, distance education, branch campuses, the virtual university and others (Knight, 2007; Y. C. Hou et al., 2015).

Due to cross-border higher education resulting in the increased mobility of students, academic staff, programs, institutions and professionals has grown considerably in global times. Therefore, how to ensure that the quality of programs has met the local and international standards simultaneously has become a great challenge in many nations.

It has been a long time that students between Taiwan and Indonesia continuously flow. According to MOE, Indonesia is one of the major sources of international students in Taiwan. Over years, the number of seeking degree students from Indonesia has been increasing steadily.

In September 2017 in Taipei, HEEACT and BAN-PT concluded a Memorandum of Understanding on coordination and cooperation. Since then, the two agencies have established a friendly relationship in many ways. Further, two agencies agreed to launch a project to deepen the understanding of each other in 2018.

Based on the mentioned above, in general, there are six major specific goals in the project:

1. To understand both countries higher education system and QA framework.
2. To compare review standards, procedures, and transparency between both agencies.
3. To realize current development of cross border higher education between both countries.
4. To promote the capacity of staff between two agencies.
5. To compare review standards, procedures, selection of experts and transparency between both agencies.
6. To develop a tangible model for program accreditation between the two countries.

2. Context Background: Taiwan and Indonesia on Higher Education Development of Both Regions

There are several types of institutions in the Indonesia, they are grouped into 4 different categories according to their purposes, namely universities, Islamic institutions, and service colleges, and Open Universities. Universities are institutions under the jurisdiction of the Ministry of Research, Technology, and Higher Education (MoRTHE), which open admission to any high schools' graduates. Islamic institutions are focusing on Islamic studies under the responsibility of the Ministry of Religious Affairs (MoRA). Service colleges aim to produce graduates with special competencies to serve the government's needs. In such college, students are typically boarding under government scholarship and obliged to work as civil servants after graduation.

In term of education system, Indonesian higher education can be classified into general education, vocational education and religious education. Higher education institutions can be in the form of academy, polytechnics, college, institute, or university. They also can be categorized into public or private type.

Taiwanese higher education institutions can be grouped into 4 categories, including universities, colleges, religious colleges, and Junior Colleges. In term of education system, Taiwan has similar framework, both include general education, vocational education and religious education. And there are public or private type of higher education institutions.

As 2018, the total number of institutions offering higher education in Indonesia is 4,607, but it's only 162 in Taiwan. As the table 1 and table 2.

Table 1: Distribution of Indonesian institutions

	Public	Private	Total
Universities	123	3,129	3,252
Islamic institutions	111	1,058	1,169
Service colleges	185		185
Open universities	1		
TOTAL	420	4,187	4,607

Table 2: Distribution of Taiwanese institutions

	Public	Private	Total
Universities	47	82	129
Colleges	1	14	15
Religious colleges	0	5	5
Junior Colleges	2	11	13
TOTAL	50	112	162

4. Student Mobility of Higher Education in Taiwan and Indonesia

Student mobility within Asia has been driven and encouraged due to economic growth, national competitiveness, and regional development in the early 21st century. One manifestation of the trend is a significant increase in the number of students moving within and amongst Asian campuses, such as China, Japan, South Korea, Taiwan and ASEAN regions. It was found that more than a half to three quarter of international students on Asian campuses comes from the other neighbouring countries (British Council, 2008). Therefore, how to ensure that the quality of programs has met the local and international standards simultaneously has become a great challenge in many nations.

Taiwan and Indonesia have developed a long-term relationship in trade, investment, tourism and education. Indonesia is Taiwan's 14th largest trading partner in 2016, and the 10th largest source of import for Taiwan and the 16th largest export market. Since 2012, the Indonesian government has ranked Taiwan, Germany, Austria and New Zealand as the 4 major priority countries recommended for government supported Ph.D. students.

In order to revitalize Taiwan's economy and enhance relations with neighbouring countries. The New Southbound Policy was announced in 2016, targeting southeast and south Asian countries, Australia and New Zealand as potential strategic partners for regional social and economic cooperation (BOFT, 2018).
The policy prioritized fostering intellectual exchanges between Taiwan and other regional actors to further promote regional integration. The MOE published the New Southbound Talent Development Plan, which takes a people-oriented approach and aims to foster bilateral exchange and mutual resources sharing. The approach has three tracks: attracting inbound students from NSP target countries, sponsoring Taiwan's students to pursue academic and professional opportunities in those countries, and improving access to high-quality education for the children of Southeast Asian immigrants who have relocated to Taiwan (MOE,2018).

Due to the policies, the number of international students in Taiwan has grown significantly and reached 117,970 by 2017. Students from ASEAN are increased obviously, especially in Vietnam, Malaysia and Indonesia and the numbers of international students (degree program) are 6,425, 5,787 and 4,621.
Based on the mentioned above, Taiwan and Indonesian quality assurance agencies, HEEACT and BAN-PT completed a comparative study by document sharing and workshops holding in order to build trust and understanding on each other's HE and QA systems. Moreover, HEEACT and BAN-PT also developed a quality assurance approach for programs .

5. Research Methods

The project will adopt the following methods to achieve major goals. In general, there will be three phases, including documents sharing and analysis, workshops, and campus visit; finally, is publicity with a joint seminar.

5.1. Understanding: Documents sharing and analysis

Throughout documents sharing in HE systems, QA frameworks, and cooperative programs, both agencies will understand the current development and build trust on each other's quality of higher education. In addition, an analysis on all document's exchanges will be needed for further actions on the comparison phase.

5.2. Comparison: Workshops and universities visits

Workshops were held by both agencies in order to discuss and compare the quality assurance systems of Taiwan and Indonesia. The comparison process includes examining the review systems, standards, procedures and transparency of the review process. Two workshops were held, once by HEEACT in July 4th to 6th and once by BAN-PT on August 29th to 30th. In the workshops, we shared and discussed with cross-border higher education experiences and QA mechanism. Universities visits had also been conducted during these workshops in order to better understand the current situation of universities between two regions.

Through the communication between previous two workshops, HEEACT and BAN-PT have gained a basic understanding of the accreditation mechanism, process and reviewer training of both agencies. The international conference 2018 held on October 17th and October 18th on behalf of HEEACT Invited the ECA and BAN-PT representatives. The initial results were shared in the conference.

Universities visits also conducted during these workshops in order to have clear evidences of the current practices of transnational education carried out by two regions.

5.3. Consultancy and Publicity: Joint seminar

HEEACT and BAN-PT have gained a basic understanding of the accreditation mechanism, process and reviewer training of both agencies. Therefore, HEEACT and BAN-PT held a joint seminar to disseminate the learning process and experiences. Most important of all, it is expected to collect more feedback from other QA agencies. The international conference 2018 held on October 17th and October 18th on behalf of HEEACT Invited the BAN-PT representative to share the initial results in the conference. We also held a closed session to discuss contents of the final report.

6. Main finding

Under the basis of comparison, HEEACT and BAN-PT have already conducted a comparative study in several aspects such as the agency's mission, the QA mechanism, objectives, and procedures. And we have some findings as followings:

6.1. QA agency's mission

In the role and mission of the organization, both HEEACT and BAN-PT are equally government-established accreditation agencies that are responsible for establishing QA systems and undertaking accreditation process for higher education. The two agencies conduct both institutional and program accreditations which are mandatory. The funding is also mainly from government support. However, HEEACT has other affairs besides accreditation, such as the execution of specialized projects and research projects, the recognition of local and international QA agencies, etc. At the institutional level, HEEACT is responsible for only genrral universities, while BAN-PT is responsible for both general and vocational universities. At the program level, the general and vocational universities are included in the accreditation of HEEACT (since 2018) and BAN–PT. The universities are both involved private and public universities.

6.2. Accreditation mechanism

In term of QA procedures, both agencies include the submission of self-assessment reports from institutions and programs under accreditation, document review, on-site visit and decision-making stages. The quantitative data is downloaded from national database to ensure its consistency and correctness. Both quantitative and qualitative information are adopted in accreditation and the review with stakeholders will be held through site visits for multi-verification. Particularly, BAN-PT has developed an online system called SAPTO. The submission of school documents, reviewer/assessor reviewing and report writing are all conducted online. Currently, HEEACT only requires universities/programs to upload their documents to the system. But HEEACT also developed an online system in 2018, and the document review process for new cycle program accreditation started to carry out through the internet.

In spite of the institutional and program accreditation standers of BAN-PT are the same, and HEEACT adopts different standards for institutional and program accreditation. But accreditation standards of both agencies have similar frameworks; they reach the consensus on the quality of universities and programs. The standards all focus on universities/programs operation, student and learning, teacher and teaching, research and support systems, including:

（1） Governance and management (including vision, mission, goals and strategies);
（2） Student and learning;
（3） Teacher and teaching;
（4） Research and public services;
（5） Support systems (human resources, assets and facilities)
（6） Institutional/program effectiveness.

HEEACT and BAN-PT have different approaches in terms of accreditation results. Institutional and program accreditation of HEEACT includes three results. Particularly, each stander is accredited individually in institutional accreditation. And the Institutional and program accreditation validity period are 6 years. However, BAN-PT has two accreditation results, accredited or non-accredited. If the result is accredited, it can be divided into three grades including A (excellent), B (very good), and C (fair), and will be changed into Excellent, Very Good, and Good in 2018. The accreditation validity period are 5 years. However, both of them can give accreditation level to the quality of the universities and programs. Therefore, two agencies also attach great importance to the accreditation of information transparency and the maintenance of an accredited university or program’s rights in the design of accreditation mechanisms.

Overall, HEEACT and BAN-PT have similar QA agency mission and roles. Furthermore, the accreditation procedures are rigorous and prudent between two agencies. The comparison as table 3.

Table 3 The QA system comparison of HEEACT and BAN-PT

QA aspects	HEEACT: QA system	BAN-PT: QA system
QA Agency		
Year of Establishment	Founded in December 2005 as a statutory body.	1994

Establishment	The MoE and 153 universities and colleges under 2005 University Law Amendment	Ministry of Education and Culture Decree No. 032/U/1994
Funding	- The MoE - Evaluation fees from applicant institutions (only program accreditation)	- The MoRTHE - BAN-PT is not allowed to impose any charge of its activity.
Mission and Responsibilities	1. Conduct institutional and Program-level accreditation for all higher education institutions in Taiwan 2. Conduct researches of quality assurance in higher education 3. Provide training courses, workshops and seminars for HEEACT reviewers and QA personnel 4. Promote international recognition of Taiwan higher education	1. Conducting higher education institution accreditation 2. Conducting program accreditation when the Subject-based Accreditation Agency (SAA) has not been established 3. Evaluating the proposal of SAA establishment and monitoring and evaluating the SAA.
Accreditation Process		
Applicants (Scope)	Institution Accreditation: - Private and Public universities - only general Program Accreditation - Private and Public universities - General - Vocational and Technology (since 2018)	Higher Education Institutions both academic and vocational education: - Private - Public (under MoRTHE and other) Level of Accreditation: - Institution Accreditation: - Program Accreditation
Types of accreditations	Voluntary program accreditation (since 2017), and Mandatory institutional accreditation	1. Mandatory for both program and institution. 2. Type of accreditation: Initial/minimum accreditation and full accreditation.
Accreditation Evaluation Process	Five stages of institutional/program accreditation: 1. preparation, 2. self-assessment, 3.on-site visit 4.decision-making, and 5.follow-up.	The Accreditation procedure and process consists of 4 important stages: 1.registration, 2.desk evaluation, 3. site visit, and 4.decision, 5. follow-up.
Quality Assurance	- Institutional: Standard 1: Institutional mission and self-identification Standard 2: Institutional governance and management Standard 3: Teaching and learning resources Standard 4: Accountability and social responsibility	before 1st October 2018 for Institution accreditation or 1st January 2019 for program accreditation 1) Vision, Mission, Objective and Strategy

	Standard 5: Self-enhancement and quality assurance mechanism - Program: Standard 1: Governance and management Standard 2: Resources and support systems Standard 3: Institutional effectiveness Standard 4: Self-improvement and sustainability	2) Governance, Leadership, Management, and Quality Assurance 3) Student and Alumni 4) Human Resources 5) Curriculum, Learning and Academic Atmosphere 6) Budget, Asset - Facility, and Information System 7) Research, Public Services, and Collaboration **As of 1st October 2018, for Institution accreditation or 1st January 2019 for program accreditation** 1) Vision, Mission, Objective, and Strategy 2) Governance, management, and collaboration 3) Student and Alumni 4) Human resources 5) Finance, asset, and facility 6) Teaching and learning 7) Research 8) Public services 9) Outputs and outcomes
On-site visit	Classroom observations, documents reviews, and interviews with Program directors, faculty and staff members, students, and alumni. Examine and check if the school owns and provides the students proper facilities for learning. And internal meeting will also be held to discuss the findings and make recommendation.	Data clarification, meeting with management, faculties, students, alumni and other relevant stakeholders, as well as checking the facilities, student services, and the academic atmosphere. A wrap up meeting is also carried out to discuss the finding, getting feedback as well as making recommendation.
Results		
Stages of Accreditation Decision	-Institutional: 2-stage process: 1.the on-site visit 2.the decision of the Accreditation Review Committee -Program: 3-stage process: 1. The on-site visit; and 2. Preliminary Accreditation Review Panel 3.the decision of the Accreditation Review Committee	3-stage process 1. Desk evaluation by the panel 2. Site visit by the panel 3. Decision and publication by BAN-PT Executive Board

	-Results are then reported at a meeting of the Board of Trustees. Following this meeting, the Accreditation Result Report is submitted to the Ministry of Education for reference in developing policy.	Site visit is conducted in three days, assessor will have to submit the assessment report to the board via SAPTO. Decision. Based on the assessor and validation reports, the board decide the accreditation status and grade, and publish on BAN-PT website.
Accreditation Results	Institutional and program: Accredited, Accredited Conditionally, Denial	1. There are 2 accreditation status, accredited or not-accredited. 2. Currently there 3 grades: A (excellent), B (Very good), and C (Fair), and will be change into Excellent, Very good, and Good.
Result Publication	The results, final reports, appeals rose to the final reports, and the feedback given on on-site visit reports will also be published on HEEACT's website. (http://www.heeact.edu.tw/lp.asp?ctNode=1873&CtUnit=1147&BaseDSD=7&mp=2)	Publishing all guidelines, procedures and results in BAN-PT website (http://banpt.or.id/)
Validity of Results	6 years.	5 years.
Post-Accreditation Follow-up	Yes Those with a status of "Accredited conditionally" or "Denial" will be reviewed again in one year after the first visit to ensure that all major problems highlighted in the on-site visit report have been resolved.	Yes BAN-PT can conduct a monitoring and evaluation on the accreditation status of both program and institution.

7. Joint Monitoring Model

Based on previous understanding and comparison of QA systems, HEAACT and BAN-PT develop a joint monitoring model as a reference for cross-border higher education accreditation. The QA agencies who participate in this monitoring process will need to have a good mutual understanding of each other's' mission, accreditation process and review mechanism and also build trust in each other's accredited institutions, programs and qualifications.

The Joint Monitoring Manual includes the following chapter:

- **Requirement of application**

In order to be accepted as the subject of this monitoring process, the higher education institutions and the dual degree need to meet the following requirements:

1. The dual degree, which is proposed to be the subject of this monitoring process, needs to be established for at least a full academic year.

2. The two institutions, which provide the dual program, need to be accredited by at least one of the two agencies.

- **Monitoring procedure**

The monitoring pursues the principles of peer review and follows the procedural steps:

Figure 1 Monitoring procedure

- **Coordinating agencies**

Each applied program will be assigned a coordinating agency to assist the implementation of the monitoring procedure.

- **Composition of on-site visit panel**

The on-site visit panel consists of 3-5 reviewers/assessors from HEEACT, BAN-PT and the other nations respectively, with international experience/expertise (English). At least 2 of the panel members need to meet all of the following requirements:

- Experts with subject/discipline-specific expertise.
- Experts with experience in quality assurance in higher education.
- Experts with knowledge of at least some of the countries in which the program is offered.

The other relevant agencies can also propose observers to participate in the on-site visit. There can be a maximum of two observers per site visit.

- **Standards and Indicators**

The monitoring standards for dual program consist of six standards and fourteen indicators.

Standard	Indicator
1. Eligibility and Objective	1.1 Eligibility
	1.2 Objective
2.Learning outcomes	2.1 Intended learning outcome
	2.2Learning outcome Assessment
	2.3 Learning outcome Achievement (graduate tracking)
3.Program	3.1 Admission
	3.2 Curriculum
	3.3 Credit Transfer and Degree Awarding
4.Teaching, Learning and Assessment	4.1 Course administration (of the operation)
	4.2 Faculty members
	4.3 Learning activities
	4.4 Assessment methods
5. Support system	5.1 Resources, Facilities and Support staff
	5.2 Support for learning
	5.3 Support for living
6.Internal quality assurance system	6.1 Self-assessment and continuous improvement
	6.2 Stakeholder involvement

- Result approval process

  Monitoring results are determined over a two-stage process: (1) the on-site visit; and (2) the decision of the Joint review committee.

  Joint review committee is formed by 3-5 committee members, recommended by HEEACT and BAN-PT.

8. Conclusion

- **Improve staff capacity building**

Under the implementation of the capacity building project, HEEACT and BAN-PT have already conducted a comparative study in several aspects such as the agency's mission and role, higher education system, the QA mechanism, objectives, and procedures. Therefore, both agencies' staff has not only improved their Capacity but also broadened their horizons. In addition to document analysis, the project was implemented through Skype meetings, workshops and joint seminar, and campus visits. Staff can participate in multi-activities and learn about higher education and QA systems in different countries

- **Deepen the partnership between QA agencies**

Through the implementation of this project, both agencies have gained an understanding of each other's higher education system and QA mechanism. In addition, they have established a close relationship and strengthened substantive cooperation through face-to-face communication and site visits between workshops.

Keeping on this partnership, HEEACT and BAN-PT also plan to have further discussions in new joint projects next year and to participate in institutional/program site visits of both sides. More information will be shared and exchanged in the future. It also establishes a good practice to collaborate with cross-border QA agencies.

- **The possibility of promoting student mobility**

Student mobility within Asia has been driven and encouraged due to economic growth, national competitiveness, and regional development in the early 21st century. One manifestation of the trend is a significant increase in the number of students moving within and amongst Asian campuses. It was found that more than a half to three quarter of international students on Asian campuses comes from the other neighboring countries.

Under the cultural context of Asian region, HEEACT and BAN-PT have developed a joint monitoring model to provide a systematic scheme for the quality assurance of cross-border education. If the quality of cross- border programs could be ensured through the implementation of monitoring programs in the future, it would also be a good way and publicity to attract more foreign students to take the programs and lead to the promotion of student mobility between Taiwan and Indonesia.

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Development of Internal Quality Assurance and its Challenges in China Taiwan Higher Education from University and Students' Perspectives

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Abstract

"Internal evaluation" is a 'process of quality review undertaken within an institution for its own ends'. Accordingly, development and management of internal quality assurance system is 'at the discretion of the higher education institution, which usually carries out this mandate in the context of available institutional resources and capacities. In China Taiwan, internal quality assurance is imperative according to University Act in 2015. Article 5 stipulated that "Universities shall regularly carry out self-evaluation of their teaching, research, services, counselling and guidance, academic affairs, administration, and student participation; regulations governing the evaluation shall be formulated by each university" (MOE, 2015). As national accreditor, HEEACT undertakes institutional reviews over Taiwan higher education institutions since 2011. Hence, the purpose of the study is to better comprehend: (1) the establishment of internal quality assurance mechanism in Taiwan's higher education institutions; (2) the roles of quality assurance units on the IQA implementation; (3) students' attitude and perception toward quality assurance.

Key words: Internal Quality Assurance, Institutional Review, Quality Culture, Higher Education

1. Introduction

Quality assurance is 'a process of establishing stakeholder confidence that provision (input, process and outcomes) fulfils expectations or measures up to threshold minimum requirements' (INQAAHE, 2018). It consists of two major parts, internal quality assurance and external quality assurance. According to the International Network of Quality Assurance Agencies in Higher Education (INQAAHE), 'internal evaluation' is a 'process of quality review undertaken within an institution for its own ends'. Accordingly, development and management of internal quality assurance system is 'at the discretion of the higher education institution, which usually carries out this mandate in the context of available institutional resources and capacities' (Paintsil, 2016, p. 4). In other words, with an appropriate policy and mechanism, an institution can ensure that, 'it fulfils its own purposes and meet the standards that apply to higher education in general, or to the profession or disciplines in particular'

(Martin & Stella, 2007, p. 34). The Council for Higher Education Accreditation's (*CHEA) Principle One* states that 'assuring and achieving quality in higher education is the primary responsibility of higher education providers and their staff' (Hou, 2016, p. 7). Therefore, higher education providers are expected to take the primary responsibility for assuring the quality of the programmes they offer, through internal quality assurance systems and through the process of engaging faculty members (academic staff) and administrative staff.

On the other hand, external quality assurance agencies (EQA), with a 'self-critical, objective, and open-minded' character, undertake third-party review activities of higher education institutions, in order to determine whether the quality of universities 'meets the agreed or predetermined standards' (Martin & Stella, 2007, p. 34). Normally, internal quality assurance is considered as the part of the external process that an institution undertakes in preparation for an external quality assurance. Both indeed are so much 'two sides of the same coin that the activities are inextricably interrelated' (Vroeijenstijn, 2008, p. 1).

The national quality assurance system in Taiwan was not formed until the Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT) was established in 2005. With funds from the government and 153 colleges and universities, HEEACT became the first national accreditor, acting as a quality regulator of Taiwan higher education. The 2015 revised University Act stipulates that universities should periodically undergo self-evaluation on teaching, research, service, counselling, administration, and student engagement; evaluation guidelines should be set forth by each university (Ministry of Education, 2005; Hou, 2011). Article 5 stipulated that "Universities shall regularly carry out self-evaluation of their teaching, research, services, counselling and guidance, academic affairs, administration, and student participation; regulations governing the evaluation shall be formulated by each university" (MOE, 2015). Ministry of Education has authority to carry out external review over universities to monitor by a commissioned committee or independent organization and should make the review results public. Under the University Act, HEEACT is mandated as the leading accreditor in Taiwan to ensure the activities of universities in adherence to established quality standards and accountability. Given the fact that all universities and programmes are required to be reviewed externally by a professional quality assurance body on a regular basis, HEEACT is requested to operate both institutional and programme-based accreditation with a compulsory approach. Over the past 10 years, more than 81 institutions and 3000 programmes were under HEEACT's review and their detailed final reports were published on the official website (HEEACT, 2015). Since 2016, HEEACT undertook second cycle of institutional reviews over 85 universities and several religious institutions and Police and Military academies.

As a result of notable university requests, regarding governance and management deregulation by the government, the Ministry of Education (MOE) decided to launch the 'self-accreditation' policy over program accreditation in 2012 in order to increase university autonomy and build internal quality assurance mechanism on campus (MOE, 2013). In 2017, the MOE revised the policy and applied to most institutions. To sum up, Taiwan institutions were expected to develop a sound internal quality assurance mechanism according to the law and the MOE policy. Hence, the purpose of the study is to better comprehend: (1) the establishment of internal quality assurance mechanism in Taiwan's higher

education institutions; (2) the roles of quality assurance units on the IQA implementation; (3) students' attitude and perception toward quality assurance. Three research questions are addressed as follows:

(1) How were internal quality assurance mechanisms established by Taiwan higher education institutions?
(2) What roles of the quality assurance office or unit of institutions carry out?
(3) How did students perceive the process and impact of quality assurance on universities?

2. Research Context: Role of National Accreditor (HEEACT) and MOE's New QA Policy

As a national accreditor, HEEACT operates both institutional and program-based accreditation on a compulsory basis. The external review costs are completely covered by the MOE. The detailed final reports are published on HEEACT's official website. Following the global trend of quality assurance, both institutional accreditation and the second cycle of programmatic accreditation focused on the assessment of student learning outcomes. Starting in 2011, HEEACT conducted a new comprehensive assessment of 81 four-year national and private universities and also continued the second cycle program accreditation. In HEEACT's handbook for the 2011 institutional accreditation, it emphasized that an institution would be evaluated and examined according to the PDCA (Plan–Do–Check–Act) model and based on quantitative data such as faculty–student ratios, admission rates, research funding and research output. First it should have a clear mission to state its institutional identity; second, it should have favourable governance to integrate and allocate resources; third, it should have set up an internal mechanism to assess student learning outcomes (HEEACT, 2012). Five review standards include self-positioning; government and management; teaching and learning; accountability; and continuous quality improvement. Each institution would be accredited by each standard respectively. In other words, the institution would be granted with five individual results for each standard. According to HEEACT, there were 47 institutions accredited fully by five standards, with a pass rate of 69 percent (Chiang, 2015).

3. Research Design

The study is quantitative research targeting the administrators, faculty members and staff, and students for their perception toward internal quality assurance implementation and the impact on institutional governance on campus. After two cycles of institutional reviews, HEEACT would like to realise the changes and impacts of quality assurance system over universities. The university representatives and students from 33 universities and colleges who ever took part in the external review process and procedures of the second cycle of institutional review were invited to share their opinions on the roles of internal quality assurance office, IQA mechanism and effectiveness. A total of 787 questionnaires were distributed, 715 returned, a response rate of 90.9%. All questions were analysed by mean and standard deviation, then histograms and normal curve checking tools were employed to identify respondents' attitudes toward the questions.

4. Research Results

4.1 Perception of university's representatives over internal quality assurance mechanism

In terms of establishment of IQA system, the study showed that most universities developed a clear IQA mechanism and related regulations with a highest score of 4.32 on average. In addition, the QA units did support the academic units to implement IQA mechanism and preparation of internal review.

In comparison, faculty members did not think that universities gave sufficient financial support and human resources to university QA office (table 1).

Table 1: Establishment of IQA

Items/Categories	Average score	Standard deviation	Sources of Highest and Lowest scores
1. The university develops a clear IQA mechanism and related regulations	4.32	0.80	4.53 (0.56) Top administrators
2. The organizational structure, level and number of staff in the QA office is appropriate in your university.	4.00	0.96	N/ A
3.The top administrators gives enough financial support and human resources to QA office in your university.	3.91	1.00	3.80 (1.10) Faculty members
4. The QA office supports colleges and programs to implement IQA mechanism, such as developing standards, indicators, procedures, etc.	4.26	0.81	N/ A
5.The communication between academic units and QA office is not difficult in your university.	4.21	0.90	N/ A

Regarding the IQA implementation in process and procedures, 95 % of the respondents agreed that the process and procedure of on-site visit in the internal review was adequate and appropriate with a highest score of 4.49. Yet, among respondents, top administrators had the highest level of satisfaction. When it came to self-assessment report writing, around 20% of the staff thought that the workloads were not equal and teammates needed to improve (table 2).

Table 2: Process and procedures of IQA

Items/Categories	Average score	Standard deviation	Sources of Highest and Lowest scores
1. The opinions of varying stakeholders are collected, including management team, administration office, academic units, faculty members, staff, students, alumni, etc. in the process of IQA.	4.22	0.87	N/ A
2. The self-assessment report is written collectively and collaboratively	4.14	0.86	4.08 (0.93) Staff
3. The self-assessment report is evidence-based and integrates the analysis result of institutional research.	4.15	0.91	N/ A
4. The external reviewers of internal quality assurance mechanism are qualified and knowledgeable in QA.	4.45	0.82	N/ A
5. The process of on-site visit in the internal quality assurance is adequate and appropriate.	4.49	0.80	4.68 (0.47) Top administrators
6. The documents, reports and evidence on the dates of on -site visit process in the internal quality assurance is well presented, sufficient and appropriate.	4.41	0.90	N/ A

As to the impact of IQA, the highest level of agreement fell on preparation of the external review, in other words, the respondents indicated that IQA would facilitate effectiveness of external review. However, the respondents were worried that quality culture was not embedded on campus completely (table 3).

Table 3: The Impact of IQA

Items/Categories	Average score	Standard deviation	Sources of Highest and Lowest scores
1. Internal quality assurance facilitates the integration and effective use of institutional resources.	4.20	0.86	N/ A
2. The implementation of internal quality assurance facilitates faculty and staff engagement in institutional development and planning	4.10	0.95	N/ A
3. Self-assessment facilitates the actual examination of institutional accountability and features	4.21	0.89	N/ A
4. Self-assessment process and results are objective with integrity	4.22	0.83	N/ A
5. The follow up mechanism is implemented after the internal review	4.19	0.89	N/ A
6. The implementation of Internal review facilitates the preparation of external review	4.31	0.81	4.50 (0.62) top administrators/ 4.60(0.55) faculty members
7. Internal quality assurance facilitate the establishment of quality culture on campus	4.07	0.88	3.99(0.96)/ staff

4.2 Students' attitude toward appropriateness of external review process

The study showed that student respondents strongly agreed on the method of individual interview during HEEACT on-site visit. However, more than 40% of respondents did not think that University informed them HEEACT institutional review and promoted the value to all stakeholders. In addition, the result demonstrated that communication between university and students in the preparation of HEEACT institutional review still needed to improve, particularly in promotion of student learning outcome as the focus of HEEACT institutional review (Table 4). In general, students had access to university' institutional review results via university official website and teachers, staff or classmates (Table 5).

Table 4: Students' opinions over HEEACT on site visit

Items/Categories	High	Medium	Low
1. Individual interview content	82.3%	15.8%	1.9%
2. One by one interview process	80.3%	18.7%	1.0%
3. Length of interview time (15-20min)	74.3%	22.7%	3%
4. Perception of student learning outcomes as the focus of institutional review	67%	26.6%	6.4%

5. Promotion of the value and importance of institutional review to all stakeholders	59.2%	35.1%	6%
6. Satisfaction over HEEACT institutional review result	62.6%	31.5%	4.5%
7. Over satisfaction over HEEACT institutional result	70.8%	28.2%	2%

Table 5: Percentage of varying accessibility to institutional review results

Access to University's institutional review result	Number / %
1. University announcement on official website	106 (53.3%)
2. HEEACT website	21 (10.6%)
3. Mass media	5 (2.5%)
4. Faculty members, staff and friends	55 (27.6%)
5. Others	12 (6.0%)
In total	199 (100.0%)

5. Discussions and Conclusion

One of the most important purposes of IQA is to establish a self-assessment mechanism and implement a continuous improvement mechanism; therefore, the result of the self-assessment would become the key points for the universities to monitor their programmes and to improve their quality continuously. Taiwan Higher education institutions are encouraged to develop their own IQA based on institutional mission and strategic plan according to revised University Act in 2015.universities would undertake conduct follow-up assessment approach to ensure institutional effectiveness. The internal reviews are be used as a reference for the university's overall resource allocation, development of long-term institutional development plans, and organizational reforms on administrative units and academic programs (Hou, 2018).

The study shows that Taiwan higher education institutions are aware that they should be responsible for quality of education by their own. There is perceived consciousness that internal quality assurance is a means to the success of external review by HEEACT, particularly preparation of on-site visit. Currently, student engagement is regarded as a central role in quality assurance and enhancement practices in several well-developed nations, such as UK and Australia, Norway, etc. Students either act as one of the panel or takes part in the governance of the board of accreditors in these nations. In Taiwan, students are considered one of significant sources who can provide advice and observation with external reviewers during onsit visit. They are arranged to be interviewed by panel individually in order to share their learning experiences with the panel. The study shows that students realize the interview contents and process prior to the meeting but not the theme of the HEEACT institutional review clearly. Accordingly, institutions are expected to promote the external review activities with students and provide more information with them in vary approaches.

The core value of quality assurance is continuous self-improvement. An institution is expected to become a learning organisation through a well-established internal quality assurance mechanism. The Taiwan government definitely encourages universities to develop their features and strengths through a well-established internal quality assurance mechanism (Hou, et.al, 2018). However, it remains a very

challenging job for universities to implement them collaboratively on campus, particularly, self-assessment report writing and student engagement. The process of instilling and embedding a quality culture remain problematic and time-consuming Taiwan higher education institutions.

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Development Status and Trends of HE quality assurance in Asia-Pacific Region: An Empirical Study Based on APQN and INQAAHE

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Abstract

In the global accreditation era of quality assurance of higher education, the Asia-Pacific Region with the largest demand for higher education in the world, has made rapid progress after more than 20-year development in quality assurance. However, the existing regional quality assurance research is mainly based in Europe, and there are few documents in the Asia-Pacific Region.

Therefore, in November 2017, APQN and IQAAHE jointly conducted a survey on the status of both internal and external HE quality assurance in the Asia-Pacific Region by means of questionnaires and interviews, which aimed at exploring status and trends of HE quality assurance in Asia-Pacific region

In the aspect of internal quality assurance(IQA), 5 main problems rose : (1) feeble initiatives; (2)imperfect policies and systems ; (3)Insufficient human and financial resources; (4) inactive participation of relative stakeholders;(5) weak awareness of quality. The possible improvements are: (1)enhancing initiative; (2)committing to continuously improve the quality ofstudents; (3)attaching importance to capacity building; (4)strengthening cooperation with stakeholders; and (5) continuing to cultivate quality culture.

In the aspect of external quality assurance(EQA), 5 main problems also rose: (1)imperfect QA systems and policies; (2) few independent third-party agencies; (3) insufficient attention toward parts of relative stakeholders; (4) low level of internationalization; (5)diminished quality accountability. The possible improvements are: (1) changing the government-dominated role; (2) forming a market-chosen mechanism; (3)establishing an external QA accountability system with 4-level supervisions; (4) raising the level of internationalization; and (5) revising the principle of quality assurance in this region.

We must admit that it is not easy for Asia-Pacific region to get the achievement at present. But as the HEIs and society gradually understand of the importance of QA and achieve the overall progresses in the region, therewill form a quality culture meeting the international level and with unique characteristics in Asia-Pacific region. Then the HEIs, society and government will cooperate well to seek to the forming of Regional quality assurance community.

Key words: Asia-Pacific Region; Asia-Pacific Quality Network (APQN), IQA, EQA, Quality Culture

1. Introduction

Most countries in the Asia-Pacific Region are developing countries with a large population. "*At the end of the 20th Century, with the development of the global economy, the world's manufacturing industry moved toward developing countries, especially Asian countries*" ①, where a more refined and specialized division of labor needs higher level of education for labors. The slogan of "*Education goes first before economic development*" has become a universally recognized concept in the Asia-Pacific Region. This ideal has aroused the surge in the demand for higher education in the Asia-Pacific Region and the continuous increase and expansion of higher education institutions (HEIs) and prompted the Asia-Pacific Region to rapidly enter the stage of higher education (HE) massification. However it led to declining quality of talents and graduates' employment rate; which raised doubt on quality of the HEIs from the public

In order to be responsible to the public accountability and gain reputation and initiative in the competition market for international advanced education, the countries in the Asia-Pacific Region have continuously learned good practices and experience of HE quality assurance in Europe and the United States, beginning its "leapfrog-development path". After South Korea first experimented with institutional evaluation in 1982(John Hawkins, 2009), Japan (1991), Australia (1992), New Zealand (1993), India (1994), Malaysia (1996), Thailand (1999) and other countries also began the exploration on HE quality assurance (Zheng Xiaoqi et al.2007).

At the beginning of the 21st Century, under the promotion of UNESCO, the International Network for Quality Assurance Agencies in Higher Education (INQAAHE) and the European Bologna Process for HE quality assurance, the era of global accreditation for HE quality assurance has arrived. The development of HE quality assurance in the Asia-Pacific Region has made significant progress. It is in this context that the Asia-Pacific Quality Network (APQN) was founded in Hong Kong, China, in January, 2003. By the end of 2018, APQN already has 222 members from 41 countries/territories.

However, from a global perspective, regional researches on HE quality assurance are mainly focused on Europe, and less attention are drawn to the Asia-Pacific Region. Therefore, in order to better understand the development status and trends of HE quality assurance in the Asia-Pacific Region from the regional level, in November 2017, INQAAHE and APQN jointly conducted online survey of both IQA and EQA by e-mail to HEIs and EQAAs (EQAAs) of 54 countries in the Asia-Pacific Region.

Survey tool, Wenjuanxin (https://www.wenjuan.in), which can be downloaded free of charge from the web, was utilized for the dissemination of questionnaires and collection of data. On March 20, 2018, the survey completed. It took 130 days to e-mail a total of 1,341 questionnaires. Because the survey is in English, the contents are too much and the concepts are somewhat professional, we just got 79 valid samples.

2. Survey Analysis

2.1 The Survey of Internal Quality Assurance (IQA)

A total of 49 IQA samples were collected, of which 42 from 42 different higher education institutions (HEIs) were valid. The IQA samples mentioned below in this research refer to 42 copies, unless otherwise stated.

2.1.1 Country Coverage. Of the 42 samples, 5 HEIs did not fill out their country, and the remaining 37 HEIs were from 24 countries/territories. Among them, the largest samples are from China, Russia, Japan and Bhutan. (Figure 1)

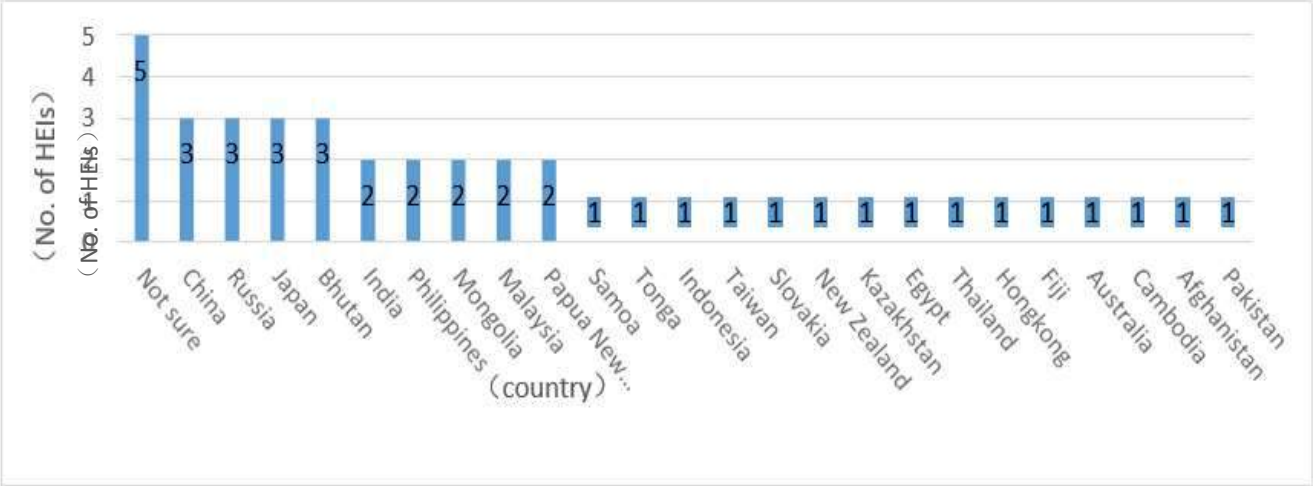

Figure 1: Country Coverage in the **IQA** Survey

2.1.2 IQA content. 41 HEIs carry out quality assurance on Bachelor's level programmes, accounting for 97.6% of the total. 34 HEIs carry out quality assurance on Institution as a whole (governance and administration; physical resources; human resources; student services; information systems), accounting for 80.9% of the total. Fewer HEIs carry out quality assurance on distance education, online learning and postgraduate programmes / doctoral programmes, no more than 10, less than 24% of the total.

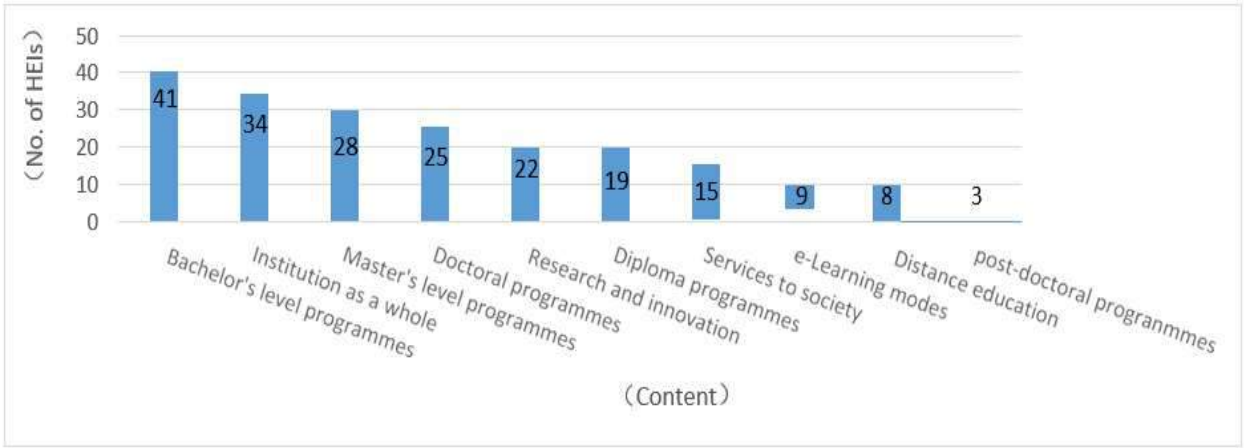

Figure 2: The Contents of IQA

2.2 The Survey of External Quality Assurance (EQA)

A total of 42 EQA samples were collected, of which 37 from 37 different EQAAs were valid. The EQA samples mentioned below in this research refer to 37 copies, unless otherwise stated.

2.2.1 Country coverage. 37 EQA samples come from 24 countries/territories. Among them, the largest numbers of samples are from Japan, Russia, China and India.

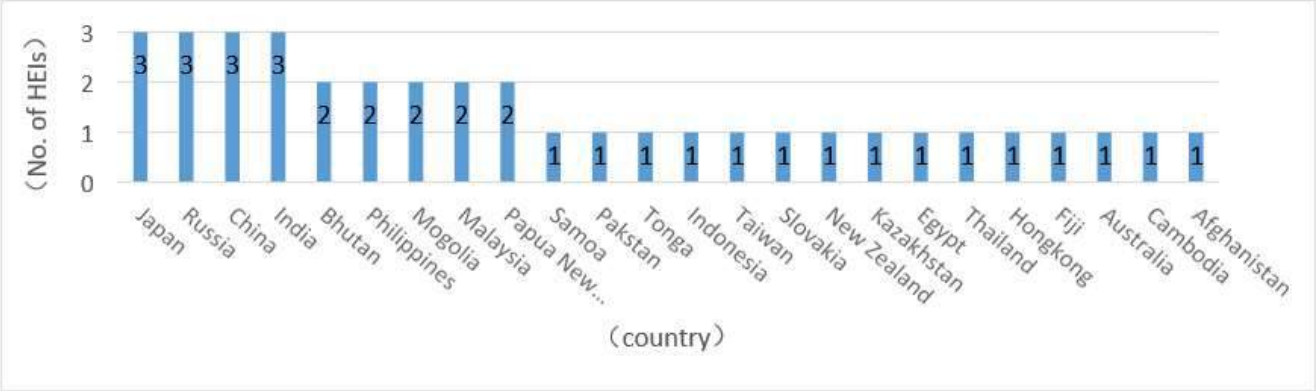

Figure 3: Country Coverage in the **EQA** Survey

2.2.2 Established time. 9 EQAAs were established before the year of 2000, accounting for 24.3% of the total. The remaining 28 were established after 2000, accounting for 75.7% of the total. Among them, 14 EQAAs were established between 2000 and 2010, accounting for 37% of the total. 11 EQAAs were established between 2011 and 2017, accounting for 29.7% of the total. This shows in the early 21st Century, driven by regional and international trends of quality assurance with a large number of QA forums and conferences, the governments in this region promulgated quality assurance policies, increased financial investment in quality assurance, and established a batch of EQAAs.

3. Development Status of EQA

3.1 Development of QA activities and Open Information

Actively carrying out IQA activities in the HEIs is the main way to improve quality, optimize management, and be responsible for the stakeholders. It is conducive to the government's macro management and the supervision of the society to the HEIs.

3.1.1 70% of the HEIs have carried out IQA activities. Among the 42 HEIs, 5 HEIs are not sure about the number of IQA activities. Within the other 37 HEIs, 6 do not carry out IQA activities, accounting for 14.3% of the total. 11 only carried out one-cycle IQA activities, accounting for 26.1% of the total. 20 HEIs have conducted IQA activities more than one cycle, accounting for 47.6% of the total.

In most countries and regions in the Asia-Pacific Region (especially in developing countries), HE quality assurance was originally initiated by the governments. Many HEIs do not have the tradition of carrying out IQA activities all by themselves. In order to quickly popularize the understanding of the importance of quality assurance in the HEIs ,The governments link quality evaluation of the HEIs with the funds investment as well as authority permission of the HEI and mainly manage education quality

of HEIs by way of external evaluation. Although it works, there are deviations between the real understanding of quality assurance in HEIs and the true purpose of IQA, to promote the continuous improvement of quality of the HEIs. Some HEIs just regard quality assurance as a way to obtain funds, obtain the qualifications and complete the requirements from the public and the governments. They confuse EQA with IQA, and do not pay attention to IQA activities. Therefore, few HEIs carried out IQA activities more than one cycle.

3.2 40% HEIs do not release their self-evaluation reports.

The open source of the self-evaluation reports is beneficial for the stakeholders to understand quality assurance of the HEIs. APQN's "*Principles of Quality Assurance in Higher Education in the Asia-Pacific Region"* clearly stipulates that open self-evaluation report is the responsibility of the HEIs. The survey showed that 22 HEIs have released their self-evaluation reports, accounting for 52.4% of the total. 20 HEIs do not release their self-evaluation reports, accounting for 47.6% of the total. Some HEIs explain the reason why the self-evaluation reports are not open to the public, is that there must be all kinds of quality problems existing in the HEIs, but in the Asia-Pacific Region, the public and the media have not yet formed a positive guide to such quality problems in the HEIs. Negative criticism and accusation is more than the improvement of the HEIs, which will affect the reputation of the HEIs and combat the confidence of the HEIs quality. So, keep the reports private but not to open to the public is the choice of some HEIs.

3.3 IQA Policy System

3.3.1 70% HEIs have made IQA policies and procedures. 30 HEIs have made the IQA policies and procedures in the past years, accounting for 71.4% of the total. However, the IQA policies of 12 HEIs are under construction, accounting for 28.6% of the total.

3.3.2 60% HEIs regularly revise IQA policies and procedures. 2 HEIs are not sure whether their IQA policies have been revised. 27 HEIs regularly revise IQA policies, accounting for 64.3% of the total. 4 HEIs revise the policies from time to time, accounting for 9.5% of the total. 9 HEIs have never revised their IQA policies and procedures, accounting for 22.5% of the total.

3.3.3 90% HEIs establish quality assurance units (QAUs). 38 HEIs have established specialized QAUs, accounting for 90% of the total. 2 HEIs are establishing their QAUs, accounting for 5% of the total. Still 2 HEIs do not have QAUs, accounting for 5% of the total.

The establishment of IQA policies can make the QA activities of the HEIs follow procedures and regulations. The revision will help the HEIs improve the QA system according to new development status and planning. Establishing special QAUs can coordinate various departments in QA activities. In recent years, in order to promote the initiative of IQA, some countries shift their focus on quality assurance of the HEIs from the outside to the inside, from the top to the bottom, beginning to guide the HEIs to improve IQA policies and establish specialized QAUs. The governments' guidance may speed up the establishment of QA policies and QAUs in the HEIs. However, in order to make the IQA

not just in the appearance, the real improvement of the HEIs' quality requires the HEIs to promote the awareness of the importance of quality assurance.

3.4 Resources

3.4.1 50% HEIs lack human resources. 19 HEIs have sufficient human resources to carry out QA activities, accounting for 45.2% of the total. 23 HEIs lack human resources to carry out QA activities, accounting for 56.8% of the total.

3.4.2 50% HEIs lack financial resources. 21 HEIs have sufficient financial resources to carry out QA activities, accounting for 50% of the total.21 HEIs lack the financial resources to carry out QA activities, accounting for 50% of the total.

From the survey data, nearly 50% HEIs lack both human and financial resources for IQA activities, which are related to the insufficient attention of the HEIs to IQA. The current acquisition of human and financial resources in the HEIs depends on the number of IQA projects. The more the projects are, the more investments the HEIs will make, and vice versa. The QA activities of most HEIs in the Asia-Pacific Region are mainly based on external evaluation. Their IQA activities are only used to maintain the normal development of teaching activities in the HEIs. Therefore, it is nature for them to get less investment in QA human and financial resources. No doubt that the IQA activities lacking human and financial resources are difficult to improve the quality of the HEIs, which tends easily to cause the HEIs to pay less attention to IQA. Thus a vicious circle will be formed.

3.5 Stakeholders

"The implementation of HE quality assurance is not a purely academic evaluation, but also includes the opinion of the public. Each stakeholder has its own quality standards."(Jianxin Zhang, 2011) Only when more voices of the relative stakeholders in the QA process are heard, can HEIs improve the quality of the HEIs as a whole, meet the needs of most stakeholders and gain social trust.

3.5.1 Some internal stakeholders are not sufficiently involved. Among the five types of the internal stakeholders: top level managers, administrative staff, faculty members, students and alumni, 40 HEIs have administrative staff, faculty members in participating in IQA activities, accounting for 92.5% of the total. 36 HEIs have the top level managers participated in IQA activities, accounting for 85.7% of the total. 33 HEIs have administrative staff and students participated in IQA activities, accounting for 78.6% of the total. Only 17 HEIs are involved in alumni in IQA activities, accounting for 40.4% of the total. Students are the recipients of university education while alumni are products of the HEIs. They are more aware of how to promote the quality of the HEIs. Therefore, their participation in IQA activities must be taken very seriously in the future.

Figure 4: Internal stakeholders of the HEIs

3.5.2 The participation of some external stakeholders is insufficient. Among the 6 types of external stakeholders: the government, employers, professional associations (in the respective fields of study), private sector representatives (in the respective fields of study), labor market representatives and international experts, the government participated in the IQA activities of 27 HEIs, accounting for 64.3% of the total; professional associations participate in the IQA activities of 26 HEIs, accounted for 61.9% of the total; labor market representatives only participate in the IQA activities of 8 HEIs, accounting for 19% of the total.

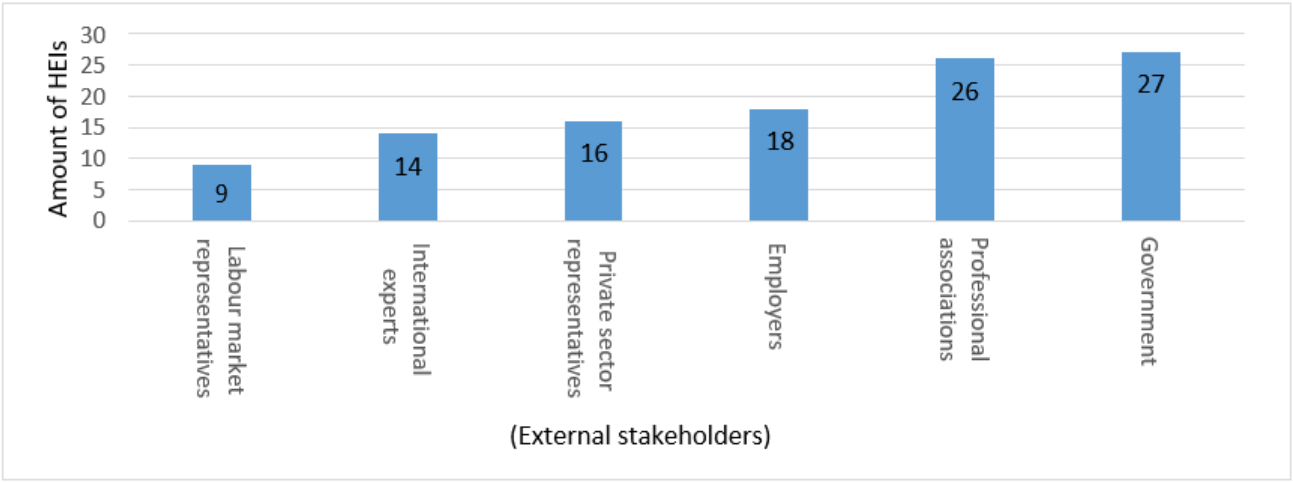

Figure 5:External stakeholders of HEIs

The main reason that stakeholders have insufficient participation in the IQA activities of the HEIs, should be responsible by 2 parties: both the HEIs and stakeholders. As for the HEIs, they are used to be pushed by the EQAAs and IQA are always in passive way, so that they do not attach importance to stakeholders' participation in IQA activities. As for the stakeholders, participating in IQA activities requires professional knowledge. But because of short development of QA in the Asia-Pacific region, some stakeholders lack professional QA knowledge and do not know how to participate. This needs further

cultivation and promotion. Thus, it is important to enhance the positive role of stakeholder participation in the HEIs' quality assurance, and to popularize relevant QA knowledge among the stakeholders.

3.6 Quality culture

The establishment of quality culture contributes to the substantial improvement of the quality of the HEIs. At present, there is no international consensus on the definition of "quality culture". The European University Association (EUA) defines "quality culture" in a more comprehensively way.
"Quality culture refers to an organizational culture that intends to enhance quality permanently and is characterized by two distinct elements: on the one hand, a cultural/psychological element of shared values, beliefs, expectations and commitment towards quality and, on the other hand, a structural/ managerial element with defined processes that enhance quality and aim at coordinating individual efforts (Oliver Vettori, 2016). Therefore, Quality culture is not the same as the establishment of quality assurance policies and procedures in the HEIs. It is more of a kind: on the basis of the perfect quality assurance system of the HEIs, each stakeholder is constantly improving and pursuing quality of the HEIs from cognition to action.

3.6.1 70% HEIs recognize the necessity of quality culture. 40 HEIs recognize the necessity of establishing quality culture in the HEIs, accounting for 95.2% of the total. 2 HEIs are not sure about it, accounting for 4.8% of the total.

3.6.2 The awareness of quality culture from 90% HEIs has emerged. 30 HEIs believe that their awareness of quality culture has been formed, accounting for 71.4% of the total. 19% HEIs are not sure about it, while 9.5% HEIs firmly believe they do have the awareness of quality culture.

As we can see from the above, some HEIs in the Asia-Pacific Region do not have sufficient initiative to carry out IQA activities, QA policies and procedures are still imperfect, they still face the dilemma of insufficient human and financial resources, and the cooperation with both internal and external stakeholders are not reached yet. This shows that quality culture in the Asia-Pacific Region needs to be continuously developed at both structural/management level and cultural/psychological level. However, this is an inevitable problem in the initial stage of the IQA development in the Asia-Pacific Region. Nowadays, the awareness of quality culture of the HEIs is sprouting. With common struggle of all the persons in the HEIs, the IQA of the HEIs in the Asia-Pacific Region will surely make great progress.

4. EQA Status

Traditionally, the HEIs have always believed that they can be self-responsible for quality. However, with the expansion of the HEIs and the decline in quality, as a consequent, external accountability for the HEIs' quality goes with it. "In 1997, the UK established quality assurance Agency (QAA) by integrating the functions of the University Grants Committee (UGC) and the Higher Education Quality Council (HEQC) to audit or review the QA system within the HEIs. It became the first landmark of external quality assurance agency (EQAA) in the world, which means that the EQAA in higher education was empowered to have formal power to manage and supervise the quality of the HEIs by the government or relevant authorities." (Fan Zengguang, 2014)

4.1 Independence and Legitimacy

Both legitimacy and independence of the EQAAs are the cornerstone and foundation to ensure that they have the evaluation capacity and will not affected by any external factors (such as the government) to objectively evaluate the quality of HEIs.

4.1.1 40% EQAAs are independent third-party agencies. 17 EQAAs are independent third-party agencies, accounting for 46% of the total. 10 EQAAs are education departments of the governments, accounting for 27% of the total. 8 EQAAs are quasi-third-party government agencies, accounting for 22% of the total. The private EQAAs and domestic EQAAs cover only 2.5%.

In most countries in the Asia-Pacific Region, the HEIs are affiliated with the governments. In order to ensure the possibility and effectiveness of the EQA implementation, many countries have also established the EQAAs that are also affiliated with the governments or the education departments, giving them the right to evaluate the quality of the HEIs. This practice undermines the independence of the EQAAs, but in order to cope with the fierce international competition in the HE market, popularize the understanding of quality assurance in the EQAAs and the public, standardize and improve the quality of regional education, government-led EQAAs are also a necessary stage for the development of HE quality assurance in the Asia-Pacific Region. In general, its advantages outweigh the disadvantages. With the continuous development and improvement of EQA, the governments will gradually decentralize and authorize more power to the EQAAs, and independent third-party EQAAs in the region will increase in the near future, which is an international trend at this quality era.

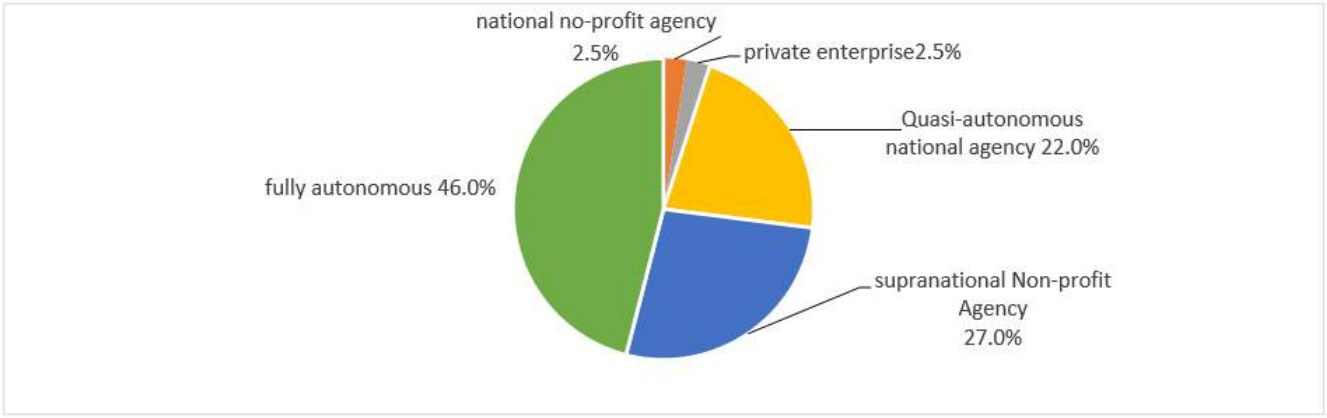

Figure 6: The nature of the EQAAs

4.1.2 70% EQAAs have been recognized as having responsibility for EQA in the jurisdiction. 25 EQAAs have been recognized by the legislation, accounting for 67.6% of the total. 9 EQAAs have recognized by the state authorities and the HEIs but not by law, accounting for 24.3% of the total. 8.1% EQAAs have not recognized.

At present, some countries in the Asia-Pacific Region lack the supervision and management of the EQAAs, in addition more and more private EQAAs are gradually emerging like mushrooms. It is urgent to formulate policies and principles to regulate the market of the EQAAs.

4.2 Level of Internationalization

At the end of the 20th Century and the beginning of the 21st Century, regional and international networks such as INQAAHE, APQN, European Network of Quality Assurance(ENQA) and the Central and Eastern European Network of Quality Assurance Agencies in Higher Education (CEENQA) were established. These networks often guide the QA development by holding conferences, seminars and fora, releasing publications and conducting special researches. They help different countries to continuously develop quality assurance, which made them gain international and regional recognition. In order to ensure its advancement and competitiveness, the HEIs and the EQAAs often promote internationalization level by joining regional and international networks and apply for international accreditation.

4.2.1 80% EQAAS have become members of regional and international networks. 31 EQAAs are APQN members, accounting for 84% of the total. 28 EQAAs are INQAAHE members, accounting for 76% of the total. One reason is that this survey was sent from APQN, so most respondents were APQN members. In addition, 13 EQAAs have joined other networks such as Council for Higher Education Accreditation (CHEA), CHEA International Quality Group(CIQG), CEENQA and ENQA.

4.2.2 50% EQAAs have obtained international accreditation. 11 EQAAs have been accredited by international accreditation organizations, accounting for 29.7% of the total. 7 EQAAs have obtained international accreditation but need to apply for accreditation again, accounting for 18.9% of the total. 15 EQAAs plan to apply for international accreditation, accounting for 40.5% of the total. 4 EQAAs do not plan to apply for international accreditation, accounting for 10.9% of the total.

4.3 Implementation of EQA

4.3.1 90% EQAAs follow the international external evaluation procedures. In the "Guidelines of Good Practice" (GGP) issued by INQAAHE, it is clearly required that the basic external evaluation process should consist of four steps: (1) self-evaluation of the HEIs; (2) Site Visit; (3) Evaluation Report and decisions, and (4) Follow-Up Action on Recommendations. These four steps are an evaluation process that is consistent with global quality assurance. According to the survey, 37 EQAAs conduct site visits to the HEIs, accounting for 100% of the total. Some EQAAs did not conduct self-evaluation of the HEIs and follow-up action on recommendations. But in general, 90% of EQAAs can fully comply with the four steps of external quality evaluation.

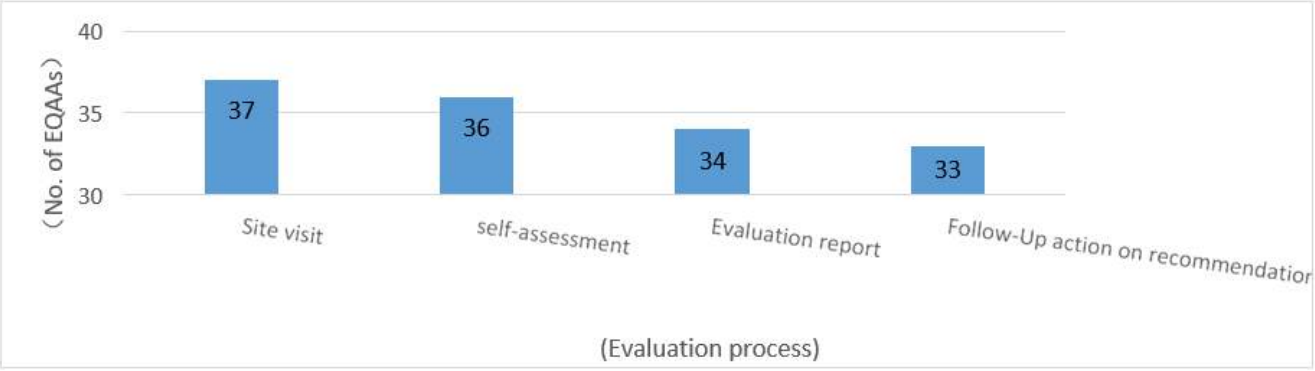

Figure 7: Evaluation Process

4.3.2 The composition of the external evaluation team(EET). Among 7 types of composition of the EET (EQAA staff members, representatives of professional associations, administrators and faculty members from local institutions/local experts, administrators and faculty members from overseas, institutions/international experts, students, professional practitioners and employers), 24 EQAAs have representatives of professional associations and administrators and faculty members from local institutions/local experts, accounting for 64.9% of the total. 12 EQAAs have students as well as administrators and faculty members from overseas, accounting for 32.4% of the total.

Some EQAAs explained, there were many reasons for restricting the participation of international experts in evaluation implementation, for example, misunderstandings will be caused because of language difficulties. International evaluations are not acceptable in local context because of the differences of cultures and education. What's more, the expenses are much higher. The reason why fewer students' participation is that the students do not have professional training in quality assurance, it is very difficult for them to play an important role in the evaluation process.

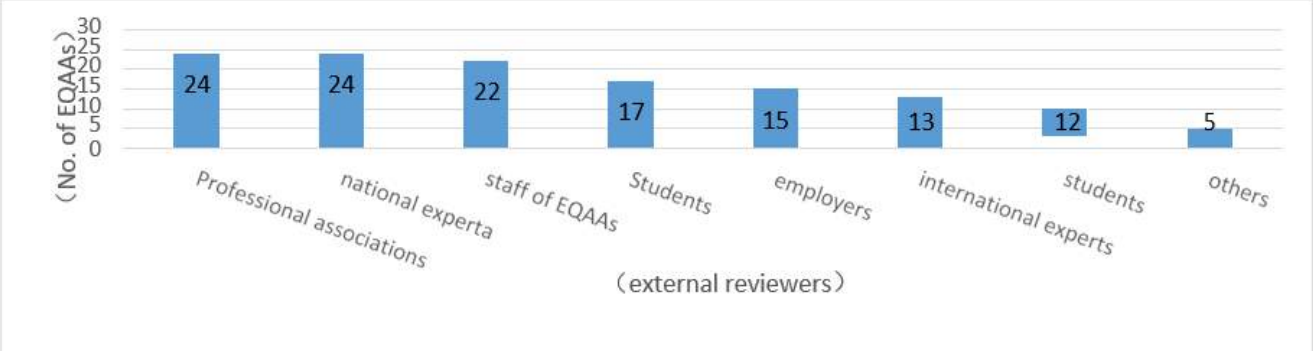

Figure 8: Composition of external evaluation team

4.3.3 All EQAAs conduct external reviewers training activities. 31 EQAAs conduct orientation/induction sessions before launching an institutional or program evaluation procedure, accounting for 83.8% of the total. 30 EQAAs train the reviewers, accounting for 81% of the total. 17 EQAAs carry out targeted professional development activities for reviewers, accounting for 45.9% of the total.

4.4 Resources

Except the fact that the EQAAs evaluate the HEIs and make the HEIs fulfil their accountability, the responsibility of the EQAAs should play important role in promoting the improvement the QA capacity of the HEIs through evaluation, and make them independently carry out IQA activities on their own. Therefore, the sufficient human and financial resources of the EQAAs are crucial in the evaluation of the EQAAs and in the construction of QA capacity of the HEIs.

4.4.1 Nearly 40% EQAAs lack financial resources to carry out evaluation work. 23 EQAAs have sufficient financial resources to carry out evaluations, accounting for 62.2% of the total. 14 EQAAs lack financial resources, accounting for 37.8% of the total.

As we can see from Figure 9, 21 EQAAs are mainly funded by the governments, accounting for 56.6% of the total. A small number of the EQAAs get financial resources mainly by way of evaluation services, accounted for 43.4% of the total. It is because the HEIs in most countries in the Asia-Pacific Region are established by the governments and they work in the form of state-led EQA. Quality assurance of the HEIs is still passively accepted without awareness of applying for external evaluation. However, as the EQA is getting mature, the governments' investment gradually decrease, and evaluation service fees will become the main income for the EQAAs to obtain financial resources. The capacity and reputation of the EQAAs will be an important factor in determining whether an EQAA can obtain financial resources or not. The EQAAs with good capacity and reputation will naturally receive more projects, and thus obtain financial resources in conducting evaluations. Conversely, the financial resources of the EQAAs will be scarce.

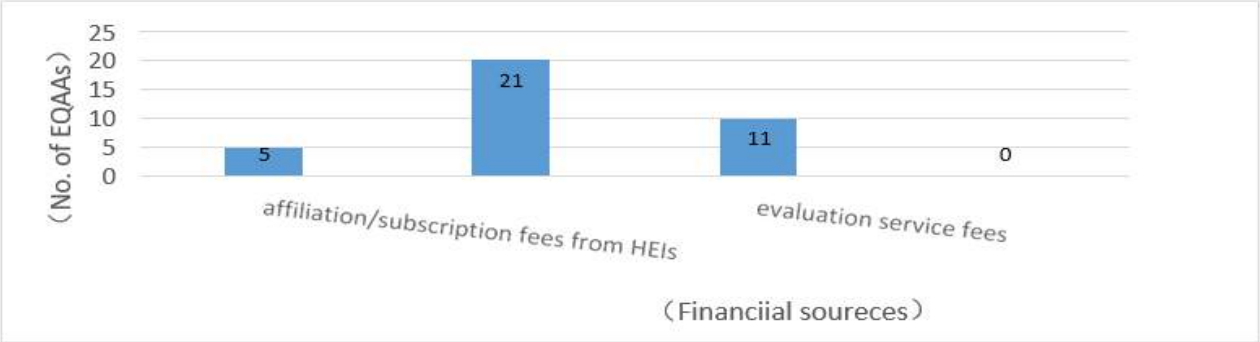

Figure 9: The sources of most part of financial resources

4.4.2 Nearly 40% of the EQAAs lack human resources to conduct evaluations. 23 EQAAs have sufficient human resources to conduct evaluations, accounting for 62.2% of the total. 14 EQAAs lack human resources to conduct evaluations, accounting for 37.8% of the total.

On insufficient human resource acquisition, there are two main reasons. One is that agencies cannot employ a sufficient number of staffs without sufficient funding. The other is that Professional quality assurance personnel training and professional quality assurance talents are insufficient in the Asia-Pacific region of short development time.

4.5 Accountability of the EQAAs

Accountability of the EQAAs can promote the upgrading their professional capabilities, management, operation and standardization of evaluation activities. The EQAAs establishing their own QA accountability mechanism and accepting external evaluation is the main way for the EQAAs to complete accountability.

4.5.1 60% EQAAs establish an accountability mechanism for their own QA system. 22 EQAAs have established their own QA accountability mechanisms, accounting for 59.5% of the total. 11

EQAAs are establishing their own QA accountability mechanisms, accounting for 29.7% of the total. 4 EQAAs did nothing, accounting for 10.8% of the total.

4.5.2 70% EQAAs have reviewed and have a recognition status awarded by external bodies. 9 EQAAs have not received any external review. The remaining 28 EQAAs have received external evaluations, accounting for 75.7% of the total. Among them, 17 EQAAs have been evaluated and have recognition status awarded by national bodies, 6 EQAAs have received APQN evaluations, 4 EQAAs have received INQAAHE evaluations, and 9 have received evaluations from other regional or international EQAAs, such as ENQA, ENAEE, etc.

At present, most countries in the Asia-Pacific Region lack supervision over the EQAAs. At the same time, most of the EQAAs are funded by government, and lack inter-institutional competitiveness, which leads to insufficient initiative of the EQAAs to guarantee their own quality.

4.6 Stakeholders

Among 8 types of the stakeholders (government representatives, private HEIs, public HEIs, professional associations, labor organization representatives, industry/business representatives, national training agency representative and students), 27 EQAAs have public HEIs as their own stakeholders, accounting for the total number of 72.9%. 26 EQAAs have government representatives and professional associations as their own stakeholders, accounting for 70% of the total. Less than 50% EQAAs have private HEIs, labor organization representatives, industry/business representatives, national training agency representative and students. At the same time, a small number of the EQAAs have their stakeholders who are not in the above choices, such as international experts, national research committees, international academic committees, etc.

Figure 10: Stakeholders represented by the EQAAs

5. Development Trend

As a leading region for the QA development, Europe has always been the pioneer in the development of global quality assurance in higher education. Roughly considered “the 1991 European Pilot Project for Evaluation Quality in Higher Education” as the starting point, the signing of “the Bologna Declaration” in 1999, the promulgation of the 2010 Budapest and Vienna Declarations as the crucial stages, the QA development process in Europe can be divided into 3 stages: (1) embryonic stage (1970-1998); (2) the construction of quality assurance system (1999-2009); and (3) devotion to real improvement of quality(2010-).

Compared with the European QA process, the Asia-Pacific Region has entered the construction stage of quality assurance system and leaped towards a real improvement in quality. In the future development process, as long as the EQAAs can take the initiative to take responsibility for quality assurance, the Asia-Pacific Region will gradually form a pattern of regional quality assurance dominated by universities, supervised and supported by the public and the government

5.1 Development trend of IQA

5.1.1 To improve the initiative of IQA. In Asia-pacific region, the development of IQA in the HEIs is relatively late than EQA, so the IQA is mainly promoted by EQA. The policies and systems of IQA are immature, and even quality assurance is defined as a way to deal with external inspections. The capacity and motivation to spontaneously carry out IQA activities are insufficient. However, with the emergence of more and more global and regional university rankings, encouragement of quality assurance capacity building of the HEIs by international organizations greatly, the higher public requirements for the quality of HEIs and the active pushing in QA construction of the HEIs by government, both internal and external pressure will eventually will make HEIs recognize the positive role of quality assurance. The HEIs will change from the passive recipient of the fact that "I was asked to conduct evaluation" to the initiator of the fact "I ask to conduct evaluation", take the responsibility of quality assurance, develop an IQA monitoring system, and actively explore more effective IQA methods.

5.1.2 To emphasize quality assurance capacity-building. Capacity building is an important way to promote the sustainable development of quality assurance in the HEIs. QA talents with rich experience and leadership can guide the successful development, and promote the QA practice and innovation in the HEIs. Since 2008, APQN has launched "the Training Project of Staff Capacity-Building in Quality Assurance", which annually train QA personnel from different countries in the Asia-Pacific region. So far, more than 100 people have been trained. However, there are only a few people who can participate in this kind of international training program. In order to cultivate a big batch of QA professionals, it is expected that the quality assurance major will be established in the HEIs. At the same time, the emphasis of HEIs capacity building will be to achieve a synchronous understanding from the management level to the implementation level in the quality assurance practice, improve the quality-assurance quality of stakeholders, strengthen the leadership of university managers in quality assurance, and popularize quality assurance knowledge for internal and external stakeholders of education quality.

5.1.3 To commit to the continuous improvement of students' quality. In recent years, the HE quality assurance in the whole world has shifted from the recognition of the institutions, degree programmes to the attention of students' learning outcomes (SLOs) and teachers' teaching ability. For example, in the latest revised "Standards and guidelines for quality assurance in the European Higher Education Area (ESG, 2015)", "Since 2005, considerable progress has been made in quality assurance as well as in other Bologna action lines such as qualifications frameworks, recognition and the promotion of the use of learning outcomes, all these contributing to a paradigm shift towards student-centered learning and teaching. " (ENQA, 2015),specially added the "student-centered internal quality assurance standard ". In 2015, for the first time CIQG in the U.S.A launched the "Review on the SLOs"

in China, which brought new ideas and concepts to Asia-Pacific Region. Beyond all question, the focus of quality assurance in the HEIs in the Asia-Pacific region will gradually shift from the macro-level quality of management and resources to the core elements in the teaching process, namely, the improvement of students physical and mental quality, the SLOs and the improvement of teachers' capacity in teaching and research.

5.1.4 To strengthen cooperation with stakeholders. The participation of internal and external stakeholders in quality assurance of HEIs can reach a consensus with HEIs on quality assurance, change the mentality of negative criticism, work together in the same direction, and condense into the power of quality assurance of HEIs. At the same time, the HEIs can also recognize the diversity of quality requirements from different stakeholders' participation and comprehensively improve the quality of the HEIs from multiple perspectives. Thereby developing a harmonious, positive and cooperative relationship between the HEIs and stakeholders is double-win strategy. However, nowadays HE quality assurance is only a topic in the quality assurance circle in the Asia-Pacific region. With the increasing attention of the public and media to the HE quality, QA of HE will become a topic of public concern and more and more people will be involved in the quality assurance process of HE. Thus supporting and cooperative quality assurance culture will form in the region.

5.1.5 To cultivate quality culture. The cultivation of quality culture means that quality assurance system of the HEIs tends to be excellent, and the relative stakeholders have formed a concept of continuously promoting the quality improvement from both understanding and actions. Since the launch of "the European Quality Culture Project" in 2002, quality culture has become a topic of global discussion. Even some countries have issued the policy on how to improve it in the HEIs. For example, on January 27, 2017, the Norwegian Ministry of Education and Research released a white paper entitled "Quality Culture of Higher Education", systematically summarizes the process of quality assurance and management reform in HEIs and put forward many goals and measures to promote the cultivation of quality culture in the HEIs.(Ministry of Education and Research, 2017) there are also some popular and heated discussions on quality culture in Asia-Pacific Region. "2016 Global Quality Assurance Summit", "2017 Quality Assurance Conference" organized by the Association of Asian Universities and quality culture is always the main core of the discussion in the regional activities of APQN since 2016. Cultivating quality culture of the HEIs is the key point of the future development of global trend in higher education.

5.2 Development trend of EQA

5.2.1 Changing the government-dominated role. An ecological QA pattern should be: the HEIs take the initiative to undertake the responsibility of quality assurance, the EQAAs guarantee quality assurance of the HEIs from the outside to verify and catalyze the quality of the HEIs. However, the QA in HE in the Asia-pacific region has the status of "putting the cart before the horse". The QA of HE is led by EQA (especially the government) but passively accepted by HEIs. The identity dislocation of QA leader and the facilitator has brought many negative impacts on the quality of HEIs. In order to change this situation, some countries in the Asia-Pacific Region began to reduce external control over the HEIs, guide the development of IQA systems, and encourage the spontaneous QA practices. The

governments and the EQAAs should rethink their roles, respect the subjectivity of the HEIs, and gradually change from the role of QA leaders to the facilitators.

5.2.2 The market elimination mechanism will gradually form. In the Asia-Pacific Region, many EQAAs affiliated with the governments or education departments mainly get the funds from the governments, so there is no market competition mechanism. However, with the gradual maturity of the EQA system, the government will gradually transfer the input of QA from EQAAs to HEIs. Then, Evaluation service fees will become a major component of the EQAAs' funding. Whether an EQAA can survive or not will depend on its own choice. An EQAA with good capability and reputation will receive more projects and thus have sufficient funds to support its development while the EQAAs with poor capability and reputation will gradually be eliminated by the market and will not survive. A market elimination mechanism will gradually take shape.

5.2.3 To establish an external QA accountability system with 4-level supervisions. At present, the competitiveness of the external quality assurance market in the Asia-pacific region is insufficient. The state and HEIs lack supervision over quality of EQAAs, so unqualified external quality assurance institutions still exist. The question who will guarantee the quality of external quality assurance institutions is questioned by the government, HEIs and the public. We believe, that there are four kind-level supervisions that can guarantee and monitor EQA: 1) the national education administrative departments; 2) the quasi-governmental agencies established in "legislative and independent administrative agencies"; 3) the third party such as professional associations (guilds); and 4) regional and global register such as the European Quality Assurance Register for Higher Education (EQAR) and Asia Pacific Quality Register (APQR) by APQN. (Jianxin Zhang, 2017). From a global and regional perspective, this new mechanism is proposed to strengthen the quality control of the EQAAs and eliminate the possibility of false evaluation. In the near future, an external QA accountability system with 4-level supervisions from global, regional, national and professional association is expected to truly fulfill its accountabilities and responsibilities.

5.2.4 Improve the level of internationalization. Generally speaking, the international and regional networks and EQAAs have advanced QA ideals and good practice to be used for reference through years of explorations and researches. They bring together professional QA talents, and play a guiding role in the QA development in the whole world. In the near future, more and more EQAAs will increase their internationalization level, update their ideals, share international experiences, enhance their capacity building, and gain market competitiveness through applying for international accreditation, joining international EQAAs, and participating in international conferences.

5.2.5 To revise the principles of regional quality assurance. In 2008, APQN released "Higher Education Quality Assurance Principles for the Asia Pacific Region" (Chiba Principles). It aims to provide guidance to both higher education institutions and quality assurance agencies interested in enhancing policies and practices within region. They are intended to complement national quality assurance approaches and frameworks relating to recognition of qualifications (both domestic and international), institutions, courses and programmes and national registers of institutions, courses, HEIs and QAAs. Ten years has passed and many changes have taken place during the decade: the prosperity of lifelong learning, the development of online learning (MOOCs), and the students'

learning methods and others have laid new demands on education quality. Therefore, the Chiba Principles should also keep pace with the changes in higher education and make new revisions.

6. Conclusion

The Asia-Pacific Region with the largest demand for higher education in the world, has made rapid progress after more than 20-year development in quality assurance. However, there still exist many problems both in IQA and EQA, such as weak awareness of quality culture, lack of human and financial resources, low participation of relative stakeholders and others. Quality assurance in most countries in the Asia-Pacific region is still at a "government-led" stage, and the importance of quality assurance is still not be taken very seriously by the HEIs. The developmental gap among different countries is large and the overall QA development needs to be improved. This entire problem is related to the fact that the development of higher education is still in the initial stage, the economic level is low, and the developmental ages of quality assurance is relatively short. However, we believe that with the continuous guidance and promotion of international and regional networks/organizations and the strong influence of the governments, the QA awareness of the HEIs will be constantly aware by the appeal of public and the society, the investment of professionals and funding will constantly be promoted, the quality of the HEIs will be gradually improved and the internationalization of quality assurance will be surely developed. Then "the trinity model of government-leading, social-supervising and university-conducting" of quality assurance will be made and gradually establish quality culture that meets national, regional and international requirements with unique characteristics. Eventually, quality assurance in higher education will reach the final goal of "the trinity of the government, the society and the HEI" pursuing the mature quality culture. All stakeholders are in their respective responsibilities, take their own duties, actively pursue the mature stage of quality culture, and eventually establish a regional QA community widely recognized by the HEIs and the EQAAs.

We must recognize that it is not easy for the Asia-Pacific region to achieve such development of quality assurance in such a short period of time. This depends on the active guidance and promotion of international and regional QA networks/organizations, the proactive policy measures taken by governments and the hard-working of the HEIs, the EQAAs and the society. What's more, the QA development in the Asia-Pacific region is thriving. The HEIs, the EQAAs and all the counties are awakening. Under the drive of the times and social requirements, quality assurance in the Asia-Pacific region will move toward a newer and better development.

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External and Internal Quality Assurance Systems in Higher Education: A Comparative Study between NIAD-QE in Japan and KUAI in Korea

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Abstract:
This study examined the methods of Japan's and Korea's national quality assurance (QA) agencies, National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE) and Korean University Accreditation Institute (KUAI), respectively, to develop new frameworks in meeting social demands. This paper specifically compared the approaches of these two agencies to issues on the balance and relation between external and internal QA. In 2002, Japan began requiring universities to conduct self-evaluation and, starting 2004, undergo mandatory certified evaluation and accreditation (CEA) by an external institution. Regarding internal QA system, in 2016, the Japanese government promulgated that CEA must place emphasis on internal QA. Meanwhile, in Korea, university self-evaluation became mandatory in 2007. While institutional accreditation is optional, universities are accredited as a result of their link to government-funded projects. Korea does not yet have an official internal QA system. Although the phenomenon was initially externally driven, a growing number of individual universities have addressed quality concerns by setting up internal QA mechanisms for self-evaluation and internal management. Through building their own internal QA system, universities aim to recognize and examine innovative practices and good principles.

Keywords: Internal Quality Assurance, External Quality Assurance, Comparison Study

1. Introduction

The massification and internationalization of higher education have increased in the past few decades, and Japan and Korea are known for the rapid expansion and development of their higher education systems (Park, 2015; Huang, 2015). Higher education in both countries has been moving toward universal access according to Martin Trow's(2007) three-stage theory of higher education(i.e., elite, mass, and universal higher education). Japan entered the mass higher education phase in 1963, reaching an enrollment rate of 15.4%, and then moved into the universal higher education phase in 2005 after reaching 51.5% (MEXT, 2018a).

Meanwhile, South Korea entered the mass higher education phase in 1982 after 17 years only, achieving a 50.1% enrolment rate in 1999 (Kim & Park, 2009). As of 2018, enrolment rates in Japan and Korea have reached 57.9% and 68.9%, respectively (MEXT, 2018a; MoE & KEDI, 2018), and both countries have a similar structure in which 80% of the higher education system is composed of private universities. However, recently, higher education institutions (HEIs) have faced several crises,

including the shrinking of the college-age (18-year-old) population, financial difficulties. Also, it has become necessary to enhance the quality of education. The 18-year-old population has rapidly declined from 2.05 million in 1992 to 1.20 million in 2017. In 2018, the college-age population is expected to decrease sharply again, eventually reaching 0.88 million in 2040 (referred to as the "2018 Problem") (MEXT, 2017). In Korea, the same demographic is expected to drop by 59.4% from 0.69 million in 2012 to 0.41 million in 2030 (KRIVET, 2012); this was called the "2030 crisis." As of 2017, there were 0.58 million college-age people in Korea. In such a situation, the Japanese and Korean governments enact policies for university reform, and quality assurance (QA) in education is a crucial element in these issues and is also related to the national QA and accreditation system.

Regarding QA in higher education, Neubaner and Gomes (2017) pointed out that QA has been a central issue in higher education for many decades, as it was a core element within the tradition of higher education accreditation throughout the 20th century.

The National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE) in Japan and the Korean University Accreditation Institute (KUAI) in Korea are both government-accredited institutional accreditation agencies for external QA. As of 2018, both agencies have been working toward their respective second-cycle institutional accreditations. In the case of NIAD-QE, the revision of standards for the third cycle has already been completed because it will be in effect in 2019. Policies in the third cycle include emphasis on internal QA. Meanwhile, the third cycle of KUAI will start in 2021, and its framework, including internal QA, is currently being considered for revision.

2. Study Purpose and Methodology

This study examined the methods adopted by the national QA agencies of Japan and Korea—NIAD-QE and KUAI, respectively—to develop new frameworks to respond to social demands. This paper specifically compared the approaches of the two agencies to issues on the balance and relation between external and internal QA. First, background information on the higher education system and QA system development were presented, followed by an examination of the challenges of internal QA in the QA systems of both agencies.

This study will aim to answer the following main research questions:

RQ1: How is the QA system developed and changed
In particular,
RQ1a: How do the abovementioned QA agencies work toward external and internal QA and institutional accreditation?
RQ1b: What are the challenges surrounding internal QA in the QA systems?

This study will adopt qualitative research methods such as document analysis. These documents included previous studies on higher education systems and policy as well as the QA system and framework in Japan and Korea. Document analysis will also be conducted on relevant government QA policy reports, guidelines, proposals, NIAD-QE and KUAI evaluation guidelines, standards, and indicators.

3. Higher Education Systems and Policies and QA Systems in Japan and Korea

3.1 Higher education systems and policies

3.1.1 Higher education system and policy in Japan

Japan has five types of HEIs: universities (bachelor's degree), graduate schools (master's/doctor's/professional degree), junior colleges (associate degree), colleges of technology (associate degree), and professional training colleges (specialized courses; specialist degree). Among Japanese HEIs, the private sector has the majority of institutions and student enrolments with 604 (77.4%) and 2,245,755 (74.5%), respectively (Table 1).

Table 1. Number of institutions and students in Japan (as of FY2017)

	Total	National	Prefectural	Private
Universities and junior colleges	780	86	90	604
Student population	3,014,829	609,473	159,601	2,245,755

(Source: MEXT, 2018a)

The past half-century has witnessed a dramatic expansion in the Japanese university sector; there were 270 universities only in 1963; however, this number increased threefold to 778 by 2010. The increase in the number of universities and students was attributed to the deregulation of the University Act, which sought to enhance university flexibility and autonomy in 1991 and which allowed for university diversification (Sakano, 2013).

Deregulation brought about significant reforms, one of which was national universities' change in status as national university corporations (NUCs) in 2004. NUCs were given autonomy in terms of university governance and financial and personnel management (Noda et al., 2018).

Recently, social changes such as the decline of the college-age population, financial difficulties, technological innovation, globalization, and international competitions gave rise to the following policy principles by the Japanese government: enhancement of the quality of education and information disclosure, enhancement of the diverse strengths of universities, flexible governance to accept diversity, promotion of collaboration and integration, and promotion of recurrent education (MEXT, 2018b).

3.1.2 Higher education system and policy in Korea

Korea's HEIs are primarily divided into two years of junior college (associate degree) or four years of college or university (bachelor's degree), and graduate schools (master's/doctor's/professional degree). Four-year undergraduate programs fall under four categories: (a) colleges and universities, (b) teacher's colleges and colleges of education, (c) air and correspondence universities, and (d) open universities.

Like Japan, the private sector makes up the majority of institutions and student enrollments in Korean HEIs, with 284 institutions (86.9%) and 2,602,967 (82.0%) students (Table 2).

Table 2. Number of institutions and students in Korea (as of FY2017)

	Total	National	Prefectural	Private
Universities and junior colleges	328	36	8	284
Student population	2,689,265	461,491	23,237	2,204,537

(Source: KEDI, 2018)

The Korean higher education sector faces various challenges, such as a rapidly decreasing college-going population, limited resources for higher education, and the lack of HEI specialization. Many colleges and universities in Korea have been especially criticized for having similar institutional values or missions, target students, academic programs, teaching and learning strategies, and others. In addition, there are calls to restructure the HEI system to align it with industrial changes. For higher education specialization, stakeholders within and outside HEIs selectively reshape the flow of resources to allocate them in favor of comparative advantages: here, "selection and concentration" guides higher education specialization directions and strategies (Park et al., 2015).

3.2 QA systems and development

3.2.1 QA framework development in Japan

Japan has three official accreditation agencies: the Japan University Accreditation Association (JUAA, certified on August 31, 2004), the Japan Institution for Higher Education Evaluation (JIHEE, certified on July 12, 2005), and the National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE, which was called the National Institution for Academic Degrees and University Evaluation (NIAD-UE) until spring 2016; certified on January 14, 2005). These QA agencies are licensed by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to conduct certified evaluation and accreditation (CEA).

Since the 1991 deregulation, all universities not only had the opportunity to provide diverse courses at the undergraduate level but were also required to work toward implementing periodic self-assessment. In 1999, the Standards for the Establishment of Universities were revised and stated that self-assessment and the publication of assessment results should be mandatory. At the same time, to promote social accountability, universities should strive to be verified by external parties. In the 2000s, related laws and regulations (School Education Act, etc.) were revised, and CEA was implemented as a new third-party evaluation system.

Japan's national QA system legally required the following frameworks: (1) an approval system for university establishment, (2) self-evaluation, (3) national university corporation evaluation (NUCE), and (4) CEA. Figure 1 shows the relation between (1), (2), and (3) in the Japan QA system. Therefore, NIAD-QE has been conducting CEA with NIAD-QE's standards.

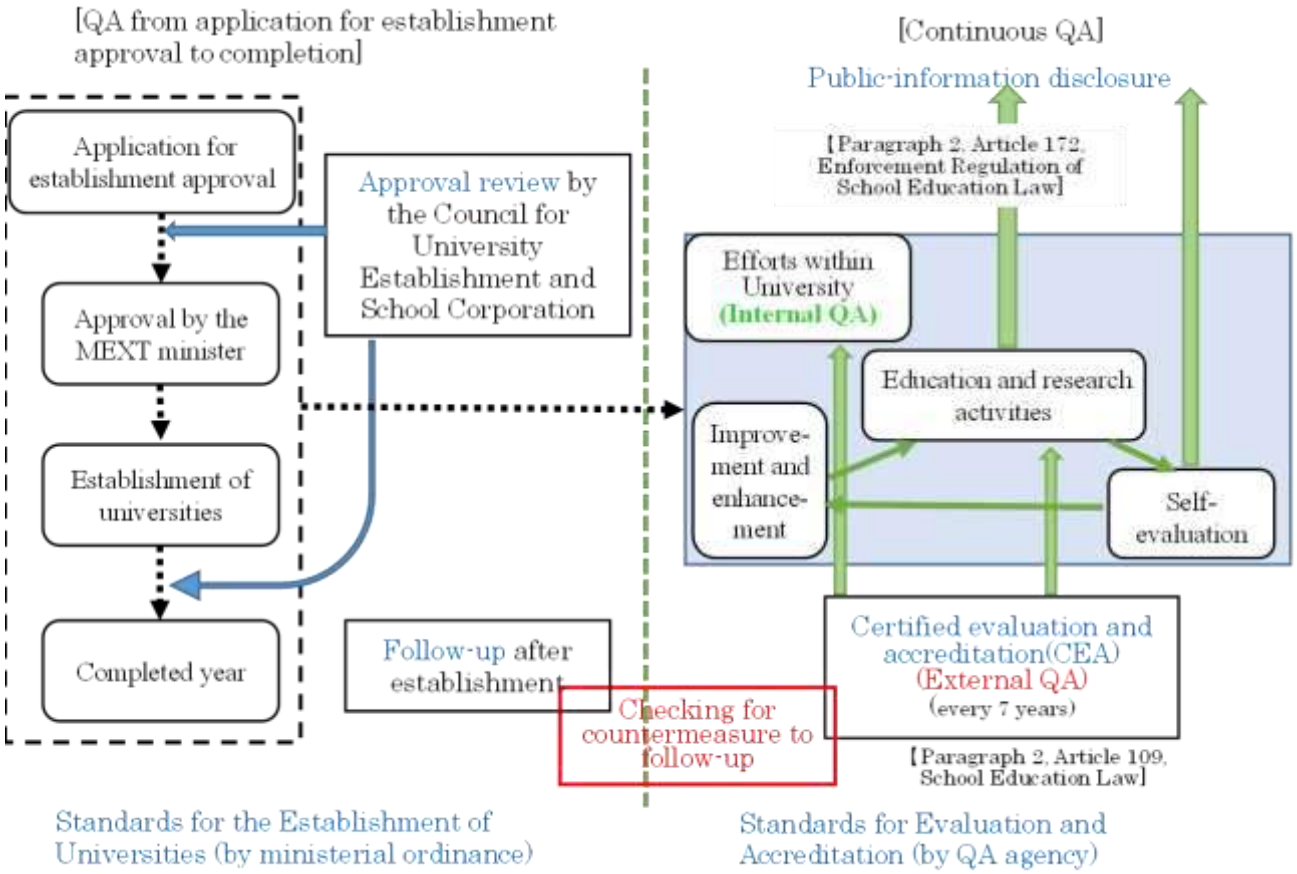

Fig. 1. QA system in Japan: Establishment approval and university evaluation (Source: NIAD-QE, 2018)

Mainly targeting national and prefectural universities, NIAD-QE conducts second cycle (2012–2018) institutional accreditation and emphasizes compliance with the following evaluation standards: (1) university mission, (2) teaching and research structure (organizations), (3) academic staff and teaching support staff, (4) student admissions, (5) academic programs (content and methods), (6) learning outcomes, (7) facilities and student support, (8) internal teaching and learning QA system, (9) finance and management, and (10) public-information disclosure on teaching and learning (NIAD-UE, 2011). In response to international trends in QA systems and accountability, the second-cycle standards were revised, with the revised CEA focusing more on learning outcomes, internal teaching and learning QA system, and public-information disclosure (Noda et al., 2018).

3.2.2 QA framework development in Korea

The Korean Council for University Education (KCUE) was established in 1982 and has since been implementing an independent university evaluation system. Program evaluation was conducted in 1992 while comprehensive university evaluation was carried out in 1994 by KCUE. Starting 2007, the government began to establish a legal basis for ensuring that higher education, as a new QA system, is of excellent quality. In the same year, in accordance with Article 11(2) of the Higher Education Act, universities were required to conduct self-evaluations and to disclose their results; in addition, they were encouraged to undergo an institutional accreditation process through a QA agency as an optional measure.

The KUAI, was established under KCUE in 2009 and is the institutional agency for four-year universities in Korea. The main purpose of KUAI is to assure quality higher education and evaluate HEI performance. KUAI makes decisions based on self-evaluation reports submitted by institutions, site visits, and monitoring and consulting institutions to determine whether they meet accreditation criteria. In addition, KUAI provides four-year universities with self-evaluation standards and guidelines. The first cycle of institutional accreditation started in 2011 and ended in 2015; the second cycle began in 2016 and is ongoing.

Ensuring QA in Korea involves two steps: self-evaluation and accreditation. A university that seeks to be accredited undergoes a self-evaluation process, whose primary purpose is to identify an institution's strengths and weaknesses as well as quality improvement activities and plans. A university should prepare fact-based self-evaluation reports, including financial resources, budgets, and audits.

Self-evaluations help HEIs identify fundamental areas for improvement, such as academic programs, teaching and learning, educational facilities, and student support. An institutional self-evaluation report is based on evidence of institutional performance, as it demonstrates an institution's plans, goals, objectives, and adherence to their mission statement. The preparation of a self-evaluation report is a significant process that enables HEIs to ensure quality and improve their effectiveness.

Accreditation in Korea follows a representative external QA mechanism similar to those of other countries. KUAI has conducted accreditations since 2011. Once HEIs submit their self-evaluation reports, KUAI reviews them against the criteria to start the process.

While institutional accreditation is optional in Korea, HEIs need to be accredited to obtain government financial support. Institutional accreditation enables HEIs to strengthen university responsibility by expanding institutional autonomy. Institutional accreditation also plays a significant role in informing the public about a university's quality of education.

Representing the external QA mechanism, the institutional accreditation process consists of two steps: reviewing self-evaluation reports of the HEIs and conducting site visits headed by professional evaluators (KUAI, 2018).

3.3 Internal QA and challenges

3.3.1 Internal QA and challenges in Japan

The Central Council for Education stated that the universities themselves hold primary responsibility for improving their quality education (MEXT, 2008).

In 2016, MEXT promulgated that CEA needed to emphasize learning outcomes and internal QA. To do this, QA agencies revised the implementation guidelines and evaluation criteria. Figure 1 shows the relation between external and internal QA. NIAD-QE's CEA process also follows this system.

NIAD-QE defined internal QA as a process by which HEIs themselves take responsibility for checking and evaluating the quality of their activities (NIAD-QE, 2016). In the first cycle, NIAD-QE evaluated which data and materials were appropriately collected, but in the second cycle, standards required

universities to not only gather and accumulate data and materials but also to analyze them to enhance the quality of teaching and learning (Suzuki, 2012).

Takada et al. (2018) pointed out that the universities' internal QA, despite having the expectation to be supported by institutional research (IR), needs to consider other factors such as organizational culture and the collaboration system between IR and other departments, among others. In addition, insufficient IR support for the personnel in charge of internal QA, the lack of a consensus on measures to use IR data for internal QA, and the lack of a cooperation system have been identified as salient issues.

3.3.2 Internal QA and challenges in Korea

Unlike Japan, Korea does not have an official internal QA system yet. Consequently, higher education systems and institutions are forced to implement endless changes in many aspects. The rapid expansion of the sector has resulted in the increased diversification of Korean HEIs. Most HEIs in Korea are privatized, and within this context, the quality of HEIs has been the subject of growing concern.

While all HEIs are required to conduct self-evaluation, applying for institutional accreditation is not yet a mandatory process in Korea. Korean HEIs have their own evaluation processes that adhere to their long-term development plan. Each university has somewhat different self-evaluation criteria, but most of them use key criteria such as development plan, educational personnel issues, educational facilities and student support, and social responsibility. Most universities have evaluation offices, which collect and analyze data like IR. Korea's lack of an internal QA system has enabled self-evaluation processes to play an important role. In addition, self-evaluation reports will be used as guidelines to prepare for institutional accreditation if HEIs apply for it.

This situation has prompted the development of external QA mechanisms in the institutional accreditation system of Korean higher education over the last few years. KUAI has evaluated the quality control of the HEIs through periodic external assessments and through accreditation. Although this phenomenon was initially externally driven, a growing number of individual HEIs have addressed quality concerns by setting up internal QA mechanisms for self-evaluation and internal management. KUAI has used the "Key Evaluation Criteria and Contents" and its five categories: (1) mission and management, (2) education, (3) educational personnel, (4) educational facilities and student support, and (5) achievements and social responsibility. These are divided into ten areas, with three criteria per area. Among these, self-review, research performance, educational achievements, and student satisfaction may require HEIs to devise internal QA systems, as these would aim to recognize and examine innovative practices and good principles. KUAI plans to have an internal QA structure that focuses on student assessment as well as continuous quality improvement.

4. Conclusion

We found that the higher education environments in both countries are similar in terms of the rapid expansion of higher education and the importance of QA, the high proportion of private universities, the high teaching and research structure, and the decline in the 18-year-old population.

In accordance with the idea that initial responsibility for improving the quality of university education rests on the university itself, both countries have developed their respective QA systems. One characteristic of the Japanese QA system is the introduction of mandatory self-evaluation as internal QA and then the establishment of compulsory CEA by third parties as external QA. This is a framework where internal QA is externally assessed.

Meanwhile, after conducting university evaluation, Korea made it mandatory to set up a self-evaluation system as internal QA. Institutional accreditation is not required; however, universities undergo the evaluation and accreditation process because of their link to government-funded projects.

Regarding internal QA, universities conduct organizational efforts to make internal QA more effective. They have set up IR as part of such actions; however, challenges such as inadequate IR support for internal QA personnel and the lack of agreement on measures to use IR data for internal QA remain.

In the future, this study will seek to identify the various effects of internal QA on HEIs as well as the internal and external factors surrounding its effective implementation in universities. The study expects findings to be useful and helpful in guiding Japanese and Korean HEIs in planning, designing, and developing their own internal QA systems. Without internal QA tools, an accreditation agency would definitely face challenges in successfully and effectively facilitating and monitoring student assessment systems and the physical environment.

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Exploration on the Asia-Pacific Quality Label (APQL) for Internationalization of Higher Education

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Abstract:
In the 21st century, the human society has entered the era of globalization. During the past 20 years, internationalization of higher education (IHE) has undergone tremendous changes, formed the three stages of "initiation-dependence-independence". With the continuous progress of IHE in the world, it is increasingly urgent to develop effective accreditation criteria for IHE. APQN has been exploring the theory and practice of the Asia-Pacific Quality Label (APQL) for Internationalization since 2013. Based on the process of on-site APQL review for Internationalization conducted by the APQL panel at Symbiotic International (deemed University) in India in April 2019, this paper first discusses the overview of accreditation criteria of IHE, then analyses the APQL review aims, criteria, steps and methods, finally, four characteristics of APQL are summarized: 1) to promote the process of IHE in the Asia-Pacific Region; 2) to adopt the method of combining qualitative and quantitative review; 3) to highlight the review concept of "emphasizing both process and output review"; 4) to emphasize the internationalization development characteristics of "emphasizing both internationalization and internationalization at home".

Key words: internationalization of higher education (IHE); quality assurance of internationalization (QAI); internationalization at home; the Asia-Pacific Quality Label (APQL) for Internationalization; the Asia-Pacific Quality Network (APQN)

1. Introduction

From the late 1980s, the wave of economic globalization has gradually spread and prompted the countries in the globe to make fundamental changes in many fields, which contains politics, culture and education. This new change is another major change in the history of mankind after entering the modernization in the 19th century. In a sense, in the 21st century, the human society has entered the era of "globalization". In the past 20 years, internationalization of higher education (IHE) has also undergone tremendous changes, presenting new features different from any others in the past historical period. The process can be characterized by the three stages of "initiation-dependency-independence": (1) the initial stage of "borrowing ships overseas"; (2) the dependent stage of "building ships overseas"; and (3) the independent stage of "shipping people overseas".[①] Various higher education institutions (HEIs) in the world have introduced various measures to attract foreign students. World-renowned universities open branch campuses abroad, MOOCs and flip classrooms can be participated in any corner of the globe... All this is warning us that higher education (HE) has entered the era of international competition.

[①] Liu Ziyun, Liu Hui(2018). On the Internationalization of Higher Education in the New Era. World Education Information, 2018 (23): p.20.

The most commonly referred to definition of what is meant by internationalization was coined by Jane Knight in 2004: "The process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education"[①]. In her opinion, "internationalization", "inter-culture" and "globalization" is a process from static to dynamic development. IHE is conducive to promoting the quality of higher education, cultivating high-quality talents with both local emotion and international vision, and improving the high-quality HE services system. In the era of internationalization, IHE has gradually become the consensus of the education circles of all countries. The terms and expressions such as "world-class university", "international university", "global citizen", "international understanding ability" and others have become the hot topics. The IHE trend is getting faster and faster. The accreditation of IHE has also become an increasingly important topic for the HEIs. The highly competitive activities among the HEIs have crossed regional/national borders and competition becomes fiercer than ever before. The pressure of "the survival of the fittest" has also forced the HEIs themselves to pay great attention to various global accreditation/review/evaluation (hereafter called as "accreditation") and international rankings. The HEIs need to prove their existence value by passing some sort of observable and comparable accreditation, and have to face the pressure of the international academic rankings… It also means that the accreditation of the HEIs' internationalization level itself cannot be escapable and IHE accreditation of the HEIs has become a major and hot topic in the whole world.

With the continuous advancement of the IHE in the world, an effective accreditation system for IHE is becoming more and more important. As an international quality assurance organization in the Asia-Pacific Region, since 2013, the Asia-Pacific Quality Network (APQN) has focused on the theoretical and practical exploration of the Asia-Pacific Quality Label (APQL) for internationalization. In April, 2019, APQN conducted the first APQL site review for internationalization to Symbiosis International (deemed University) (SIU), India. This paper explores the theoretical and practical exploration of APQL for internationalization, aiming at promoting the sustainable development and further expansion and deepening IHE in the Asia-Pacific Region.

2. Overview of the Accreditation Criteria for Internationalization of Higher Education (IHE)

What is the internationalization of a HEI? How to evaluate the internationalization level of a HEI? What are the criteria for internationalization? How effective is the HEI's internationalization? These issues are increasingly valued and inevitably put on the agenda of each HEI. HEI has become a crucial topic in the development of higher education, and various types of the HEIs have adopted internationalization as their development strategies, and naturally the research on the HEI's internationalization accreditation criteria system has emerged. The following is a summary of the IHE accreditation/review/evaluation (hereafter called "accreditation") criteria which have had some kind of influences in the world (see Table 1).

[①]Knight, J. (2004). Internationalization Remodeled: Definition, Approaches, and Rationales. Journal of Studies in International Education, Vol. 8, No. 1, 5-31.

Table 1: List of the Criteria for Internationalization of Higher Education (IHE）

#	Name	Organization	Introduction
1	CeQuInt	ECA	In 2014, European Consortium for Accreditation (ECA) launched the Frameworks for the Assessment of Quality in Internationalization and the Certificate of Quality in Internationalization (CeQuInt), which contains 5 core criteria. ①
2	APQL	APQN	In 2013, the Asia-Pacific Quality Network (APQN) began the Asia-Pacific Quality Label (APQL) for internationalization, which contains5 core criteria. ②
3	IQRP	IMHE/OECD-ACA	In 1995, Institutional Management in Higher Education-Organization for Economic Co-operation and Development (IMHE-OECD) and Academic Cooperation Association (ACA) jointly launched the "International Quality Review Process (IQRP), which contains 7 core criteria. ③
4	ACE-CIGE	ACE & CIGE	American Council on Education (ACE) and Center for Internationalization and Global Engagement (CIGE) conducted 3 cycles of "Mapping Internationalization on U.S. Campuses" (MIUSC) in 2001, 2006 and 2011, and established CIGE, which proposed "Comprehensive Internationalization Model Toolkit" , which contains 6 core criteria.④
5	Japanese ICS	OU	Based on the IQRP and ACE-CIGE, Osaka University (OU) developed Internationalization Criteria System (ICS), which contains 8 core criteria.⑤
6	Korean ICS	KEDI	Authorized by the Korean Ministry of Education in 2008, the Korean Educational Development Institute (KEDI) developed Korean Internationalization Criteria System (KICS), which contains 10 core criteria. ⑥
7	Australian ITRM	AUQA	From 2008 to 2011, the Australian Universities Quality Agency (AUQA) adopted "Internationalization Theme Review Model" (ITRM) to conduct a second review cycle round to its 42 universities, which contains7 core criteria. ⑦
8	German UIIRC	CHE	In 2007, the Center of Higher Education (CHE) in German developed a set of university internationalization and international ranking criteria (UIIRC) to measure internationalization of the universities, including 7 core criteria. ⑧
9	UK UIC	HEPI	In 2007, commissioned by the Higher Education Policy Institute (HEPI), Prof. Robin Middlehurst and Steve Woodfield developed University Internationalization Criteria (UIC), which contains18 core criteria.⑨
10	Chinese ICSCRU	Joint-Research Group from 3 universities	In 2007, the joined-research group from the Institute of Educational Science of Sun Yat-sen University, Education College of Columbia University and Education School of Peking University conducted a survey on 26 research universities in China and developed "Internationalization Criteria

①Axel Aerden. The Guide to Assessing the Quality of Internationalization [Z]. European Consortium for Accreditation in higher education, 2014:9-20.
②APQN. Guidance of APQL on Internationalization [Z]. Asia-Pacific Quality Network (APQN), v.10, 2019-04-15.
③IQR - Internationalization Quality Review presentation[EB/OL]. OECD website, 2019-07-28, https://www.oecd.org/education/imhe/iqr-internationalisationqualityreviewpresentation.htm.
④Robin Matross Helms, Lucia Brajkovic. Mapping Internationalization on U.S. Campuses — 2017 Edition[Z]. American Council on Education(ACE), 2017:6-39.
⑤Osaka University. Promoting Osaka University's International Strategy [Z]. 2015(03):1-7.
⑥Julia Mergner. Internationalization Strategies in South Korean Higher Education: An Explanatory Analysis of the Internationalization Efforts of Four Korean Universities through the Lenses of Resource Dependency and Normative Match[Z]. 2011(10):40.
⑦Jane Burdett, Joanna Crossman. Engaging international students: An analysis of the Australian Universities Quality Agency (AUQA) reports[J]. Quality in Higher Education, Routledge, 2012 (07):1-16.
⑧Joseph I. Zajda. Second International Handbook on Globalisation, Education and Policy Research[M]. Springer Netherlands, ISBN 978-94-017-7778-0, 2016.
⑨Robin Middlehurst , Steve Woodfield. Universities and international higher education partnerships: making a difference[M]. Center for Policy and Change(CPC), Research team from Kingston University, 2009:Chapter 2.

			System for Chinese Research University" (ICSCRU), which contains5 core criteria.
11	Guangdong EHEI	EDGP	In 2010, the Education Department of Guangdong Province (EDGP) in China conducted the evaluation of the higher education internationalization (EHEI) in 8 universities in Guangdong Province, which contains9 core criteria.
12	IRHEIsMoE	SJU	In 2013, Southwest Jiaotong University（SJU） released "Internationalization Ranking of the HEIs under the Ministry of Education" (IRHEIsMoE), which contains10 core criteria.
13	CUIR	Cuaa.Net	Since 2015, Chinese Alumni Network (Cuaa.Net) released "China University Internationalization Ranking" (CUIR), which contains 7 core criteria.

From the table above, there are 9 quality assurance units (QAUs) who developed internationalization criteria in the world, and 4 in mainland China. Among them, the earliest one is the IQRP project jointly developed by IMHE/OECD-ACA, which has 14-year experience while most of them are young and not more than 10 years. Comparing and analyzing the internationalization accreditation criteria of the above 14 QAUs, the following four main characteristics of the Criteria for IHE can be drawn.

2.1. The key elements of the criteria have the same commonality. Among the above internationalization accreditation criteria of the HIEs, there are over 20 key elements. Among them, three internationalization key elements (scientific research results, foreign faculty members and international cooperation) have been adopted by all the QAAUs. From the importance of the QAUs, 6 key elements - policies and strategies (12%), scientific research results (12%), foreign faculty members (12%), international cooperation (12%), curriculum and teaching (11%), International students (11%) - are the most important, covering over 10 percent of the total. The other 3 key elements -organizations (9%), cultural environment facilities (6%) and capital investment (5%) - are also valued. Only a few of the QAUs involve such key elements as internationalization reputation (3%), school background (2%), special projects (2%) and international alumni (2%).

2.2. The criteria contents are different. Although the key elements of internationalization accreditation criteria have the same commonality, the content are different according to the specific situation of the internationalization development of each region, country and HEI. In the developed countries, the process and connotation of IHE is greatly emphasized, except the present situation of internationalization, but also attach importance to the support and services to promote internationalization development. While in the developing countries, more attention is paid to quantity expansion and third-party evaluation of internationalization, such as highlighting the "international prestige" in China HEIs and the "characteristics" aims at emphasizing that the HEIs can integrate the own internationalization reality and special needs to build a localized criterion.

2.3. The criteria types are different. From the criteria type, the emphasis of qualitative and quantitative criteria adopted by the QAUs is different. In the highly developed regions and countries, the criteria are mostly descriptive qualitative ones. More attention is paid to the rational design of the internationalization policy strategy and mission vision of the HEI and the evaluation focuses on "student learning outcomes" and the staff development of internationalization, which reflects the tendency of "student-orientation" and teachers' professional development. In the developing regions and countries, the internationalization accreditation aims to improve education quality and narrow the

gap with the world-class universities. More "catch-up elements" can be observed in the criteria, most of them are quantitative ones. More attention to the research or achievements of the HEIs' internationalization, and the criteria design is also more complex, more numerous and more hierarchical.

2.4. The criteria applications are different. Because of the different level of economic development, geographical location, national policies and other factors, internationalization accreditation of the HEIs is constrained to varying degrees, such as the orientation of the HEIs administration, student training and other aspects. Naturedly, the accreditation of internationalization is no exception. Therefore, the internationalization accreditation of each HEI cannot always adopt the same criteria system, otherwise it cannot reflect their actual situation of the internationalization development. For example, the accreditation criteria system of internationalization of research universities in China is based on the survey of internationalization of 26 research universities, and its evaluation object is only applicable to research universities; while the criteria adopted in internationalization ranking of universities directly under Chinese Ministry of Education emphasizes such elements as administration, teaching equipment, human resources and other aspects with greater advantages, does not have the universal value which can cover all the HEIs.

3. The Asia-Pacific Quality Label (APQL) for Internationalization of Higher Education

The Asia-Pacific Quality Network (APQN), founded in 2003, is a non-governmental and non-profit network who has been striving for "Enhancing the Quality of Higher Education in the Asia-Pacific Region". After 16-year development, APQN has 241 members from 41 countries and territories, becomes the largest and the most influential international organization on higher education in this Region. APQN has played a crucial and unique role in improving the QA mechanism, exchanging theory and practice experiences, promoting substantive co-operations, establishing Consultant Bank, reviewing Asia-Pacific Quality Register (APQR) and Asia-Pacific Quality Label (APQL) in this Region.

As the largest and most influential international QA network in the Asia-Pacific Region, APQN has more than 180 consultants and experts from 56 countries/regions. APQN has an unshakable responsibility for internationalization accreditation and unique conditions. In 2013, APQN set up the APQL Project Group and began to explore the quality label. In May 2018, Symbiosis International (Deemed University) (SIU), India, submitted expression of Interest (EoI) to APQN for APQL review. SIU was established for the welfare of international students studying in Pune city more than four decades ago in the year 1971. The motto of Symbiosis is "World is one Family" and the name "Symbiosis" was derived from a botanical term which means the coming together of living organisms for mutual benefit. Internationalization is therefore engraved in the vision and mission statements of the University. After reviewing and approval by the APQL Council, SIU submitted the "SIU's Self-evaluation Report" with the attachments and supporting materials to the APQL Council. Commissioned by the APQL Council, a panel of four experts, Prof/Dr. Jianxin Zhang from China, Ms Stamenka Uvalic-Trumbic from France, Dr. Mark Frederick from the Netherlands and Dr. Jagnath Patil from India, conducted site review in April, 2019.

On April 3-6, 2019, the review panel attended the 3rd International Conference on "Building Strategic Partnerships towards Collaborative International Learning" held at SIU Lavale Campus. During the meeting, the panel made 4 presentations on 4 different topics concerning internationalization, such as "Action Plan of Internationalization Quality Assurance". At the same time the panel interviewed 6 relevant stakeholders, such as the Chairman and the Managing Director of the EDCIL, India, the Secretary General of the Association of Indian Universities. One panel member participated in a workshop for SIU academic staff held by Prof. Jos Beeleen from the Netherlands, Professor of Global Learning at the Hague University of Applied Sciences and a recognized expert on internationalization at home.

On April 6-9, 2019, the review panel conducted the site review. They had 2 campus tours (Lavale and SB Road) which included 12 sites, 9 sessions, 4 focus-groups, 2 museums and 2 Skype classes. The site review involved 45 students, 40 teachers and administrators, 5 alumni and 5 relevant stakeholders. The panel read over 200 documents. The record of the site review against each criterion is provided. The site visit schedule and the name lists of the interviewers and documents observed are in Appendices at the end of this report.

Against the APQL criteria and based on the review of documents, interviews, sessions, visits and validation of statements in "SIU's SER", the panel considers that conclusions are supported by evidence and analyses based on information and views of independent stakeholders and SIU is in "substantial compliance" with the APQL criteria. After reviewing the review conclusions, the APQL Council agrees that SIU be awarded the APQL for Internationalization. which is valid for a period of five years (2019-2024).

3.1. Purpose of the APQL Review: The ultimate goal of APQN is to "*Dissolving Boundaries for a Quality Region*"[①]. The main purposes of APQL are mainly concentrated on three aspects: (1) to establish the criteria and standardization of quality assurance of internationalization in HE, to determine the best way to sustainably deploy IHE in the Asia-Pacific Region; (2) to promote both incoming and outgoing international mobility of students, degree, credit, programs, staff, projects and others international flow of "going abroad" and "drawing home" at higher education institutions(HEIs) in the Asia-Pacific Region, even the whole globe; and (3) to promote internationalization at home concerning campus, curriculum, teaching and learning, join programme, intercultural and international competences and learning outcomes in the local country.

The purpose of the site review is to promote the quality improvement of the HEIs by way of finding out the challenges/problems, recognize the weakness, clarify the direction of the HEI development. It will further promote the key task of cultivating international talents, strengthen the management of international teaching and research, and enhance the level of international education and teaching. The review needs to emphasize internationalization both abroad and at home in the following three aspects: (1) guarantee: the staff and teaching resources can guarantee the need of cultivating international talents; (2) effectiveness: the process and mechanism of quality assurance are effective in international

[①]APQN. APQN Constituion[Z]. the Asia-Pacific Quality Network (APQN),2004.

teaching and education both at home; and (3) achievement: the expected goal of international education achieves the practical results. Unlike other criteria, APQL emphasizes internationalization at home, localization in the local context and local campus.

3.2. Review Criteria: There are 5 Criteria, 12 indicators and 36 observation points, which includes 5 criteria: 1) International Mission and policy; 2) Organization and administration; 3) International Mobility; 4) Student Support; and 5) Student Learning Outcomes (SLOs). (See Table 1).

Table 1: The Criteria and Indicators of the APQL Review

Criterion	Indicator	Observation Points
1. International Mission and Policy	1.1 Policy of internationalization	36 observation points (omitted)
	1.2 System of internal quality assurance (IQA)	
2. Organization and Administration	2.1 Organization	
	2.2 Administration	
3.International Mobility	3.1 Mobility of programmes	
	3.2 Student mobility	
	3.3 Staff mobility	
4.Student Support	4.1 Availability of scholarships and investments	
	4.2 Human resources	
	4.3 Extracurricular activities	
5.Student Learning Outcomes (SLO)	5.1 Academic performance and qualification	
	5.2 Graduate	

At the same time, the core of the APQL review is the cultivation of internationalized talents in the HEIs, focusing on the two aspects. One is resource, which contains human resource (students, teachers, administrators and teaching assistants, etc.), physical resource (classroom, dormitory, experimental equipment, experiment labs, libraries, internship, etc.) and financial resources (investment, funding, contribution, etc.). The other is development, which contains 3 dimensions (1) yesterday: the accumulated characteristic in the history process of the HEI; (2) today: the situation at present; and (3) tomorrow: the development trend in the future.

3.4. Review Steps

According to the main principles, criteria, procedures and others of "APQL Implementation Plan", the APQL review process is conducted as the following 7 steps:

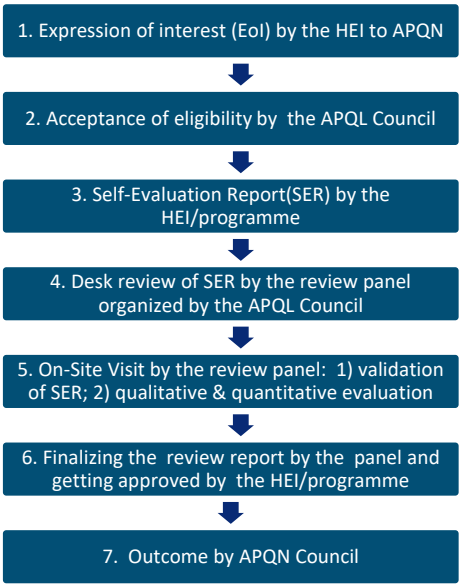

Figure 1: The Review Process of the APQL

The entire process takes 6-10 months. Through the SER and various review methods, the review panel tries to "enhance the level of internationalization of the HEIs, enhance the connotation construction, stimulate the potential of sustainable development, and promote the students, degrees, credits, training programs, faculty and staff of the Asia-Pacific Region and the global universities and enhance credibility, and better serve higher education".

3.5. Review Method

A. Review Orientation. The site review adopts the mode of target-orientation, problem-guidance and fact-judgment, focusing on internationalization of education and teaching. Four key points of the APQL review are "target-implementation- effect-quality", focusing 8 crucial questions (see Table 2).

Table 2: Eight Crucial Questions of 4 Key Points of the APQL Review

1. Target Planning	2. Implementation Process	3. Effect Evaluation	4. Quality Improvement
What is the target?	How to do it?	What is the effect?	How to improve?
What is the evidence?	Why to do it?	How to prove it?	Improving mechanisms?

B. Review model. Each reviewer shoulders his/her own personal responsibility system under the leadership of the panel leader, i.e., in order to achieve the review goal, each reviewer can work independently or collectively. Focusing on his/her criteria, each reviewer has the different task and goal, and but in the same responsibility.

C. Three Review Phases

The first phase is before site review: desk review and plan. The panelists read "The Programme of APQL Review", "Self-Review Report" and related materials carefully and complete "Review Comments on Desk Review before Arrival". After understanding the basic situation with SWOC analysis, verifying SER and correlating the data with the arguments, each panel makes a draft plan for site review based on the goal of "Seeing is believing", to confirm the strongpoints/achievements and find out the weakness and challenges.

The second phase is during the review: comprehensive evaluation and key inspection. 4 important tasks must be completed: (1) APQL review meeting and focus group; (2) investigation and campus visits to the symbolic the basic infrastructure and resources, such as laboratories, libraries and others;(3) access to all kinds of the evidences, documents, teaching files, test papers, graduation papers, etc. and (4) to complete the review summary on each criterion, which includes 3 parts: description of the basic situation, commendation/strength/achievements, and recommendations to be improved.

The third phase is after the site review: completion of the Review Report within 15 days and submit to the APQL Council.

4. Four Characteristics of the APQL

4.1. Promoting Internationalization of higher education in the Asia- Pacific Region

In the era of globalization in the 21st century, all criteria and indicators in the quality assurance of higher education must be measured on a global scale. The Asia-Pacific Quality Network (APQN), as an international network with 241 members from 42 countries/regions in the Asia-Pacific region, its diversity is self-evident, and its regional and international characteristics are more prominent. From the name of APQN alone, its internationality is self-explanatory, emphasizing the "the Asia and the Pacific Region", which includes 53 countries/regions, including Afghanistan in the west, Russia in the north, Fiji in the East and New Zealand in the south. “Network” focuses on educational review of the QAAs, the HEIs from 53 countries and regions in this region.

In the past 16 years, the theme of the international academic conference held by APQN has been centered on the "HE quality assurance", "HE internationalization" and "HE localization". Each APQN member emphasizes the development of individual diversification while highlighting IHE in the era of globalization at the same time. From the APQN consultant bank of 188 international reviewers from 56 countries and the 4 expert reviewers from 4 countries to conduct SIU in India this April, we can see the distinguishing feature of "internationalization".

4.2. Combining Qualitative review and Quantitative Review

Acceptance of Internationalization accreditation onto APQL is based on “substantial compliance”, which requires either “Full” or “Substantial” compliance with 5 criterion; the indicators could be “Partially”, in case of “Non-compliant”, strong explanation should be given. To evaluate the above four grades, APQL adopts the qualitative review, which mainly emphasizes the achievement of the following eight qualitative review techniques: (1) desk review with text analysis; (2) listening to report presentation; (3) field investigations and visits; (4) in-depth interviews; (5) focus groups; (6) listening to the lectures and observing teachers and students; (7) comparative analysis; and (8) problem diagnosis. Just like Chinese traditional medicine, the old herbal doctor needs “look, smell, ask, and feel pulse", fully mobilizing all senses. The panelist must use historical, developed, and comparative qualitative review methods, from multi-dimensional, multi-angle, multi-system methods to review internationalization of the HEI, in order to discover the real problems and the deep-seated causes of the problems.

In addition, another main method is SWOC (strength, weakness, opportunity, challenge) analysis and evaluation method, which is based on the situation analysis in the internal and external competitive environment. It lists and analyzes the main internal strengths, weaknesses and external opportunities and challenges that are closely related to the evaluation HEI with matrix arrangement, system analysis, various factors, and a series of corresponding conclusions are drawn.

Figure 2: SWOC Analysis and Evaluation Method

Strengths: Attributes (resources, infrastructure, etc.) of the HEI that can be helpful for achieving its objectives.	**Weaknesses: Attributes the HEI that may be a limiting factor/ detrimental to achieving its objectives.**
Opportunities: External conditions/factors that may help the HEI to achieve its objectives or provide opportunities to improve its performance.	Challenges: External conditions/factors (or change in external conditions) that could damage the sustainable development of the HEI.

However, although qualitative evaluation and judgments mentioned above are reasonable, they have not yet been verified by scientific and rigorous quantitative methods. Evaluation experts often determine the key elements according to their own subjective experience, which will affect the objectivity of the whole index. Therefore, APQL attaches great importance to "evidence", and any judgment should be "evidence-based". These "evidences" are not just data, but more about the collection and organization of relevant facts and information. Quantitative review is also applied to the APQL review. In the SER provided by the HEI, a 22-item form is required in order to examine the HEI's international indicators, such as the international events, budget, number and proportion of international students, etc. (see Table 2).

Table 3: Quantitative Information on the APQL as Internationalization Accreditation

S/N	International item
1	Staff abroad over one year in recent 5 years※
2	Annual budget for international affairs and activities
3	Current staff with PHD degree abroad
4	International staff
5	International students
6	Students with international scholarship
7	Exchange staff
8	Exchange students
9	International programmes
10	International original courses
11	Courses taught in foreign languages
12	Co-operational HEIs abroad
13	Co-operational agencies abroad
14	International projects
15	International summer schools in the HEI
16	International conferences in the HEI
17	International clubs, students' unions, etc. in the HEI
18	Books published in foreign languages
19	Papers published in foreign languages
20	International graduates
21	Graduate employment abroad
22	(Other items which the HEI thinks it is crucial)

4. 3. Highlighting the Review Concepts of "both Process and Output Review"

Internationalization is not a goal in itself, but a means to an end. Similarly, the APQL review itself is not a goal, but a means of achieving the goal. Therefore, the review is more focused on the process. In the past, internationalization criteria often heavily emphases on the numbers of foreign language courses, the number of foreign students and other quantitative indicators. However, quantity does not represent quality, and the process of development is equally important. Internationalization accreditation is a formative one rather than summative one. Formative review pays more attention to the relationship among goals, processes, activities and results. Internationalization review is a process of development, including three stages of "Planning - Implementation - Effectiveness": (1) before the internationalization initiative, the HEIs' international orientation, the planning, the missions, etc.; (2) during the internationalization implementation, practical activities such as international education and teaching activities, special funds investment, etc.; (3) late stage of internationalization effectiveness, the achievement of human and financial investment, stressing the process of "plan, practice and verification" .

As the "factory" of education and teaching output, the HEIs have the responsibility to guarantee quality of their "products". APQL pays more attention to the "international input", while emphasizing more "international output". For example, in terms of "student international learning outcomes, it involves such observation points as "5.1.1) The program should be able to demonstrate the achievement of the planned learning outcomes and recognition of study periods; 5.1.2) The awarded degree or certificate shall be approved by the relevant competent authorities both at home and abroad; 5.1.3) The diversity of students and their needs have been taken into consideration in teaching and learning process, and outcomes have been demonstrated, especially from the point of view of different cultural traditions; 5.2.1) To demonstrate the evidence of employability abroad (career advancement and tendency) of the graduates, etc." The process of learning and its preliminary results are shown. It is a revolution in the field of quality assurance to strength from conditional input review to outcome review.

4.4. Emphasizing the International Development Characteristics of "both Internationalization and Internationalization at home"

No doubt, internationalization of "going abroad" is obvious to all and has a real performance that everyone can see. However, due to teaching language, education level, financial investment and others of the HEIs in the Asia-Pacific Region, the numbers of teachers and students abroad are limited, and the number of international students entering the local campus is limited, either. It seems that it is impossible for the HEIs in this region to achieve "internationalization".

The peculiarity of the APLQ review different from others is to stress "internationalization at home". We must remember that one of the main purposes of APQL is "to promote internationalization at home concerning campus, curriculum, teaching and learning, join programme, intercultural and international competences and learning outcomes in the local country". So, APQL emphasizes the internationalization in the local context, local country, local HEIs, that is, the HEIs' try to cultivate the international vision of their students at home, focusing on English teaching language, use of foreign textbooks and others. For example, SIU's international conferences of "Building Strategic Partnerships towards Collaborative International Learning" and "Internationalization localization" held on the

campus for three consecutive years for all teachers and students have been fully affirmed by the review experts.

SIU's initiative of "internationalization @ Home" is highly praised by the panelists because it includes the following 5 local items: (1)continuously revise all program curricula by benchmarking with the best universities abroad;(2) create and promote essential infrastructure to support internationalization at home activities; (3) organize international conferences, leadership series, events and forums for sparking dialogue on contemporary issues of international prominence; (4) strengthen the interactions amongst local and international students; (5) ensure a local and global context to all academic programs and courses making all programs truly global. The reviewers believe that the beneficiaries of this series of activities are not only foreign students, but teachers and students of all the universities, i.e., the implementation of APQL advocating "internationalization in the local context".

5. Concluding Words

In the future, the IHE will be the common cause in the whole world. The new mission of each HEI is to train high-level talents with international perspective toward the globe and the future. This requires that we must continuously expand the connotation of IHE while understanding the new ideas, new trends, new missions and new challenges of IHE, promote the new reform of the educational paradigm, establish effective internationalization review, and strengthen the policy and quality assurance of IHE.

The first APQL review in the Asia-Pacific Region has been successfully completed. However, there are still many questions to be discussed in depth: How can APQL criteria cover the internationalization level of all the HEIs in the Asia-Pacific Region? How to conduct internationalize review in non-English speaking HEIs in non-speaking countries? How to carry out IHE in the domestic and local environment? How to establish a cooperative community for the HEIs with internationalization quality labels… We earnestly expect that more HEIs and stakeholders will actively participate in the review of internationalization quality label in order to further promote the sustainable development of IHE in the Asia-Pacific Region, in order to promote and improve the IHE quality in the international era.

Faculty Initiatives for Enhancement and Assurance of Quality in Teaching & Learning at SLIIT

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Abstract
Teaching and learning quality is a main concern of higher educational institutes. Quality in higher education is approached through two main dimensions, namely, quality enhancement and quality assurance. While quality enhancement focuses more in improving teaching and learning, quality assurance is more focused on revealing issues in quality. This paper discusses how Faculty of Computing at SLIIT has attempted to enhance and assure quality of its teaching and learning. The initiatives taken to enhance quality in the faculty includes: quality related policies and procedures, internal moderations, internal reviews, stakeholder feedback, staff development programs, technology integration, industry orientation and providing performance-based incentives and awards. The quality assurance initiatives taken by the faculty includes obtaining accreditations, external moderation and examination, external reviews and validations and conducting satisfactory & employment surveys. The quality of teaching and learning in the faculty is maintained at a high standard due to the adoption of above processes which is shown through indicators such as student performance and increasement in applications for enrolment.

1. Introduction

Quality is a predominant attribute which attracts the public to a product or a service at present. The term quality is interpreted in many different ways from different perspectives (Elassy, 2015, Lagrosen, Seyyed-Hashemi & Leitner, 2004). However, the term quality refers to adherence to pre-defined standards, fitness to purpose, effectiveness of achieving institutional goals or meeting customer needs (Seyyed-Hashemi & Leitner, 2004).

Quality in Higher Education was much discussed in academic circles and research groups (Mizikaci, 2006). With keen competition developing among them, universities are increasingly feeling the pressure to improve the quality in education to stand out among competitors to attract students and funding (Biggs & Tang, 2007). In the context of education, quality may refer to as fitness for purpose of academic standards, producing qualified and competent graduates at a reasonable cost, or transforming the students to professionals by enhancing their potential and empowering them to transform themselves (Harvey & Green, 2002).

Universities have attempted to improve the quality of their teaching and learning in numerous ways. These ranges from effective design of teaching and learning materials, establishment of staff development centres to getting accreditations from external bodies (Biggs, 2001). The attempts to improve quality as above could be broadly categorized as quality enhancement and quality assurance. To enhance, monitor and assure quality in teaching and learning certain quality units are established within universities. In case of Sri Lanka the University Grant Commission (UGC) and Quality

Assurance Accreditation Council (QAAC) drives the quality initiatives to be taken within the universities.

This paper discusses the quality initiatives taken in the Faculty of Computing(FoC) of SLIIT, a non-state higher education institute to enhance and assure quality of its teaching and learning practices. Rest of the sections in this paper are organized as follows.

2. Quality Enhancement and Quality Assurance

Quality Enhancement and Quality Assurance are two main approaches which are widely used for improving quality in higher education (Lomas, 2004). Quality enhancement is considered as "the deliberate process of change that leads to improvement" (Jackson, 2002, pp2). In terms of quality in higher education, quality enhancement has two dimensions, which are, the enhancement of individual learners in terms of their attributes, knowledge, ability, skills and potential, and the improvement in the quality of an institution or programme of study (Harvey, 2004). In university system a wide range of initiatives are taken to enhancement of quality. These include inculcating quality cultures in faculties, providing training to staff on improving quality in teaching and learning via staff development programs and providing incentives. (Biggs, 2007; Filippakou, & Tapper, 2008).

In contrast to quality enhancement, which takes a remedial approach regarding quality related issues, quality assurance is more focused on revealing quality related issues (Brink, 2010; Elassy, 2015). Quality assurance refers to "systematic management and assessment procedures adopted to ensure achievement of specific quality or improved quality, and to enable key stakeholders to have confidence in the management of quality and the outcomes achieved" (Haman, 1998). The aim of quality assurance is to "prevent poor quality products or services being produced or delivered (Lomas, 2004, p. 158). Assurance of quality in higher education is done through a wide range of processes which includes accreditation, reviews, audits and moderations (Green, 1994; Biggs, 2007).

There are significant differences between the concepts of quality enhancement and quality assurance. These differences are summarized by Elassy (2015) as shown in Table 1. As seen in Table 1 quality assurance is more focused on meeting external standards based on evidence of past while less attention is given to improving teaching and learning process while quality enhancement focusses more on improving teaching and learning for the present and the future. In essence, thus, the major difference between the two approaches is that "quality assurance is more concerned with providing evidence for accountability rather than developing capacity to improve" (Jackson, 2002, p. 2). In addition, quality assurance is often considered as the interest of administrators rather than academics (Biggs, 2001; Elassy, 2015).

Table 1 :Quality Enhancement Vs. Quality Assurance (Elassy, 2015)

Quality Enhancement	Quality Assurance
Gives considerable weight to the teaching/learning processes	Gives insufficient weight to the teaching/learning processes
Tends to be associated more with improvement and development	Tends to be associated more with assessment and accountability
Meets internal standards	Meets external standards

Moves from lower to top level	Moves from top to lower level
A formative process	A summative process
A qualitative performance	A quantitative performance
Focuses on the present and the future	Focuses on the past
More freedom (uses flexible and negotiated ways	Less freedom (follows absolute rules)
Gives a greater space to academics	Gives a greater space to administrators

Despite the differences between the focus of quality enhancement and quality assurance both of the aspects are equally important for a higher education institute. While quality assurance could be used as a diagnostic approach which reveals strengths and weaknesses of an institute in terms of quality, quality enhancement could be used to address the limitations which are revealed by quality assurance (Biggs, 2001; Elassy, 2015).

3. Quality Enhancement and Quality Assurance at SLIIT

SLIIT is a non-state higher education institute established in 1999 with the aim of producing IT graduates to the country. The institute operates under the vision "to advance knowledge, foster and promote innovation to enrich lives and broaden horizons" (SLIIT, 2018). At present SLIIT is gaining momentum in various other areas of studies such as Business, Engineering, Hospitality, Architecture, Quantity Surveying, Humanities and Law. These programs are offered under four faculties namely Computing, Business, Engineering, and Humanities, and Sciences.

FoC is the largest Faculty of SLIIT. More than 5000 students study a wide variety of programs offered by the faculty under the guidance of over 100 academic staff members. With the challenge of transforming a large number of school leavers to quality IT professionals, and with a massive competition among institutions which offer computing programs arising, FoC at SLIIT is much concerned in how quality of teaching and learning could be improved. Therefore, several initiatives are carried out by the faculty Quality Cell under the guidance of the IQAU of the institute. These initiatives could be categorized as quality enhancement initiatives and quality assurance initiatives.

4. Quality Enhancement initiatives

Figure 1 shows the quality enhancements processes adopted by the FoC of SLIIT. The enhancement of quality of teaching and learning is approached through eight dimensions, namely, introduction of policies and procedures, internal reviews to improve the content, internal moderations to improve assessments and marking, improving content through feedback gathered from stakeholders, training staff via staff development programs, use of technology to improve quality, constantly working with industry to improve programs and providing performance-based incentives and awards for the staff members who worked hard to improve quality of teaching andd learning.

Figure 1: Dimensions of Quality Enhancement

Policies and procedures – Several policies are developed to improve quality of teaching and learning in the faculty. These include the graduate attribute policy, assessment policy, Learning Management System usage policy and the academic integrity policy. In addition to the above several procedures are defined for setting assessments, archiving materials and publishing results.

Internal Reviews – Several internal reviews are conducted within the faculty to enhance the teaching content. These include reviews conducted by external reviewers prior to program approval, reviews conducted within departments and reviews conducted by industry consultative boards. The purpose of these reviews is to ensure that the content covered in the program is comprehensive and up to date. In addition to above reviews, each academic does a self-review in relation to modules they are in-charge of at the end of each semester where reflection of the best practices and areas to improve is done and how improvements to be made to the modules will be planned to overcome any limitations. These reflections and module improvement plan for the next year are documented in the module review form.

Internal moderation – Moderation of examination papers and moderation of paper marking are two main types of moderations done to improve quality of assessments in the faculty. These are done by the internal moderators assigned from the faculty. The purpose of examination paper moderation is to ensure that the assessments are of adequate quality. During the moderation, the internal moderator checks whether the assessments assess the learning outcomes adequately, whether the marks distribution is appropriate and whether the questions are suitable for the level of study of the module to guide the examiner in improving quality of assessment. For the above purpose, each lecturer in charge of a module have to provide the assessment paper, marking guide, module outline and a

document summarizing to which levels of the Bloom's Taxonomy each question in the assessment is related to. The purpose of paper marking moderation is to assess whether the marking is conducted in a consistent manner and to provide feedback on how the marking can be further improved. For the above purpose, the internal moderator should be given with five answer scripts marked by each assessor in a module along with the marking guide.

Stakeholder feedback gathering – The faculty collects feedback from students and employers of the students to identify the key areas the programs should focus on. This is done semester wise and year wise respectively and those feedback are used to improve programs being offered. The student feedback is collected via a student feedback form which is printed and distributed among students. Once the feedback collection is completed each lecturer is given with a summary of feedback which is, then, discussed with heads of departments. Gathering of employer feedback is done through feedback obtained during internships and a HR forum organized by the institute where employers of students are invited to discuss strengths and weaknesses of graduates leading to improvement of the program.

Staff Development – To encourage and guide academic staff to improve quality of teaching and learning, academic staff members are nominated to participate in seminars, workshops and training courses organized by the Staff Development Center of SLIIT. In addition, the staff members are also encouraged and funded to participate in external programs assisting to improve the quality of teaching and learning as well as to enhance disciplinary knowledge.

Technology Integration – A large number of students are enrolled in programs offered by FoC at SLIIT. To provide effective teaching and learning to such large number of students, the faculty use technology for a great extent. Technology is used for numerous purposes such as to publish recorded lectures, conduct examinations, check answer scripts on time and to check for violations made for academic integrity. The faculty of computing students are also able to access the library services via the SLIIT library portal which enables the students to access online resources such as e-books and scholarly articles from a wide range of research databases.

Industry Orientation – To familiarize the students with industry practices and real-world work environments in advance several initiatives are taken. These include mandatory internships instilled in programs and having lectures conducted by industry experts. In addition, through industry consultative boards conducted on yearly basis, feedback on improving the curriculum are obtained from industry experts and these are well addressed during curriculum revisions.

Performance-based incentives & awards – During yearly performance evaluation of academic staff members the academic staff members are required to state the best practices they have used within the year to improve the teaching and learning and what the impacts of those are. This is accounted in determining the incentives by SLIIT management. In addition, teaching innovations are recognized and awarded at Annual Staff Awards Night of SLIIT.

5. Quality Assurance

Figure 2 shows the initiatives taken by FoC at SLIIT to assure the quality in teaching and learning. As shown in the figure four main initiatives namely, getting accreditations, having assessments involved with external moderation and examination, having external reviews and validations and using satisfactory and employability surveys are taken to assure quality within faculty.

Figure 2: Dimensions of Quality Assurance

Accreditation of programs – The faculty has attempted to get the programs offered accredited by professional bodies to validate its fitness for purpose. By the time all the programs offered by the faculty are accredited by The Institution of Engineering and Technology (IET) and is now preparing for accreditation visit by Computer Society of Sri Lanka (CSSL).

External moderation and examination – All examination papers prepared by the faculty are sent to external moderators assigned from state universities for moderation following the internal moderation. The external moderators provide feedback on the quality of assessment through an external moderator report.

External reviews and validation – Programs offered by FoC were validated in numerous occasions. These include reviews conducted by Ministry of Higher Education of Sri Lanka and external bodies such as Australian Computer Society (ACS).

Satisfactory surveys and employability surveys – Under the management of SLIIT every year an employability study is conducted to analyze the employability of students. The results of the above survey is used as an indicator of fitness of purpose of academic programs.

6. Discussion

The impacts of initiatives taken by FoC to enhance and assure quality are seen via a wide range of indicators. One of the major indicators of quality in teaching and learning in FoC is the achievement of accreditation standard by IET in 2015. In addition, the degree offered by SLIIT from Curtin University is accredited by ACS recognizing the quality of the program.

Another indicator of quality of teaching and learning in the faculty is the achievement of students in the past years. After the advanced level examination held in Sri Lanka the top performers of the

examination are attracted to state universities. While SLIIT, provides education to a wide spectrum of students unable to get into state universities, due to quality of teaching and learning, the standards of students of SLIIT is kept abreast with those from state universities. This is shown by performance of students in competitions held in both national and international arena. For example, during past 5 years, students from faculty of computing has competed with students from other higher educational institutes and has won 3 gold awards, 2 silver awards, 2 bronze awards and 13 merit awards at National Best Quality Software Awards (NBQSA) competition. In addition, students won a merit award representing Sri Lanka at the Asia Pacific ICT Alliance (APICTA) awards in Hong Kong and a gold award at E-Swabhimani, which is also another national level competition.

Entrustment of public in providing higher education to youth is another indicator of quality of teaching and learning of the faculty. During the past few years FoC received many applications for enrollment. It is to be noted that this is amidst the emergence of large number of educational institutes offering programs in the area of study. This indicates that the public highly believes on the quality of teaching and learning of the faculty. Figure 3 shows how the the number of applications received for the faculty has increased from year 2016 to year 2018 compared to year 2015. Although only a limited number of applicants among the applicants could be enrolled to the programs offered by the faculty, it is visible that there is an increasement of interest among public on programs offered by the faculty.

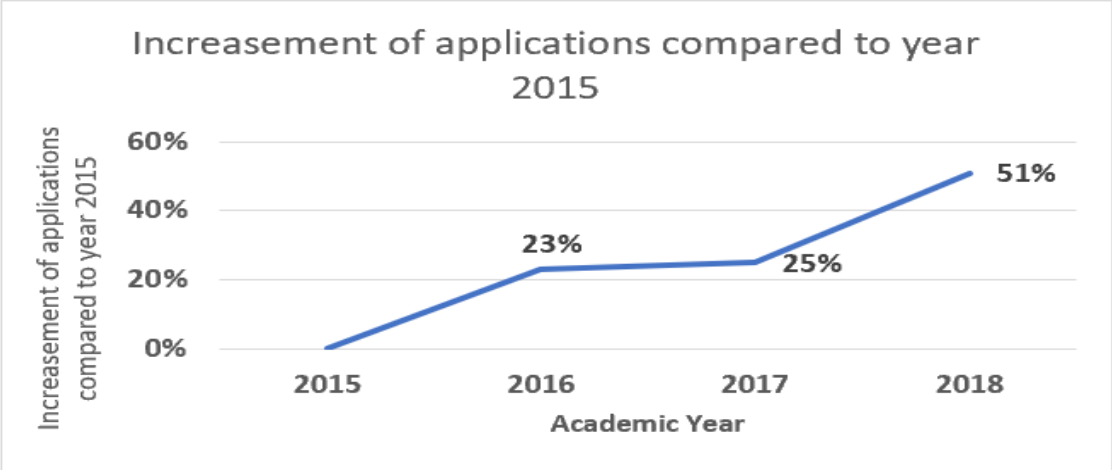

Figure 3: Applications received for programs offered by Faculty of Computing

7. Conclusion

In FoC both quality assurance and quality enhancements are considered important to improve teaching and learning. In fact, the two processes are used in a complementary manner in such a way that feedback obtained from quality assurance are used to enhance quality and quality enhancement practices are used as inputs for quality assurance process. The process described in the paper has enabled to improve its teaching and learning quality to a great extent which are shown by indicators such as student performance in competitions, receiving accreditations, attraction of potential students and improvement of employability rates. The process could be adopted by any state or non-state higher educational institutes to enhance and assure quality of teaching and learning.

8. Acknowledgement

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Fostering Internal Quality Assurance: Nurturing Quality Research Culture in Higher Education Institutions

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Abstract
This study provides a factual over view that how challenges are converted into opportunities in case of Higher Education Institutions (HEIs) of Pakistan. There is a growing belief that Higher Education Institutions should nurture a 'quality culture' in which structural and psychological elements act in synergy to continuously improve research in higher education. It is pertinent to note that different models are being used in different HEIs to ensure creation of research culture in their respective Institutions. In Pakistan Higher Education Commission (HEC) is also following a research model for the uplift of faculty and research activities in Higher Education Institutions. Novelty of this study is to introduce innovative research culture for enhancement of research culture in Higher Education Institutions. The model of this study can also be improved by incorporating innovative ideas and good practices by researchers in other HEIs. National and international Higher Education Institutions may take lead from this study while planning and undertaking new research incentives and models.

Keywords: Challenges into opportunities; Quality culture; Research innovation

1. Introduction

Growth in the quality of Higher Education is highly dependent on the quality of research being produced by a University. It also has a strong linkage with the Socio-Economic development of the country. "A quality education providing institute always proves to be a model for modern civil societies (Batool and Qureshi, 2007)". Therefore, it is imperative that fundamental improvements should be brought by introducing new model initiatives. NDU, being a new University, this critical role of research is fully appreciated and ingrained in its vision. This document is intended to lay down procedures for the scholars to give them respect and credit by recognizing their original scholarly accomplishments. It also lays down NDU model of zero tolerance towards plagiarism and other unbecoming practices related to research publications. Purpose of this document is also to create awareness about the encouragement that the university offers to researchers, as well as to lay down a methodology for investigating the negative practices while catering for the punitive actions proportionate to the intensity of offense.

2. Literature Review

"Higher education role is a key to economic development and social growth of a nation. Higher Education Institutes (HEIs) are mostly responsible for Higher Education through creation of knowledge-based society via research that transforms a nation (Meek et al., 2009; Bonn Declaration 2007)". "Various measures have been taken to enhance performance of the university staff by Higher Education Commission (Batool and Qureshi, 2007)". According to Khan (2010) a comprehensive model is required for quality assurance in HEIs in Pakistan. The University gives great importance to the creation of new knowledge, and values scholarly contributions, published in HEC recognized journals or any other reputed International Impact Factor Journal, listed in the ISI web of knowledge.

The faculty / research students are highly encouraged to make research publications. This will contribute, not only towards their personal academic growth but will also help improve research ranking of the university. “Such indicators have their own pros and cons and different systems serve different purposes (Birnbaum, 2000)”

3. Research Incentives for the Faculty and Students

In order to give a spur to the research efforts, the university will provide the following benefits/incentive to the researchers.

3.1 Incentive-1 : Monitory Benefits

Any faculty member who is able to publish 2 – 3 (publishing of only 01 x W-cat research paper is also eligible for incentive) research papers (mix category of ‘X’ & ‘Y’, No ‘Z’) is eligible for incentive research papers in HEC recognized journals, in one calendar (Jan-Dec) year, will be given monetary incentives. The author of a research paper in journal of ‘W’, ‘X’ & ‘Y’ categories will be given Rs.25,000, Rs.15,000 and Rs.12,000 respectively for each research paper, up to a maximum of 03. However, it is subject to the condition that similar benefit has not been claimed for the paper(s) elsewhere (a certificate to this effect will be provided by a researcher duly signed by the concerned HoD). In case of multiple authors, the amount will be divided among the first four authors. Only authors belong to NDU will be eligible to receive this amount. This award is open to faculty members of all categories including Research Associate (RA) and all bonafide research students of NDU.

3.2 ‘Incentive-2 : Reduction in Teaching Workload.

A faculty member may qualify for reduction in teaching load, with the approval of the President NDU, by one course if he / she has published 02 x ‘W’ and 1 x ‘X’ category research paper(s) in a calendar year (Jan-Dec), in an HEC recognized journal, and is also rendering services to the university / departments other than his/her teaching work load, may be reduced for a semester. This incentive may be given in addition to Incentive-1 under exceptional circumstances.

3.3 Incentive-3: Exemption of Teaching Courses for a Semester

A faculty member may be exempted from teaching of one or more courses (up to one semester) by the President NDU provided that He/she has demonstrated fol high quality research output:-

- Successful completion of research supervision minimum 05 x PhD/MPhil theses in a semester.
- 03 x research article (minimum 0**1** x ‘**X**’ + 0**2** x ‘**Y**’) by student out of theses mentioned at 2C 1(a).

3.4 Incentive-4 : Credit for Publication of Book (s)

- Unlike research papers, books are individual efforts, generally not refereed by the experts in the subject area of the publication. Therefore, any author wanting to claim benefit for the research contribution made by the book, should apply to the HEC as per procedure given on its website. HEC will provide a certificate stating equivalence of the submitted book to the number of research papers in HEC recognized journals.
- In order to boost the culture of writing books and monographs, NDU will give monetary benefits as a token and recognition of the intellectual effort. If a book having minimum **70,000**

words has been written by a scholar on a research topic an amount up to **Rs.50,000**/- will be given to the author (s) while if a monograph *(less than 70,000 words but not less than **25,000 words**)* is written by a scholar an amount of **Rs.25,000**/- will be given to the author. Distribution of honorarium, in case of multiple authors, will be done by a committee headed by the Dy President according to the procedure given at Para 2a and 3c.

3.5 Incentive-5: Funding for Presentation of Research Papers (National / Intl lvl).

The University will support participation of faculty/research students in conferences for presentation of their accepted research paper. Funding applications for conference both local and foreign conferences will be recommended by university to the Higher Education Commission (HEC). In case application is unsuccessful, the University may consider providing funding within the approved research budget allocation as per available finances and Finance Branch SOP *(Air Ticket, Conf Fee & TA/DA).*

3.6 Incentive-6 : Grant of Consulting Fee

In consulting projects, the amount of consulting fee will be shared between the PI/CI and the university in the ratio of **65% and 35%** after deduction of consumables, allocation for TA/DA and purchase of equipment built in the project.

3.7 Incentive-7 : Provision of Teaching Research Assistant (TRA).

The faculty member who brings in research funding (1.0M & above) may be provided with 01 x TRA by the university, to share the work load of the Principal Investigator, if not already built into the project i.e office space and 1x work station per 2 TRA may be provided for one semester. A faculty member may be allowed to use university platforms for submission of project proposal to public / private organization / International Think Tanks, for getting funded research projects. After proposal is approved, the amount will be shared between the PI/CI and the university in the ratio of 40% / 25% and 35% respectively after deduction of consumables, allocation for TA/DA, remuneration for TRA / VF replacement (if teaching course exempted) and purchase of equipment built in the projects. Selection/ hiring process of TRA is as under:-

a. **Selection / Hiring of Teaching Research Assistant (TRA)**. PR&SA Center may select Teaching Research Assistant (TRA) from MPhil/PhD scholars for eligible faculty members, as provided in para 2(g) of the NDU Research Model, in consultation with concerned HoD, Director QEC and Dean FCS. Formal approval will be given by the President NDU. Guideline for selection of TRA is also given in NDU Academic Regulations. Detail is as under:-

b. **Eligibility**.

- Student who secures a CGPA of 4.0/4.0 or is amongst top 5 x students of his/her class at National Defence University.
- Student in research (dissertation) semester (M.Phil Program) and / or third semester (PhD Program), shall be eligible for award of half / full assistance ship on recommendation of Board of Studies.
- Teaching & Research Assistantship shall be awarded only to students studying in full time M.Phil / PhD Programs.

- Needy students and those hailing from backward areas studying in M.Phil / PhD Programs may also be considered for teaching / research assistantship on the recommendations of the HoD concerned / Dean Faculty of Contemporary Studies. Such students must have semester GPA between 3.5 to 4.0. Such assistantship shall be approved by the President NDU.
- The renewal in assistance ship shall be approved by the President NDU on the recommendations of HoD concerned / Dean FCS/Dy President after having evaluated the performance of TRA during the semester.

c. **Remuneration**. Financial Assistance of **Rs.10,000**/- per month shall be given to TRA as honorarium for his/her research assistance.

4. Participation in the HEC Outstanding Research Awards

a. Another objective of this research model is to improve the quality of research excellence of NDU to a level where its publication should compete at national level, particularly in HEC's Annual Awards for the best publications. The detail of these awards has been given on HEC's URL. Because of their relevance to disciplines offered at NDU, only 03 x categories of awards will be open for competition. However, it can be increased on need basis with the approval of the President NDU, subject to the condition that entries are available for the respective new category. Following 03 x categories of awards will be open for competition:-

- Best Research Article of the Year Award : One
- Best Young Researcher of the year Award* : One
- Best Book of the Year Award : One

Note: A competitor for the Young Researcher award must be equal or less than **40 years of age on **31st Dec** of the year for which award is being competed. Furthermore, a young researcher may compete for both award categories 3 a (1) & (2), but the same publication will be entitled to only one award. Amount of honorarium for Para 3 a (1) & (2) will be same.*

b. As a procedure, Director QEC will invite nominations in these categories. The evaluation committee (Para 3 c) will nominate minimum 02 x research publications, depending upon the number of entries, for submission to HEC Annual Award competition. In addition, the committee will also decide all the NDU awards. There is no minimum limit for entries competing in the categories noted in the Para 3a for the NDU excellence awards.

c. Institution of NDU Excellence Awards

To cultivate the culture of research and publication among the NDU's Faculty / Students / RAs / Staff and basing on HEC awards mentioned at Para 3 a, the university has also instituted the same awards. These awards will be adjudged by a committee constituted by taking members across NDU and will consist of 05 x members as given below:-

- Dy President : Chairman
- 1 x Nomination from ISSRA : Member

- 1 x Nomination from FSS : Member
- 1 x Nomination from FCS : Member
- 1 x External member in relevant subj : Member
- Director QEC : Member/Secretary

Note: <u>The same committee will evaluate winner(s) for all categories of NDU awards as well *as nominations for HEC annual excellence awards.*</u>

The 'Best Research Article' in each category and 'Best Book' of the year shall be given an award of **Rs. 30,000**/-. IAwards/incentives will be given by the President NDU in "**Semester Dinner**".

9. Publication of Research Articles/Books in HEC Recognized Journals / Reputable Publishers

a. Publishing of research article in recognized journals and books will enhance the university ranking as well as contribution / knowledge of faculty / researcher. To provide guidelines for publication of research articles in reputed/recognized journals, a committee is formulated by the CA for evaluation / guidance of faculty / researchers. Composition of the committee is as under:-

- Senior Professor : Chairman
- Director QEC : Member
- Associate Professor : Member
- Associate Professor : Member
- Assistant Professor : Member

b. Fol guidelines for faculty /researchers are as under:-

- Committee will meet once in a month to discuss the students research papers outline / ideas.
- Members of the committee will separately guide/discuss the outline/concept of research article. During monthly meeting, chairman committee will further guide the author(s) to publish their research articles in national / intl reputed / HEC recognized journals.
- The committee may facilitate the researchers whether or not the research paper/book is ready for publication. This could assist the researchers to get publish their research articles / books in the recognized / relevant outlets.
- Chairman committee will present the progress of the committee in every ASRB mtg.
- All the faculty /researchers/students fwd their outline of research article to committee.
- In case of research articles, faculty/researchers/students will only fwd the outline and not supposed to share their concept paper to any one before its acceptance / publication.

10. How to Claim Benefits

a. **Provision of TRA**. In case, a faculty member who qualifies for allocation of TRA (as per criterion given in preceding paras) should move an application for approval of TRA on the proforma giving complete details. This benefit will become effective after approval by the

competent authority. The same will continue till such time that the scholar qualifies conditions for the award or for that semester only, depending upon case decision

b. **Claiming Financial Benefits of Publications**

- If a faculty member makes a research publication in an ISI listed or HEC recognized journal, he/she will be given monetary reward by the University as a token of his/her intellectual achievement.
- The HEC and some other organizations outside NDU also give similar awards for publications in ISI listed journals. Application to claim such award from such organization should be sent to Dir QEC.
- Legally, only one award can be claimed anywhere, for the same publication. It is recommended that the scholar may apply to the outside organization first, for the award. In case application is unsuccessful, request may be submitted to the NDU as described above (a certificate to this effect will be provided by a researcher duly signed by the concerned HoD).

11. Actions, Penalties for Not Publishing or Making Illegitimate Publication

- "**Publish or Perish**", is the popular quote in all progressive and growth-oriented Universities. Research is a critical activity and must be assigned high priority, particularly in universities offering research degrees (MS/MPhil/PhD).
- Every faculty member must publish at least 01 research paper preferably in HEC recognized Journals (minimum 'Y' category) in one calendar year (Jan - Dec). If they fail to produce this research output in a calendar year then their case may be forwarded to the President NDU for appropriate action (administrative / financial penalty alongwith time limit for publishing a research article).
- Any faculty member submitting data about his / her publications, which have been published in fake, online journals, or journals not recognized by HEC, and tries to claim benefit of these publications in one form or the other, will be considered as deceiving the university. In such cases Director QEC will be asked to determine the authenticity of research work, and will report to the President NDU for due legal process as per university / HEC penalty criteria/rules.
- Awareness campaign / seminars for publications in the appropriate journals (National & International), should be launched to stamp out ignorance in this regard. Help from QEC to arrange for local and invited speakers may be obtained.

12. Plagiarism

It is a menace which exists in universities in many forms. By definition plagiarism is defined as "taking & using the thoughts, writing and or inventions of another person as one's own". This amounts to stealing and can be classified as an offense of 'character failing' for which penalties vary from removal of service to letter of warning, depending upon the severity and extent of the offense. HEC's model on plagiarism is applicable to all universities and their degree programs, whose equivalence is given by the HEC. For legal reasons, this model is formally adopted and applicable equally to all members of NDU.

13. Conclusion

The focus of this study was to provide a comprehensive and conceptual overview of the different models used in the world to assess performance of HEIs. The model contained in this paper is formed on the basis of HEC guidelines and best practices of reputed universities. It aims at supporting and advancing Research and Publication culture at the NDU for ultimate benefit of the faculty, students, institution and the nation. After successful implementation of this research model and incentives at National Defence University, a considerable number of research publications have been increased as indicated below.

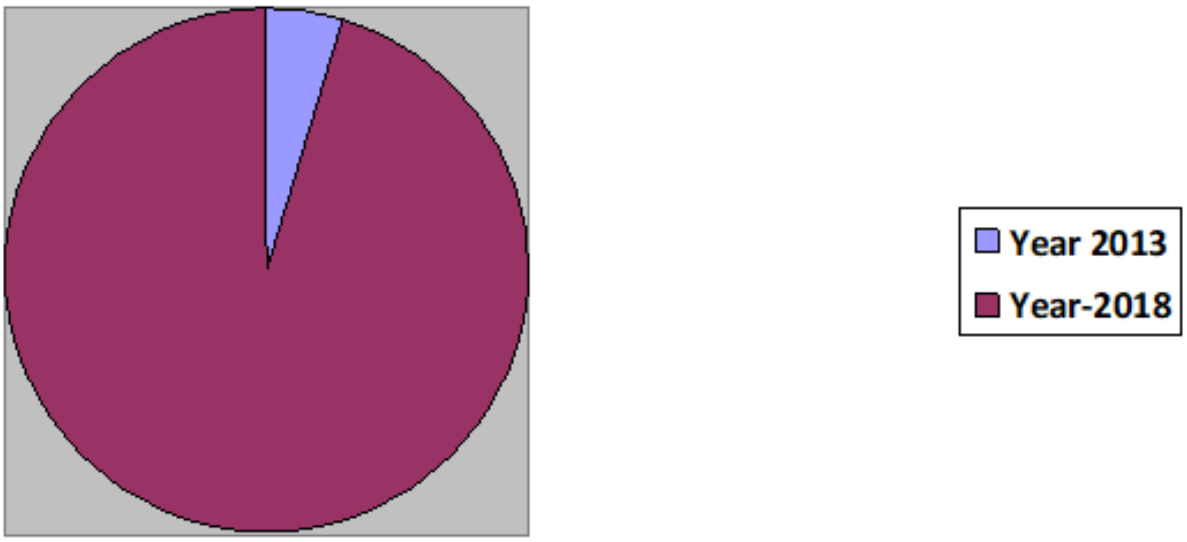

Figure-I Increase in research publications at NDU

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Higher Education Quality Assurance and Accreditation in Nepal: Status and Issues

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Abstract:
Quality Assurance and Accreditation (QAA) of higher education institutions was introduced in Nepal in 2007 with the establishment of Quality Assurance and Accreditation Division at the University Grants Commission (UGC). The number of higher education institutions accredited since then are as follows: 1 institution in 2009, 5 institutions in 2012, 6 institutions in 2013, 3 institutions in 2015, 2 institutions in 2016, 2 institutions in 2017 and 7 institutions in 2018 and 4 institutions in 2019 so far. Six Institutions among them are re-accredited. Acknowledging the slow pace of accreditation, the UGC has taken steps to strengthen the structural and regulatory capacity and promotional activities for QAA of higher education institutions in Nepal. This paper presents the recent reforms made in the QAA system, issues and the current status of the accreditation process.

Keywords: Autonomous, QAA Council, Mandatory QAA process, QAA Directive, Institutional accreditation

1. Higher Education Institutions in Nepal

The history of higher education in Nepal began with the establishment of the first college, Tri-Chandra College, in 1919 and the first university, Tribhuvan University, in 1959, and the establishment of a couple of community colleges in between (Sharma, 1986; Sharma, 2015). All community colleges were nationalized and brought under the Tribhuvan University in 1971. The idea of multiple universities was introduced in 1986 with the establishment of Mahendra Sanskrit University and further expanded with the establishment of a community university, Kathmandu University, in 1991. Today there are 1408 campuses belonging or independent but affiliated with 13 universities. In addition, there are four medical academies (UGC EMIS Report, 2018). An open university, Nepal Open University, has been recently established. Additional university and medical academies are at various stages of being established. Besides these, there are about 60 institutions offering Bachelors and higher-level academic programs affiliated with foreign universities (MOEST, 2018).

There are three types of higher education institutions in Nepal. They are: 1. Constituent campus (campus, school and central department belonging to and financed by a university), 2. Community campus (independent not-for-profit campus affiliated with a certain university) and private campus (for- profit campus affiliated with a certain university). The total number of campuses in each of these types and the total number of students enrolled in 2017-18 is shown in Table 1. The largest share of campuses and students is taken by private campuses in Nepal. Constituent campuses are the most

crowded institutions. Students are fairly equally distributed among community campuses (28.46%), constituent campuses (32.66%) and private campuses (38.87%).

Table 1. Higher Education Institutions affiliated with Nepalese universities

Type of Institution	Institutions	Students	Average students per institution
Community campuses	532	105,646	198
University campuses*	99	121,241	1224
Private campuses**	777	144,297	185
Total	1408	371,184	263

* Campus, school and central department belonging to a university
** Excluding private campuses affiliated with foreign universities

2. Regulatory Agencies and Professional Councils

Higher education institutions are funded and regulated by Ministry of Science Technology and Education (MOSTE) and the University Grants Commission (UGC), and in case of medical colleges, by the Ministry of Health and Population (MOHP). The UGC is the funding agency for public higher education institutions (university campuses and community campuses) and the primary regulatory agency for all higher education institutions except for the institutions affiliated with foreign universities. Institutions affiliated with foreign universities are regulated by MOSTE. Medical academies are funded by and report to MOHP.

There are eight national professional councils which oversee the qualification and regulate the licensing of professionals in the respective profession (Table 2). Among these, Nepal Medical Council (NMC) accredits medical college and programs. Nepal Engineering Council (NEC) and Nepal Health Professional Council (NHPC) partly monitor the quality of education in their respective fields. Other councils have not developed the procedure for accreditation of programs.

Table 2. Professional Councils in Nepal and their and accreditation function

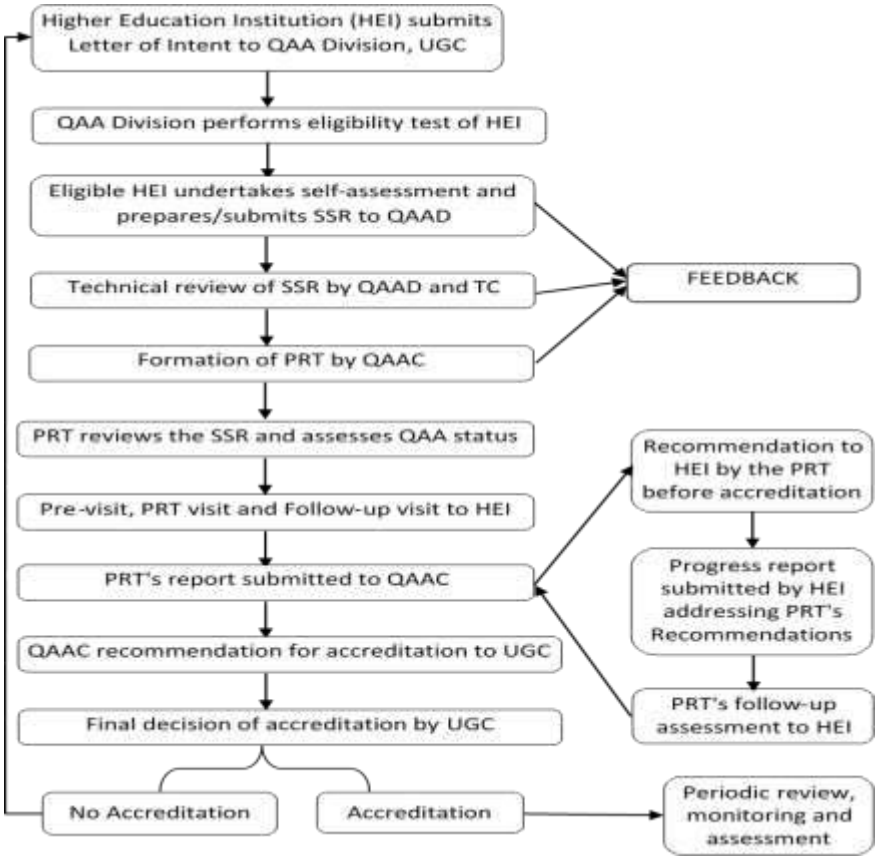
SN	Professional Council	Accreditation service	Accreditation-related function
1	Nepal Medical Council (NMC)	Yes	• Accredits MBBS, MS, MD academic programs for institutions with capacities for 50, 100, 150 enrollments. • Accreditation Standards for the MBBS Program 2017. • It has recognized 21 medical colleges.
2	Nepal Engineering Council (NEC)	Partly	• Inspects institutions for quality audit. • Lists recognized programs of 41 countries. • Engineering Education Institution Accreditation Rules, 2009 • Norms and Standards for Engineering Colleges
3	Nepal Health Professional Council (NHPC)	Partly	• Registers the institutes based on the minimum requirement • It has registered 122 colleges and 17 programs
4	Nepal Nursing Council (NNC)	No	• Specifies “Minimum requirement”

5	Nepal Ayurvedic Medical Council (NAMC)	No	• Registers the practitioners • It has registered 11 institutions and 5 academic courses
6	Nepal Veterinary Council (NVC)	No	• Specifies "Minimum requirement"
7	Nepal Bar Council (NBC)	No	• Specifies "Minimum requirement" • It has the Law Education Committee
8	Nepal Pharmacy Council (NPC)	No	• Mentions in its regulation provision for guidelines for institutions and curriculum.

3. Quality Assurance and Accreditation

Quality assurance and accreditation (QAA) of higher education institutions was introduced in Nepal in 2007 by the University Grants Commission as a part of the reform of higher education under the Second Higher Education Project (2007-2014) with the financial assistance from the World Bank. Necessary institutional structure and procedure were developed at the UGC and the first institution was accredited in 2009. The UGC has adopted a standard procedure consisting of the peer-review of the participating institution's Self-Study Report (SSR), institutional inspection by a Peer-Review Team (PRT) and the decision by the UGC as per the recommendation of the PRT, as major steps for the institutional accreditation of higher education institutions. The detailed procedure is shown in Figure 1.

Figure 1: Flow Chart of Institutional Accreditation of Higher Education Institutions in Nepal



As of now, a total of 30 institutions have been accredited and 6 institutions are re-accredited by the UGC. Table 2 shows the year-wise completion of accreditation of institutions and Table 3 shows the type of institutions and the status of their participation and accreditation so far.

Table 2. Yearly number of accredited and re-accredited institutions

Year	Accredited	Re-accredited
2009	1	
2012	5	
2013	6	
2015	3	
2016	2	
2017	2	
2018	7	1
2019	4	5
Total	30	6

The majority of the accredited institutions are community campuses. Then comes the university campuses. As of now, only one private institution has been accredited. All types of institutions have shown interest in participating in the QAA process. Nevertheless, the proportion of the institutions participating in QAA process is relatively low (261 out of 1408 institutions have submitted LOI and only 87 of them have submitted SSR).

Table 3. Status of Accreditation of Higher Education Institution in Nepal, 2007-2019

Type of Institution	Letter of Intent submitted	Self-Study Report submitted	Accredited	Re-accredited
Community campuses	111	55	20	6
University campuses	66	23	9	-
Private campuses	85	9	1	-
Total	261	87	30	6

4. QAA Policy, Issues, and Way Forward

The University Grants Commission had introduced the QAA system during Nepal's Second Higher Education Project (2007-2014) and 12 institutions were accredited during the project period. Although the participation of institutions in the QAA process is voluntary, motivation and financial incentive to the participating institution was the driving force. The currently running next reform project, Higher Education Reform Project (2015-2020) has as a major component of it the continuation of the QAA support program. It has allocated 9 million USD for the program with a target of accrediting 125 institutions (HERP Implementation Manual, 2016).

On account of relatively low and insufficient participation of higher education institutions in QAA process to meet the project target, the UGC has taken steps to strengthen the organizational capacity and has adopted a policy to make the participation of higher education institutions in QAA process mandatory. Table 4 shows the current major regulatory and policy initiative taken by the UGC to strengthen the QAA program. Among these are The UGC Educational Quality Assurance and

Accreditation Regulation 2017 which makes the Higher Education Quality Assurance and Accreditation Council (HEQAAC) an autonomous body with more power than its predecessor Quality Assurance and Accreditation Committee (QAAC) had. Another important regulatory document is the QAAC Higher Education Quality Assurance and Accreditation Directive, 2017. It strengthens the QAA Division as the secretariat of HEQAAC with a well-defined administrative and financial procedure, and qualification and terms of reference for QAA Director, Deputy Directors and other personnel. Finally, the UGC has issued a notice for all higher education institutions of Nepal to participate in the QAA process by January 2023. These appear to have made some impact as there is an increase in the number of submissions of Letter of Intent in recent months (unpublished data).

Table 4. Recent major regulatory initiatives for QAA

Regulation	Year
1. The UGC Educational Quality Assurance and Accreditation Regulation 2017	2017
2. The QAAC Higher Education Quality Assurance and Accreditation Directive 2017	2017
3. Quality Assurance and Accreditation: A Brief Guidelines 2013	Reprint 2018
4. The UGC Notice Regarding Mandatory Participation of Higher Education Institutions in Quality Assurance and Accreditation, 23 January 2018	2018

5. Conclusion

The higher education in Nepal is growing in number and is fairly equally contributed by the public, community and the private sectors. The concept of accreditation of higher education institution is relatively new and is yet to be widely influential. Some professional councils accredit academic programs and monitor the professional higher education institutions. However institutional accreditation of higher education institutions is solely carried out by the Higher Education Quality Assurance and Accreditation Council (HEQAAC), a semi-autonomous body under the University Grants Commission (UGC) of Nepal. The UGC in recent years has taken several steps to structurally strengthen the HEQAAC and coerce/attract the higher education institution to participate in the accreditation process. The coercion/attraction includes a policy of mandatory participation of all higher education institutions in the QAA process by 2023 and an attractive financial incentive for participating in the QAA process. It is expected to make an impact thereby expanding the culture of accreditation in the higher education of Nepal.

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Improvement of Medical Teaching Quality Supervision on Regular and Self-organizing Basis and its Practice - Taking Kunming Medical University as an Example

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Abstract
Currently, a widespread consensus in higher education is to improve teaching quality. To achieve it, it is vital to establish an internal teaching quality supervision system in a university that conducts self-assessments on regular and self-monitoring basis. Such a system has been established in Kunming Medical University. The contents, features, effects and development of the system are discussed in this paper to communicate with other institutes.

Key words: teaching and learning quality; teaching quality monitoring system; self-organizing

With the transformation of higher education from popularization to connotative development, a consensus is reaching that the quality of education should be emphasized and improved. In recent years, the Ministry of Education in China has successively issued opinions on the evaluation of undergraduate teaching in colleges and universities, and put forward the "five-in-one" undergraduate teaching evaluation system (January 2011). An announcement was made about conducting the reviews and assessments of undergraduate teaching in colleges and universities (Doc. 10, 2013)[1]. At the same time, various assessments and inspections from outside campus are increasing. How can we avoid the "quality management campaign", in which "everything is prepared for the experts' supervision and everything restores as soon as the experts leave"? How can we establish and perfect such a self-restrained mechanism that can enhance quality control and self-assessment within campus and improve teaching quality continuously" [2]? These are key points to push colleges and universities going on the track of healthy self-regulated development.

Kunming Medical University, adhering to the tradition of medical education and sticking to the lifeline of teaching quality, set up the Teaching Quality Supervision and Evaluation Center in domestic higher education earlier. This center has been exploring the separation and coordination mechanism among teaching practice, administration and evaluation. It has constructed a daily teaching quality monitoring system with full staff participation, overall management, whole process monitoring, omnidirectional

feedback and effective quality improvement around the curriculum teaching. This system helps to improve the quality of teaching continuously.

1. The main contents of the improvement in medical teaching quality supervision system on regular and self-organized basis

"Since the teaching quality is formed gradually in the whole process of teaching, the supervision of teaching quality must be considered from the whole process and monitoring be conducted in the whole process" [3]. Based on years of practices, a teaching quality monitoring system has been established in Kunming Medical University with full staff participation, in which there are standardized management in courses, whole process monitoring, and multi-dimensional feedbacks for continuous quality improvement (as following).

1.1 all staff participation – three parties participate in eight-level supervision both at college and at university

1.1.1 all staff participation

Three parties take part in. The three parties are teaching, administration and learning.

The "teaching" party refers to every teaching unit, that is, college or specialty. It is the main body to organize and carry out daily teaching activities and to guarantee its quality. The college administrative leaders, the college supervision team and peer teachers are required to attend classes for teaching assessments. Among them, college leaders are in charge of teaching quality assurance, college supervision team looks at the monitoring of the teaching process and teachers evaluate classroom disciplines. This arrangement drives each teaching unit to become the main body of teaching quality guarantee.

The "management" party refers to the university leaders and related functional management departments, which is the engine of teaching quality assurance. The university leaders, the members of university supervision committee and the heads in related functional management departments are also required to attend classes for teaching assessments. The university leaders pay more attention to

teaching styles. The members of university supervision committee monitor the whole process of teaching and the heads in related functional administration are responsible for teaching inspection. This measure leads and promotes the healthy operation of teaching quality monitoring system.

The “learning” party is the student population, which is either the starting point or the ending point of teaching quality. All students and student messengers are required to evaluate teaching, courses and specialties, the so called “students’ three evaluation”. Besides, the student messengers will make some comments on college and university administration and services as well. In addition, there are monthly report of students’ feedbacks and regular meetings of students. All these measures can reflect students’ feelings about teaching quality comprehensively and timely, so that the students can actually become the main body of the teaching, fully embodying the students as the center of the university.

1.1.2 comprehensive standardized management – classified evaluation standards covering all key points

25 assessment standards of teaching quality have been designed for different evaluators such as administrative officers, supervisors, peer teachers and students. The major monitoring targets are the quality of key points in classroom teaching, experimental teaching, clinic novitiate and internship, curriculum examinations, undergraduate thesis, curriculum evaluation and professional evaluation. In the standards, the special features such as teaching bilingually, foreign language training and physical education are also taken into consideration. The results either from the assessment of classroom activities or from the surveys of satisfaction on curriculum, clinic internship and professional education contribute to the development of the evaluation criteria as well.

The design of the evaluation standards reflects the different focuses from the perspectives of various evaluators. In other words, university leaders and administrative offices focus on the evaluation of teaching and learning atmosphere and the ideological contents. Supervisors and peer teachers pay more attention to the overall teaching performances and the achievement of teaching goals. The standards for student evaluators emphasize the acquirement of knowledge, skills and professional competence as well as the satisfaction of learning interests and the development of self-learning ability.

1.1.3 the whole process monitoring -- "five assessments and six inspections" covering the whole process of university education

The "five assessments and six inspections" form an overall networked monitoring system. From the horizontal view, the teaching quality control involves monitoring key aspects in the classroom teaching, the teaching and learning atmosphere, the experimental teaching, the clinical internship, the graduation fieldwork, the curriculum examination, the undergraduate graduation thesis, the administration services, the students’ satisfaction on courses and professional education, the curriculum evaluation and the specialty evaluation. Different types of teaching such as bilingual teaching, foreign language teaching and physical education are also assessed by specific criteria. From a vertical point of view, the teaching quality monitoring penetrates every planned public course, professional basic course and professional course in the whole process of talent training. This monitoring system covers the teaching and learning activities from our campus to our affiliated hospitals and teaching hospitals, forming a crisscross and three-dimensional grids monitoring the whole teaching process. This network helps the quality control from regular events to routine,

monitoring anywhere and anytime of the university education. The data from the monitoring system can provide abundant classified information for teachers, course teams, professional specialty teams, student counselors, and administration service teams for their further improvements.

1.1.4 omnidirectional feedback -- multi-channel collection of quality information and omnidirectional application

The "evaluation center" is responsible for the statistics of all assessment data, ranking, comparing and analyzing. All data are checked triply to reduce statistical errors. The top 10% at both ends of the ranking are eliminated before the average value is calculated so that teachers' misgivings about the results might be allayed.

Multi-channel feedback paths have been established. They are the direct feedback on the spot, the indirect feedback from college (department) heads, the rapid feedback from the evaluation center, the feedback from the regular meeting of the college (department) teaching directors, the regular issue feedback of teaching quality monitoring and evaluation, the timely feedback via Office Automation Network, and the feedback from quality information administrators and student messagers. The university and college leaders, teachers and students can get accurate and comprehensive quality information effectively through these multi-channel feedback paths.

1.1.5 effective quality improvement -- strengthening the effectiveness of quality control by multiple measures

"The main position of teaching units in the quality of talent training at colleges and universities should be fully reflected by focusing on self-evaluation, self-inspection and self-improvement. We should pay attention not only to the quantitative assessment results of the teaching units but also to the process and effect of the teaching units' own improvements."[4]. According to the weakness and problems found in the evaluation, we should continuously promote the improvement of teaching management quality.

First, the quality improvements should be implemented continuously and intensively. We have pioneered the accounts and information sharing and reporting system, in which every teaching unit's improving measures should be put towards according to its feedback. They should be written down in its account and the tracking records should be kept to report and share later. The mechanism encourages teachers to introspect their teaching and colleges and departments to improve their managements. The leaders and supervisors can also review the progress by the account and tracking records.

Second, teaching quality should be emphasized more in the evaluation. The result from the comprehensive evaluation of teachers' teaching quality becomes one of the conditions for the professional title promotion and contract employment. In the past, the amount of class hours counted more rather than teaching quality. This change is promoting the teachers and colleges/departments to participate in the evaluation positively and to improve the teaching quality actively.

Third, the precision improvement is been carrying out. We conduct the monitoring randomly, but some teachers will be paid more attention to. They are those who have taught no more than two years, who have presented a new course or a new specialty contents less than two rounds, who are the ending 20%

in various evaluation ranking, and who are external teachers. For such a teacher, every department should designate an experienced teacher to help him or her. On the other hand, we select students' favorite teacher through public appraisal on campus. He or she will become the guiding model for other teachers. In the way, a leading, helping and supporting mechanism is shaped.

Fourth, the quality improvement is boosted. We combine the teaching and research reform with teaching quality improvement. Some common problems found in the daily teaching monitoring are incorporated into the annual bidding guide for teaching and research reform projects at the university level. After experts review the applications, excellent applicants win the bids and obtain the grant to do the research and experiments. The project directors must go through in-process inspection and final check before their researches are accepted. Excellent project directors will gain additional points when they apply for other projects next time. In this way, we set up a mechanism of "finding a problem - putting forward a project – tackling the issue in team work", which boosts the teaching quality improvement with possible major breakthrough. Additional points to excellent project directors will encourage them to grow stronger and help to form the mechanism of the sparking spot discovery – continuous support - characteristic cultivation.

2. the characteristics of medical teaching quality supervision and improvement on regular and self-organizing basis

2.1.1 the school-based practice precedent of TQM in medical colleges

TQM should manage not only the quality of the product or service, but also the process quality on which the product or service is generated. It is a new thing to implement TQM in higher education in China, and there is no ready experience to learn from.

2.1.2 the creation of a new model on university quality management, promoting the university healthy and self-regulated development

Teaching Quality Monitoring and Assessment Center was founded at our campus in 2008. The center is responsible for the daily comprehensive supervision of teaching quality, cooperating with the Academic Affairs Office and other teaching units (Colleges). Because of its work, the "quality management campaign" has been avoided, in which "everything is prepared for the experts' supervision and everything restores as soon as the experts leave". The efforts of the staff in the center solve the problem of the last mile in quality management in higher education.

2.1.3 the creation of a new path for the internal quality assurance system in the university

We have constructed a "daily teaching quality supervision and improvement system based on TQM involving teaching, learning and administration parties at eight levels". All activities in the system are focused on the teaching at the university, in order to achieve the essence of quality management, that is, "today is better than yesterday, and tomorrow is better than today". What we have done so far can offer reference to similar colleges and universities.

3. the effect of medical teaching quality supervision and improvement on regular and self-organizing basis

3.1.1 the great enhancement of teaching quality awareness

In the past three years, the university leaders, the heads of all functional divisions and teaching units, and the relevant management personnel attended the classes, evaluated the teaching, and especially assessed the teaching, learning and class atmosphere. The college and university supervisors and experts inspected the courses, management, and special project seriously. The student messagers in various classes kept classroom logs, submitted the student opinion report monthly, attended regular-meetings, and assessed teaching, courses and specialty actively. These student messagers were rewarded by their performances. All these work continuously promote the overall monitoring of daily teaching quality. The teaching management becomes more standardized. The teaching incentive is more powerful. The quality awareness is enhanced. The effect of quality improvement is obvious. Now a good situation is forming, in which the teachers and students participate actively, and the teaching processes are monitored effectively. The teachers and students have reached a consensus that teaching quality is the lifeline and they take actions consciously.

3.1.2 the significant improvement on teaching effects

Based on routine monitoring, the quality management moved forward to the teaching design, and some achievements with better quality emerged. One is the improvement of the teaching design. With the supervising experts' tutorial one-on-one, young teachers designed the classroom teaching innovatively and five of them won the first and second prizes of the national medical lecture and teaching plan competition. Another example is to scheme the undergraduate curriculum more scientifically, promoting the teaching content development. More than 500 projects have been supported with special funds, and the curriculum system construction at national, provincial and university level are under way. Still another is the annual bidding and funding to promote quality improvement and breakthrough. Every year, problem-oriented and school-based action research is encouraged by bidding the funded projects. Among them, a few have gained initial achievements and won the second prize of national excellent education research and the first prize of educational research achievement of Yunnan province. They are "exploring the new teaching mode with organ system as the core", "teachers' application of mind-mapping", and "exploration of ways to cultivate social responsibility of medical students based on the volunteers' action around the theme practice on the day of WHO health promotion".

3.1.3 the better evaluation from the students, the employers and the society

In past three years, the average scores of the college students' assessments on classroom teaching are more than 94.7. The general satisfaction of the graduates to the overall teaching effects is 97.2 % and 95.5 % in each year. The employment rate of the graduates is higher than 97 %. The survey shows 92.2% of employers are satisfactory with the comprehensive competence of our graduates. According to the statistics of Chinese university undergraduate professional evaluation (year 2014-2015), our university ranked the 50th among the top 100 best medical colleges in 2015. In 2015-2016, our university was the 200th among the universities and the 31th among the medical colleges in China in the comprehensive competitiveness ranking. Our university ranks the top 5 in Yunnan province. Students and parents highly regard our undergraduate education. The quality of students at enrollment is improving steadily, and admission score is the highest in Yunnan province.

3.1.4 general acceptance among peer experts in China

Our daily teaching quality monitoring system has been highly recognized and appraised by the counterparts in and outside the province. We have obtained 6 national and provincial projects, 8 teaching reform projects of our university, and have published 15 papers. We have won 2 first prize, 1 second prize, and 2 third prize of the national excellent research achievement in education association. Other awards are 1 second prize of the provincial excellent educational research achievement and 1 first prize of the teaching achievement of our university. 5 of our teachers presented at the National Conference on Medical Education Research successively, among which the presentation Implementing the New Program of Undergraduate Teaching Evaluation and Strengthening the Internal Quality Assurance System in Colleges and Universities received high attention and praise at the seminar held by the Evaluation Center of Education Ministry in Changshu in May 2012. In April 2012, Improving the Quality of Teaching and Serving Students' Growth – the "Students' Three Comments" System in Kunming Medical College was set up as a typical case of creating excellence and was printed as the 103rd special issue to distribute to schools in Yunnan Province. In addition, we did presentation 3 times at the international academic conferences held by "Four Institutes from Three Countries" and the Asia-Pacific Quality Network (APQN). In 2014, our Institute of Higher Education was rated as the excellent educational research institution in Yunnan Province. In 2015, our teaching quality monitoring system was examined and approved by the APQN Committee. We became one of the 8 APQN member units in China.

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Innovative technologies for establishing an institutional system for quality assurance and its independent assessment

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Abstract
The article describes a new project in the area of QA of QAA "Russian Register" (RR). It is aimed at exploring the potential for improving the internal QA system (IQAS) of an educational institution and its external independent evaluation based on the integration of approaches and principles to their creation and evaluation established by various international networks and quality organizations to improve the IQAS in accordance with the requirements of MS ISO 9000, 21001, the principles of CHIBA, CEN / TS 16555 integrated with the requirements of the ESG and GGP standards. The internal management systems existing in most educational organizations are presented. The article describes the typical drawbacks for the requirements and the management system of the accrediting Agencies as providers of external assessment of the quality of education. The article reviews the background of QA in Russia, the main steps of the above-mentioned project, the project aims and achievements for every step, the most suitable methodology. The expected results are presented.

Keywords: education quality, external assessment of the quality of education, independent evaluation of the quality of education, internationalization of education, integrated requirements, internal quality management system, integration approaches and principles, diffusion of innovation.

The problem of choosing a methodology for building internal management systems in educational organizations and substantiating the principles of integrating basic approaches, models and standards in order to improve the system's performance is under consideration within twenty years in Russia, since management systems are mostly based on approaches and standards that are traditional for this country. Moreover, the internal management systems existing in some educational organizations are occasionally sharpened into separate components of the system-wide category "quality" mainly for its control and provision, less often for elements of its planning and monitoring, without touching other important modern aspects of quality management, such as system, process approaches, the principle of continuous improvement and risk management. There is a lot of academic and methodological literature in Russian describing different approaches on the example of an educational organization. However, sometimes because of traditional management system based on control rather than PDCA cycle it is rather difficult for some educational organizations to reach a new level of development of management in the global market of educational services. The same drawbacks are also typical for the requirements and the management system of the accrediting Agencies as providers of external assessment of the quality of education.

Within the challenges of the current system QAA "Russian Register" (RR) is ready to contribute to development of worked-out approaches and offers Universities to improve their current management systems through establishing a modified institutional integrated system for QA and its independent assessment as a new project in the area of QA.

It is aimed at exploring the potential for improving the internal QA system (IQAS) of an educational institution and its external independent evaluation based on the integration of approaches and principles to their creation and evaluation established by various international networks and quality organizations to improve the IQAS in accordance with the requirements of MS ISO 9000, 21001, the principles of CHIBA, CEN / TS 16555 integrated with the requirements of the ESG and GGP standards. The project proves the possibility and relevance of such integration, which is unique to date. The project defines the structure of documentation for the internal QA systems of the services of accrediting Agencies using the guidelines of ISO 17021[1, 8].

RR cooperates with educational organizations to assess the quality of education, to see if it meets the requirements of international and European standards and ENQA guidelines in QA, and QA legislative requirements for education. RR has many years of experience in assessing the internal quality management systems of educational organizations (250 educational organizations). Since 2014, RR has been implementing the Program "Independent Evaluation of the Quality of Education". In 2015, Russian Register established an Agency for the Assessment of the Quality of Professional Education on its basis. RR is included in the national register of accrediting organizations, created and maintained on the order of the Ministry of Education and Science of the Russian Federation. RR has carried out an accreditation of 205 Degree programs, and has trained over 100 experts in the field of QA in education. RR is a full member of INQAAHE and APQN, has an affiliate status in ENQA and is included in the APQR registry [9].

Considering the background of QA in Russia, the most important factor of economic and political independence of the country and its survival factor is the intellectual potential of society, which is directly determined by the quality of higher education [9]. Currently, the following is closely interrelated with the following processes running in Russia:

1. Creation and improvement of internal tertiary quality systems using the requirements and recommendations of international standards of the ISO 9000 (nowadays it's possible to drive the process of spread of a new ISO 21001 standard for management systems in educational organizations because this standard is developed especially for them and contains the requirement for the whole management system but not only for quality management system) and other models of quality management, ESG ENQA, GGP INQAAHE standards.
2. Internationalization of education requires the development and improvement of state accreditation of universities and criteria for assessing the quality of educational processes, their harmonization with the indicators and criteria used in evaluating QA systems of educational institutions in other countries.
3. In the field of education, Russian Government has implemented a number of large-scale educational programmes, i.e. "Development of the export of education in the Russian education system" which covers the development of mechanisms for the international recognition of Russian degree programmes on the basis of their international accreditation.

The first step of the project is aimed at developing a technology for creating an internal quality management system and QA for an educational organization. Currently, ISO 21001:2018 standard "Educational organizations. Management systems for educational organizations. Requirements, including application guidelines an innovative for educational organizations tool" is proposed. The ISO 21001:2018 standard is a stand-alone standard for management systems and it is correlated with the ISO 9001 standard. The standard is focused on the management systems of educational organizations, as well as on the influence of these systems on students and other stakeholders. All requirements of the Standard are applicable to any educational organization that use curricula to sustain competence through learning, studying or research, regardless of the type, size or methods of performing these activities [8, 10].

The benefits of implementing a management system based on the ISO 21001 standard for universities can be the following:

- better alignment of the goals and activities of the University with its policy, mission and vision;
- increasing social responsibility through the provision of inclusive and equal quality of education for all students;
- personalized training and better response to the needs of all students, especially to the students with special needs, those who study on-line, with the possibility of creating LLL;
- interrelated assessment processes and tools to demonstrate and improve performance and effectiveness;
- improvement image of university;
- demonstration of the commitment of university to the best management practices in education;
- introduction and development of the culture of organizational excellence;
- better participation of stakeholders;
- motivation for innovation and excellence.

The next step of the project involves the development of a technology for creating an external independent assessment of the organization's quality management system created at the first stage of the project. We consider such elements as integrated requirements of ISO 9001, Standards and Recommendations for Quality Assurance in the European Higher Education Area (ESG), Part 2: "Standards and Recommendations for External Quality Assurance of Higher Education", part 2.1 "Accounting internal QA procedures", part 2.2 "Development of appropriate external QA procedures". Taking into account the processes of internationalization of education and harmonization of the requirements of international standards, it is supposed to supplement the integrated model based on the INQAAHE Guidelines of good practice (GGP). An independent assessment conducted on the basis of such a model will determine the degree of success in solving the tasks identified in the Partner's Development Program as the Development of a University Management System, which also includes the development of a quality management system for educational, research and innovation activities of a university.

The next stage of the project team is to adapt and implement the results listed in Tab.1.

Table 1 – Implementation the results and the achievements

Achievements	**Steps**
1. Research of the potential for improving the creation of an internal quality management system of an educational organization and its external independent evaluation.	1.1 Research of the potential for improving the technology of creating an internal quality management system of an educational organization
	1.2 Research of the potential for improving the technology of conducting an external independent assessment of the quality management system of an educational organization
2. Integration of approaches and principles	2.1 Analyze and selection of methods for integrating large data arrays
	2.2 Development of an integrated approach, model or standard external independent assessment of the quality management system of an educational organization by a third party through a correlation analysis of internationally recognized best practices and standards.
3. Transfer of innovative technologies, competence and accumulated experience among the stakeholders interested in the development of internal and external institutional systems for ensuring the quality of education (Agencies, universities, their networks).	3.1 Pilot the developed innovative approach, model or standard for building an internal quality management system of an educational organization
	3.2 Implementation of the developed innovative approach for building the internal quality management system of an educational organization
	3.3. Implementation of the developed innovation process of external independent assessment of the quality management system of the educational organization by accreditation agencies on the example of the project applicant

Within this project we assume that the following project methodology can be the most suitable:
The PDCA methodology is an algorithm for a project manager's actions to manage its process and achieve its goals. PDCA begins with planning acting in a spiral due to the continuous improvement of each stage. Within this methodology, Planning is for setting goals, resourses and processes necessary to achieve these goals. Do stands for the execution of planned work. Check is for collecting information and monitoring the result. Act stands for eliminating the causes of deviations from the planned result, changes in the planning and allocation of resources [5, 8].

In this project, PDCA cycle is applied multiple times at different intervals in the framework of achieving each project goal. The principles of PDCA methodology are used by project experts for internal quality management system of educational organizations and evaluation procedures of accreditation agencies.

The following methodology employed by RR is benchmarking, the process of identifying, studying and adapting the best practices and experience of other organizations to improve the performance of their own organization (organizations with similar processes in their industry, regardless of industry, in their own country or abroad) [9]. This methodology will be used by project participants to ensure the achievement of outstanding results. Benchmarking fits perfectly into this project for improving the current approaches and processes of QA through analyzing the existing standards, for example, ESG and adding the benchmarking methodology to them. As a method of comparing the activities of one organization with another one and borrowing the ideas of competition, benchmarking has existed for quite some time, but in this project will be employed for the first time, because internationally recognized and widely used documents in different countries (for example, GGP, ESG, CHIBA principles, ISO 9001, 21001, 17065, CEN / TS 16555) will be the subject to comparison and comparison for the first time [2].

The next one is correlation analysis. This project is characterized by the presence of a sufficient number of variables (requirements and indicators for internal and external education QA systems embedded in the standards studied), and the goal of the project is to compare them, establish links, mutually enrich, supplement. Therefore, while working at the project at its second stage, the project team will apply correlation analysis capabilities, a data processing method to establish causal relationships between them by the means of empirical methods.

QFD (Quality Function Deployment) Methodology has proved suitability as well. It is a flexible decision-making method used in the development of products or services. It can help with the most important characteristics designed for building internal quality management systems for educational institutions and external procedures for the independent assessment by accreditation agencies. Correlation analysis is also used at certain stages of the deployment of the quality function. To determine the closeness of the relationship when building a “quality house”, it is possible to conduct an expert survey, both in solving the problem of integrating the requirements of the basic approaches, models and standards, and in determining the closeness of the relationship between the activities of the partners involved into the project and the requirements of basic approaches, models and standards.

SWOT analysis is an effective tool in management, the essence of which is the analysis of internal and external factors, risk assessment and competitiveness of the object of the analysis. In this project SWOT analysis is the starting point of the second analytical phase. It also analyzes the project itself (progress and results).

Methodology of standard comparison and analysis of research objects is a method of comparative analysis is the general research method, which can be applied in this project as an epistemological core and guideline, giving a general direction to this study and regulating the interaction of all the methods and technologies used in it. In the project it is used as a basis for classification, estimation and

forecasting. In the process of analysis at stages 1 and 2 of the projects, each of the compared objects (for example, GGP, ESG, principles of CHIBA, ISO 9001, 21001, 17065, CEN / TS 16555) logically includes two elements: it reveals, on the one hand, the similar features with other objects, and on the other hand, what sets it apart from others objects. In other words, comparison is a necessary and basic element of the project, which determines its large methodological value in this study.

The final methodology employed to reach the goal of the project is change management. It is a structural approach to object transfer (in this project it is internal quality management system of an educational organization) from the current state to the desired future state, which is the goal of the 3 stages of the project and is demonstrated by the example of 2 partner organizations of the project. Change management is one of the key factors for the successful implementation of quality systems and the development of the organization as a whole, including educational. For example, when introducing and testing project results (the internal quality management system of an educational organization), change management will affect such fundamental elements of educational organizations as: personnel, processes, technologies, organizational system (structure, responsibility, interconnections), corporate knowledge, various control systems, etc. Regarding this project change management can be viewed as a management process, in which project changes are formally presented and approved.

Therefore, the expected results of the project are to develop requirements for the internal quality management system of an educational organization; for external independent assessment of the quality management system and internal systems of QA of accreditation agencies to improve their activities. This is an innovative approach for building an internal quality management system of an educational organization, which is a source of diffusion of innovation and the results of practical implementation of the developed innovation requirements.

The sustainability and exploitation of the project is rooted in the approbation of the innovative approach for building an internal quality management system of an educational organization using the examples of project partners which implies training the partner's personnel. The partners, Universities, become the source of the outgoing diffusion of organizations, process innovation, which is important for the educational area as a whole. The impact of the developed innovative approach is an incoming innovation aimed at improving the internal quality management system. In the future, it is possible to unite Universities into consortia or clusters, provide the participation of universities in the implementation of the Federal Program of the Ministry of Science and Higher Education of the Russian Federation. Practical implementation of the developed innovation process by an external independent assessment of the quality management system of educational organizations of accreditation Agencies using the example of a project applicant would be contribute to the creation of an interregional network of the internal QA of accreditation agencies to simplify procedures of reciprocal recognition of Agencies - members of European, Asia-Pacific, Central Asian and other networks on QA in education. At the national level, the sustainability of the project is facilitated by the development of recommendations for regulating the market for services in the field of accreditation of the quality of higher education, as there is an urgent need to modify the state accreditation procedure and conduct an independent international accreditation of educational programs. The discussion was initiated by the rectors of leading Russian universities and brought to the government level, therefore, the development

of criteria for admission of accreditation Agencies to external examination procedures is possibly a matter of the nearest future.

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Introduction of an Online Review Tracker in managing applications for Review, Registration Accreditation and Recognition for higher and technical education in PNG

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Abstract

With the rising need for efficient delivery of public service, the use of online technology can be seen as a tool to ensure public goods are made available efficiently and effectively. Over the years, Department of Higher Education, Research, Science and Technology (DHERST) in Papua New Guinea through its Quality Assurance Division have been managing the review, registration, accreditation and recognition process as required in the Higher Education (General Provisions) Act 2014 manually. It is slowly moving into the use of technology but as time passes, the need for use of online technology becomes more and more importantly due to ongoing challenges. This paper gives an insight and advantage of plans by the Division in introducing an online review tracker to use in managing its quality assurance functions. It explains what the online review tracker is and the features it will have inputted online. The tracker also identifies where the manager provides his/her inputs and where other officers are responsible for in managing the applications that are being submitted for processing. It then identifies the existing challenges faced by the Department with its current use of a manual system in managing the entire quality assurance processes. It concludes by wrapping up what is being discussed in the content giving more positive reinforcement on the need for an online review tracker.

1. Introduction

The Papua New Guinea Department of Higher Education, Research, Science and Technology (DHERST) has a number of different functions including quality assurance, higher education infrastructure development, scholarships, research and coordination of partnership arrangements externally. With the recent decision by government to amalgamate all existing higher and technical education functions which still sits under different Ministries (NG25/2017), DHERST realises that its functions will broaden as well as the need for additional manpower to implement its different roles. The introduction of efficient online services would boost performance and efficiency for the different roles and functions the Department plays in the higher and technical education sector.

Generally, higher education landscape has transformed a lot over the years and so is the emergence of technology and rapid embedding of the internet (Christensen and Erying 2011).

The potential on the usage of technology having positive changes in higher education has been explored (Christensen and Erying, 2011) by other authors but this paper focuses on the use of a specific application in external quality assurance in higher education here in PNG.

A detailed analysis of the implications of the use of online technology in quality assurance in higher education is yet to emerge (Baird and Paka 2016) but I do believe that the use of technology can

enhance the efficiency of delivery of higher education services in general, more importantly in this case, external quality assurance .

This paper focuses on the use of an online review tracker which I see as a positive way forward for the quality assurance functions performed by DHERST here in Papua New Guinea.

Before going any further, we will go back to basics explaining the current external quality assurance role being performed by DHERST.

2. Different QA Processes by DHERST

As per the Higher Education (General Provisions) Act 2014, DHERST through its Quality Assurance Division manages the quality assurance functions on behalf of the National Higher and Technical Education Board (NHETB) and reports to the Board on a quarterly basis per year.

The different QA activities as outlined in the QA Manual for Providers and the Act 2014 includes;

1. Quality Assurance for universities and public institutions (owned by the state)
   DHERST ensures Quality Assurance Reviews (institutional) are done on a cyclical approach for up to a five (5) year basis. A review panel is called in to conduct a site visit after submission of a Self-Assessment Report is submitted. Programme accreditation only applies to public institutions that are not universities.

   For programme accreditation which applies to other public institutions apart from universities who accredit their own programmes, applications are submitted to DHERST. DHERST conducts desk reviews only where a specialist is engaged to conduct the review. Reports are then submitted to DHERST for reporting to the Board for a decision to be made.

2. Registration and accreditation of private providers(excluding private universities)
   All private providers are required by Law to be registered and their programmes accredited. They can eventually apply for self-accreditation but subjected to another process under the Act.
   The registration process requires a site visit while the programme accreditation process requires a desk review of the application, the same as accreditation of programmes by public institutions apart from a university.

3. Recognition of overseas providers in country
   Overseas providers wanting to provide higher education in country are subjected to a specific process where they are recognised under the Act. The process involves a desk review by a specialists from the Panel of Experts.

   In terms of their programmes, the reviewer will recommend to the Board whether or not the programmes it offers in country, should go through a separate programme accreditation process.

   Part of the registration and accreditation process by DHERST is to engage independent reviewers in the review process. DHERST established a Panel of Experts consisting of pool of specialists who assist in the reviews and provide specialist advice on quality assurance from time to time.

With the rise in the number of providers and applications and limited capacity within DHERST Quality Assurance Division, it is crucial that DHERST adopts an efficient online tracking system to manage the registration, accreditation, reviews and recognition process under the Act. It is important to note that the quality assurance processes and timeframes are specified in the Act, which needs to be considered more seriously.

3. Online Review Tracking system for Quality Assurance

In 2018, the Quality Assurance Division had some initial discussions on an efficient option to manage its external quality assurance functions. Some initial ideas were put on paper in regards some features which should be reflected in the online tracking system.

Introducing an online tracking system for reviews, registration, accreditation and recognition processes under the Act would be a positive step forward for the Department especially taking into account the challenges it has in managing external quality assurance processes on behalf of the Board.

The tracker is intended to provide an overview of all applications to be managed by the Department through its Quality Assurance Division. Respective officers within the Quality Assurance Division will have their different tasks to perform while the Executive Manager or Manager is tasked with allocating applications to specific staff members when an application is received.

Staff members who are assigned different application types will responsible for the day-to-day management of the application until decision by the Board and continuous feedback to the provider.

The tracker indicates timelines, for example, an assessment process that should be completed in 6 months starts ticking as soon as the 'date received' is filled and the application close date is automatically listed (can be manually altered). The tracker can monitor the progress of the items listed in the process which can be grouped together, for example, the first 5 items are to be completed within 30 days and failure to do so can trigger an alert. The Executive Manager or Manager is tasked with monitoring the progress of the application (Thambu. P, p9).

Here is a table outlining the initial thoughts on the different features of the tracker.

Table. 1

Date Received	Institution	Application Type	QAD Case Manager	Process	Review Panel	Additional Comments	Progress Monitoring
ASSESSMENT IN PROGRESS							
				DD/MM/YY Acknowledge Application			

Date Received	Institution	Application Type	QAD Case Manager	Process	Review Panel	Additional Comments	Progress Monitoring
				DD/MM/YY Appoint Panel DD/MM/YY Check Application for Completeness DD/MM/YY Send Application to Panel DD/MM/YY Request Additional Information Requested DD/MM/YY Receive Additional Information DD/MM/YY Send Additional Information to Panel DD/MM/YY Schedule Preliminary Site Meeting Schedule Panel Visit and Review DD/MM/YY Organise Panel • Visa • Flight • Accommodation • Transport DD/MM/YY Finalise Details and Provide Information to Panel DD/MM/YY Conduct Preliminary Site Visit DD/MM/YY Conduct Panel Visit DD/MM/YY Panel Prepare Draft Report DD/MM/YY Receive and Review Draft Report from Panel DD/MM/YY Send Draft Report to Institution for Comments DD/MM/YY Present Report to Board DD/MM/YY			

Date Received	Institution	Application Type	QAD Case Manager	Process	Review Panel	Additional Comments	Progress Monitoring
				Act on Outcome of Board Meeting DD/MM/YY Communicate with Stakeholders • Institution • Panel Closure • DHERST Internal Stakeholders DD/MM/YY Issue Certification DD/MM/YY Close Application			
FUTURE APPLICATIONS							
APPLICATIONS COMPLETED							

(Thambu. P, pp9-12)

4. Current use of technology within DHERST Quality Assurance Division

In recent years, the Department has ventured into technology as means for efficient service delivery for certain functions. In 2018, it rolled out successfully the first online selection for post-secondary admission of Grade 12 students in tertiary education.

Quality Assurance is also slowly moving in that direction but has yet to fully utilise the use of technology to manage its external quality assurance processes for the higher and technical education sector in PNG.

Currently the QA Division is using the Google Drive and Drop Box for the following;

1. Submission of applications by providers
   Providers are required to submit applications for registration and accreditation through Google drive. DHERST has stopped the use of hard copies.
2. Sending of files to members of the Panel of Experts.
   Selected panel members to be involved in a review a sent documents for prior reading before a site visit is done. For desk reviews which are only for programme review and overseas recognition of overseas providers under the Act, selected specialists are also sent files via Google Drive.

3. Sending off agenda papers to Board members
   Members of the Quality Assurance Board are sent board papers via Google or Drop Box for prior reading ten days ahead of the meeting.

Emails are used for constant communication between the Department, providers, Panel of Experts and other stakeholders on a daily basis.

The use of the tracking system to be discussed in this paper will be mainly for the processing and tracking of applications once submitted by providers both at institutional level and programme level.

5. Challenges of the current manual system and advantages of the tracker

The introduction of an online tracking system will address a number of existing challenges in the review, registration, recognition and accreditation processes.

1. Timeframe on Applications

As stated earlier, the Higher Education Act gives a timeframe of up to nine months from time of submission of the application until a decision by the National Higher and Technical Education Board. Over and over again we have seen delays in the processing of applications going beyond the timeframe set under the Act. This has a direct negative impact especially where institutions and programmes operate without a valid registration or accreditation.

The Act states that providers must submit their application for renewal of registration, accreditation and recognition six months before their current status expires. With the current use of manual system records have shown that some applications are not processed on time leaving a period where providers and programmes operate without a legal status.

The establishment of the online tracking system will greatly assist in meeting the turnaround time of nine months specified in the Higher Education Act 2014 and further strengthens the integrity of the process giving trust to all stakeholders. Most often this is undermined. This will also avoid any legal repercussions on the Department especially in the delay of applications and feedbacks to providers on the outcome.

2. Increase in number of applications

Manpower has been a continuous challenge for the Quality Assurance Division of DHERST. Papua New Guinea currently has a demand for higher and technical education with the introduction of the Tuition Fee Free Policy in basic education by the current Government. The higher and technical education sector is not able to take up everyone who has applied for post-secondary education due to limited capacity in the registered institutions.

An increase in number of private providers into the sector over the years responding to demand means that a thorough effective process is required for registration of these institutions and their programmes is needed, to ensure quality. Without an efficient system, the quality of providers is questioned as most are for profit institutions going into the market to take advantage of the demand that exist.

Considering the increase in the number of applications and workload involved, the online tracking system would relieve staff on a lot of manual work being done. This will also improve the quality of work output.

3. Lack of Human Resources

Year in year out, manpower continues to be one of our main challenges. This is both in terms of numbers and experience.

With the rise in number of applications, the Quality Assurance Division needs to increase its manpower as well as their qualifications and experience. I have experienced that increasing the number of officers alone will not address the challenge of efficiently handling and managing applications and other quality assurance policy matters, this needs to be backed up by qualifications, experiences and continuous capacity development.

With the increase in number of applications compared to the number of manpower available, the need for an online system becomes more important. This should also ease the burden where less officers are recruited and current staff are undergoing capacity building to improve their skills.

4. Transparency in application management

I have also realised that with the current manual system, although we have specific case managers or officers responsible for the management of each application up until a decision is made by the Board, it is quite a challenge monitoring the status of each of the application handled by respective officers. A follow up on update or progress and feedback of each application is not sufficient to know the status of each of them. A main challenge is when an officer is not available to give feedback on the progress. Therefore, establishing an online tracker and assigning the officer is seen as the best way forward.

An online tracking system would very much promote transparency in the management and processing of application. The manager or supervisor can always check the progress of application online and hold officers accountable for any delay in the process and encourage more transparency.

Information stored can be used to report accurately time to time to the Board and other stakeholders when required.

5. Record/ History for each application

The current challenge we have in this area is uncoordinated where information on respective providers and their history of the application is scattered all over the place. Each time, information is required for specific providers and their applications; information is sourced from all over and not from a central location.

With the current manual system, it is also a challenge to edit and update information for specific providers. An establishment of an online system makes it easier to edit and update information for specific providers.

With the current system, staffs in the Quality Assurance Division do not have access to all information for each and every provider. Each staff is responsible for information for the institutions they are in charge of only and not others. Therefore, introducing the online system would give access to all staff within the division to have access to the same information for each provider and avoids confusion on information given to stakeholders. It also gives access to staff on their records and history.

The use of an online system for quality assurance will assist greatly in this area where historical data and information of each provider is easily sourced online and by everyone.

6. Confidentiality of information

The online system would also limit the different types of information to specific audiences. Often it is difficult to specify what information needs to be accessed only internally and by who, and what needs to be accessed externally.

An online system would also assist in this area of user rights, where certain users have access to certain information while others will not.

7. Uncoordinated Procedures

The current processes can be seen as uncoordinated although guided by policies and procedures. The same process is being done manually by different officers, which can contradict each other. At times, step or steps of the process may have been skipped or overlooked. Human errors are common raising doubts to the entire manual process whether or not every detail has been followed through and accurately by all officers dealing with applications.

Hence with the use of an online system, the processes are input and coordinated step by step thoroughly. It also gives all stakeholders assurance of the entire quality assurance system where everyone is satisfied that due processes have been completed accurately.
A more systematic approach with relevant inputs would also encourage uniformity of how all applications are received and processed.

8. Risks

The risks of running a manual system is very high. Risks can be seen coming from all directions including legal risks relating to delays in the processing of applications, discussed briefly earlier. Providers who are familiar with the timelines set by the Act will not hesitate to up legal actions against the Department if issues arise.

There are risks as well in storing data manually where data can be lost easily in the case of fire or other disasters. Other risks can be seen in the case where an officer in-charge of certain information leaves or dies, information cannot be accessed easily or lost for good.

Lastly, there are clearly risks involved in the handling of applications by officers with different understanding of the procedures to process applications. This also leads to delays where there is need to correct and redo the whole process again. This risk can also have legal repercussions on the Department.

6. Conclusion

Although the use of technology comes with it, high costs, the positive impact it will have on higher and technical education external quality assurance processes will give assurance to stakeholders on the credibility and integrity of the processes and its timeframes as set by the Act.

In saying that, the legal ramifications with the current manual system is very high should providers pursue legal options on the delay of applications and other risks involved. This should be avoided at any cost by the Department. With the current challenges faced and outlined above, the negative impact slows down the work for the processing of applications for reviews, registration, accreditation and recognition processes required under the Act. The outcomes we hope to achieve with the introduction of an online tracking system for applications should assist in overcoming the challenges and improve the management of applications by higher and technical education institutions, providing accurate reporting and feedback to stakeholders.

The integrity and credibility of the Department in managing its external quality assurance process is paramount and should be maintained at all times at all costs.

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Management Reform in Undergraduate Stage of Medical Elite Education under the Background of Mass Higher Education

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Abstract
Medical education in undergraduate stage has higher professional and application accuracy requirements. The setting of entrance threshold in the context of mass higher education does not meet the objective needs of undergraduate medical education. Therefore, there is necessary to make the educational reform. In this paper, the management reform strategy of medical elite education in undergraduate stage is studied. First of all, the differences of management between domestic and foreign countries in undergraduate stage enrolment and cultivation are compared, and at the same time, combined with the analysis of the specific objective enrolment environment, this paper analyses the problems of elite education in the undergraduate stage of our country. In the end, the reform strategy of elite education management under the background of popular education is summarized.

Key Words: mass higher education; undergraduate education; medical elite education; management reform

1. Introduction

Since the 21 centuries, the demand for health and health services has been increasing, followed by a huge change in the mode of health services around the world. As a result of this transformation, the World Health Organization has also clearly raised the quality requirements for medical students and medical education. Medical education in undergraduate stage is basic medical education, which has higher requirements for the learning ability and cognitive level of students. In terms of educational content and application direction, medical education has typical elite educational characteristics at any stage, therefore, mass education way is not suitable for medical education.

2. Comparative analysis of undergraduate medical education at home and abroad

2.1 Difference of enrolment pattern

In the process of drawing up the enrolment plan, the higher medical schools of foreign undergraduate stage usually use the policy issued by the government as the basis for recruiting students, and make their own enrolment plans, and select the specific enrolment groups, which are based on the policies issued by the government and the needs of scientific research institutions. In some countries, such as Japan, when medical students are enrolled, it is the tutor in the hospital who analyses the students. Only when the object of assessment has a certain ability can it be selected as the target of enrolments[1]. In the way of admission, the foreign medical education is not reflected in the undergraduate stage, only when students go through and complete the undergraduate stage of study and have a bachelor's degree in pre-medical education can they enter into the higher medical education. Therefore, in the strict sense, foreign medical higher education is not only reflected in the undergraduate stage, but also shows the characteristics of elite education.

The enrolments of medical students at the undergraduate level in China is mainly completed by the Ministry of Education and the local administrative departments of education, with the same way as

other majors. The undergraduate enrolments of medical majors is also issued by the Ministry of Education. And the local administrative department is responsible for the control, which makes the admission standards of medical students in the undergraduate stage and the admission standards of other specialties unable to reflect the differences of the major. The enrolments object of undergraduate stage in our country is the fresh high school graduate, the way of admission is the same as other major. By examining the scores of the college entrance examination of high school graduates as a quantitative standard, students who have reached the established standard can be admitted. The current college entrance examination system of our country is the system since the restoration of the college entrance examination in 1977. After the reform and revision in 2002, the "3x" examination scheme was formally formed. At the undergraduate level, no matter what major is admitted, the students' achievements have reflected the "3x" subject as the main way.

2.2 Difference of culture style

Since the undergraduate stage is not a professional medical education abroad, the undergraduate medical education is general knowledge and skills, students can enter the stage of higher elite education through the undergraduate stage of study and can learn more deeply about medical knowledge. After the completion of the study, students can be a doctor or community doctors, researchers and so on. Taking the United States as an example, for example, the basic level of education is the main focus at the undergraduate level.

The goal of medical education at undergraduate stage in China is relatively general, which is usually guided by the standard of "Chinese Undergraduate Medical Education". In practice, there is a general lack of implementation standards, operability and evaluation programs. In the specific medical education, its educational goal is mainly focused on the cultivation of practical medical personnel. Students in school can acquire professional skills in one area after professional training at school.

2.3 Resources and curriculum differences

In terms of teaching resources, most medical schools at the undergraduate level abroad spend a great deal of money on infrastructure, which enables most developed countries to have more than one set of modern educational equipment in each classroom in their undergraduate education. Taking a clinical major in a European university as an example, its infrastructure includes computer courseware, simulation model, electrocardiogram, supersonic instrument and other modern equipment for students to use.

Although there are a lot of funds invested in the construction of electronic education facilities in domestic undergraduate medical schools, the occupation rate and utilization rate of modern medical education equipment are not high because of the expansion of enrolments scale in colleges and universities. In terms of courses, the teaching materials used in foreign undergraduate medical schools are generally different with different colleges and teachers, and there are great differences in the teaching materials used in foreign undergraduate medical schools. Different teachers will choose the appropriate teaching materials based on the students' needs and their own teaching characteristics. The teaching materials of medical schools at the undergraduate stage in China mainly choose the standardized textbooks of the Ministry of Education. In the undergraduate stage, for the basic teaching

of medicine, the "internal medicine" published by the people's Health Publishing House is widely used as the main teaching material in the country.[2]

3. Analysis of the causes of the problems in domestic medical undergraduate education

3.1 Analysis of external cause

With regards to the analysis and comparison of the current domestic educational environment, we can see that the influence of social level and educational development level on undergraduate education is very strong. First of all, in the aspect of enrolment standards, although our country has issued the independent enrolment policy of relevant colleges and universities at present, however, under the environment of college entrance examination, most colleges and universities are still very passive in the aspect of enrolment choice. It's emphasized that medical education in undergraduate stage in our country is highly professional and rigid in terms of training objectives, as a result, it should not be consistent with the mass enrolment methods of other specialties in terms of enrolment. However, in the current social environment, the general public and the competent department of education have higher requirements for the enrolment scale and the popularization of enrolment, and the simple results of the college entrance examination cannot reflect the overall quality of the students. With the development of medical education, the enrolment score is decreasing gradually, and the admission standard is not strictly controlled, which leads to the trend of lower overall quality of medical education in the undergraduate stage of our country at the present stage. At the same time, the medical education of undergraduate level also has the explicit request to the humanities quality of students. However, looking at the enrolment situation in recent years, we can see that some freshmen have the problem of poor humanistic quality, which also makes the undergraduate education leave the hidden trouble of student development and doctor profession.

Apart from it, under the background of mass higher education, the employment problem of students brought about by the way of recruiting students in a large area has also become an external problem in the social environment of medical education in the undergraduate stage. In terms of enrolment, most higher education institutions in China are in the same proportion of enrolment expansion. In medical education, the employment situation of clinical medical students is not satisfactory because of this equal proportion of enrolment expansion. It's concluded based on the analysis, the number of clinical graduates in undergraduate stage increases year by year, while in the employment environment, due to the work environment of new graduates and the factors of job treatment, it is difficult for graduates and hospital employers to reach a consensus. As a result, the distribution of professional talents is extremely abnormal, which indirectly leads to the difficulty of obtaining employment for graduates[3]. In addition, the improvement of teaching quality in some colleges and universities cannot keep up with the speed of enrolment expansion, which directly results in the decline of the quality of education and training. There are some researchers who have pointed out that in recent years, the undergraduate level of higher education has shown an overall downward trend in the evaluation of teaching level.

3.2 Analysis of internal cause

It's pointed out by the author that there is some fuzziness in the mode and orientation of undergraduate medical education in our country, and some colleges and universities still remain in the concept of "high-level medical talents" in the aspect of cognition so that medical students pay too much attention to theory but ignore practice, which makes the ability training of students lag behind.

In terms of education hardware, medical education colleges and universities in China's undergraduate stage still have the problem of insufficient teaching capital input capacity, and most of the schools still have deficiencies in teaching infrastructure. Students can only carry out learning and practical training in very limited educational resources. For students, it not only affects the learning efficiency, but also has a great impact on the cultivation of learning enthusiasm, initiative and learning ability.

In terms of teaching methods, there are most of undergraduate medical teachers who have the more serious traditional educational ideas. In the traditional ideas, there are "three centres" in the classroom teaching methods of specialized courses, such as teacher centre, teaching material centre and classroom centre. In educational theory, this traditional idea has serious disadvantages, which is mainly reflected in the lack of teachers' cognition to students. In the study of professional courses, students show more theory courses, extremely fewer practical courses, at the same time, they are lack of humanistic literacy curriculum and other situations, which makes students cannot accept knowledge learning knowledge and practice, for medical students, this type of education has a great negative effect.

4. Management reform measures of medical elite education in undergraduate stage

4.1 Reform measures of educational link

4.1.1 Enrolment reform

It's proposed in the paper that first of all, enrolment autonomy should be further expanded. Enrolment autonomy is a way of considering fresh graduates in the process of enrolment in colleges and universities. For medical students, graduates must have a high quality and enthusiasm for the medical profession. The requirements of the two aspects cannot be reflected in the examination of the college entrance examination, therefore, it can only rely on the independent recruitment method to distinguish. Therefore, government agencies should actively make adjustments and make concessions. First of all, it is necessary to make it clear the macro-control responsibilities of government agencies in admission standards, and at the same time, it needs to give colleges and universities the right to recruit students of medical specialty. The colleges and universities can choose students suitable for medical study according to the standard, so as to lay the foundation for medical professional education and elite education.

4.1.2 Reform of talent training model

After analysing the relevant theories and construction experiences at home and abroad, it's put forward the contents of resources which can be excavated deeply in undergraduate education at present in the paper. In terms of foreign resources, the concept of talent training in developed countries, the curriculum setting of excellent colleges and universities, and the active means of communication can all be used as reference resources for domestic undergraduate education and applied to the reform. In terms of the curriculum reform of elite education, after fully analysing the disadvantages of domestic training methods, domestic undergraduate colleges and universities should deeply analyse the relevant construction methods of talent training standards. For example, based on the" international standards for undergraduate medical education" proposed by the VFME, an educational and training method that conforms to the domestic environment is formed and a corresponding curriculum plan is formulated. which further highlights the elite characteristics and pertinence of medical education[4].

4.1.3 Curriculum reform

The training ability and mode of medical specialty in undergraduate colleges are the key contents of students' major study. In view of the problems that existed in the past, the concept and the way of training, colleges and universities should further optimize the training system through active management reform. First of all, the colleges and universities should actively improve the allocation of school resources and create a perfect, three-dimensional, in line with the needs of students training infrastructure by increasing investment and reasonable control and other strategies to ensure that students can use modern educational equipment to study and explore in their study and life, so as to form the ability of applying theory.

4.2 Reform of management link

4.2.1 Educational administration reform

The department in charge of medical education at undergraduate level should fully realize the importance of the subordinate relationship in colleges and universities, and ensure that medical teaching in colleges and universities can develop healthily and keeping for a long time through the way of clarifying the subordinate relationship. For some colleges and universities, adjusting and clarifying the subordinate relationship through the educational administration department can help the medical education and scientific research development of colleges and universities to obtain resources and strength. The subordinate relationship used in undergraduate medical education is generally the relationship between medical school and affiliated hospital. In terms of the relationship, the basic medical education of medical school is closely related to clinical education of affiliated hospital, and in the course of reform, the educational administration departments can strengthen the guiding and practical nature of education in this respect, thus promoting the complementary advantages between medical schools and affiliated hospitals. For example, affiliated hospitals can set up secondary colleges under medical schools under the guidance of medical schools and carry on unified leadership and management by medical schools in administrative aspect, so that the affiliated hospitals can operate well under the medical school management mechanism and system. The environment of affiliated hospitals can also help undergraduate students to understand the practical methods of theoretical knowledge, thereby improving the practical ability of students.

4.2.2 Teacher training reform

The level of teachers and the ratio of teachers and students are also the main strategies in the adjustment and optimization of the training mode in colleges and universities. In terms of teachers' level, we can try to build "double teachers" to enrich teachers' teaching and practical abilities, and promote teachers' guiding ability. At the same time, colleges and universities themselves also need to strengthen the cultivation, improve the examination and incentive mechanism, and provide a good platform for the development of university teachers. In the past experience, colleges and universities lack the ability to retain outstanding talents, and the lag in human resource management also makes them lack the ability to absorb talents. In the future reform, positive reform in teacher training in colleges and universities. For example, after understanding the demands of teachers, schools can introduce a special training system for backbone teachers and the training of discipline leaders so as to build and excavate the teachers' own level and value. In the aspect of teacher-student ratio, teachers and students should be closely combined by means of structural adjustment. In the past, the teacher-student ratio in colleges

and universities was about one to sixteen, which led to the difficulty of forming good communication between students and teachers. It's believed by the author that the teacher-student ratio should be controlled within one to seven.

4.2.3 Teaching reform and teaching research

In view of the current teaching methods of undergraduate level, the reform should be proactive and responsive to the growing demand for health services. After combining the foreign stage of higher education and the excellent experience of some domestic colleges and universities, the author puts forward the reform method of teaching mode. First of all, the traditional three-year specialized courses should be abolished, and the five-year undergraduate education should be taken as a supplementary education to train high-quality medical talents and practical medical talents, and combine with the eight-year education to create a perfect process of personnel training. In addition, students should carry out practice as soon as possible. The way of clinical practice is the idea that students can form specialization in the medical environment. Besides, in addition to professional knowledge, college and universities education, as the requirement of modern medical service, should also strengthen the education of humanistic quality and social science knowledge.

4.2.4 Quality monitoring reform

Education quality monitoring is the main method of educational quality evaluation. The teaching level in higher education stage is evaluated by means of data searching and data statistics. The national data platform can be regarded as the main platform for the quality monitoring of education in undergraduate stage of medical education. In terms of the platform, information technology and network technology can analyse the general rules in the course of undergraduate medical education, and make use of teaching state and online data collection to form a professional annual database. At the same time, combined with the specific information, the basic situation of the school, the content of teaching monitoring is classified and it's finally presented objectively in the form of report forms.

5. Conclusion

To sum up, undergraduate medical education is undertaking an important social responsibility, and needs to make active efforts in the way of enrolment and the quality control of talents. Under the background of mass higher education, the undergraduate medical education should not change according to changing circumstances, but should adopt management reform measures to build a perfect and comprehensive elite education program so as to improve teaching quality and talent training ability and to provide medical talents to the society.

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Measuring Service Quality in Higher Education: A Case Study from Pakistan

'Quality is about passion and pride.'
Tom Peters and Nancy Austin, A Passion for Excellence

The increased interest of students, governments, accrediting agencies, industry and the mass media in the performance, responsiveness and accountability of higher education is becoming a global phenomenon. F. King Alexander (2000) argues from a global perspective that accountability has a 'changing face', in that oversight agencies and higher education stakeholders in many nations are increasingly committed to the use of public policy tools to improve the alignment of the performance of higher education with the expectations of the public. Peter Ewell (1999) argues that a 'new accountability' or a 'culture of accountability' has enveloped higher education globally. The pressures on higher education to respond to the demands for improved documentation about the performance of colleges and universities appear every bit as strong as the demands for increased access to quality programs and the challenges posed by increasingly constrained resources.

The term 'institutional effectiveness', is interchangeable with other labels for data-driven, quality and strategic improvement processes. Institutional effectiveness typically encompasses activities such as student learning outcomes assessment, academic program review, strategic planning, performance scorecards, performance benchmarking and quality measurement, each of which has numerous manifestations in academia.

Quality is at the top of most agendas and improving quality is probably the most important task facing any institution. However, despite its importance, many people find quality an enigmatic concept. It is perplexing to define and often difficult to measure. Education is also recognizing the need to pursue it, and to deliver it to pupils and students. There are plenty of candidates for the source of quality in education. Amongst these are:

- high moral values;
- excellent examination results;
- the support of parents, business and the local community;
- plentiful resources;
- the application of the latest technology;
- strong and purposeful leadership;
- the care and concern for pupils and students;
- a well-balanced and challenging curriculum.

1. Quality Imperatives

Educational institutions are pursuing quality improvement for a number of important reasons. Some are linked with professional responsibility, while others result from the competition inherent in educational marketplaces or from the need to demonstrate accountability. There are four quality imperatives:

1. *The Moral Imperative* – The customers and clients of the education service (students, parents and the community) deserve the best possible quality of education. It is the duty of educational professionals and administrators to have an overriding concern to provide the very best possible educational opportunities.
2. *The Professional Imperative* – Professionalism implies a commitment to the needs of students and an obligation to meet their needs by employing the most appropriate pedagogic practices. Educators have a professional duty to improve the quality of education and this, of course, places a considerable burden on teachers and administrators to ensure that both classroom practice and the management of the institution are operating to the highest possible standards.
3. *The Competitive Imperative* – Competition is a reality in the world of education. Educationalists can meet the challenge of competition by working to improve the quality of their service and of their curriculum delivery mechanisms. Focusing on the needs of the customer, which is at the heart of quality, is one of the most effective means of facing the competition and surviving.
4. *The Accountability Imperative* – TQM supports the accountability imperative by promoting objective and measurable outcomes of the educational process and provides mechanisms for quality improvement. Quality improvement becomes increasingly important as institutions achieve greater control over their own affairs. Institutions have to demonstrate that they are able to deliver what is required of them.

2. The Quality of Learning

Education is about learning. Learners learn best in a style suited to their needs and inclinations. An educational institution that takes the total quality route must take seriously the issue of learning styles and needs to have strategies for individualization and differentiation in learning. The learner is the primary customer, and unless learning styles meet individual needs it will not be possible for that institution to claim that it has achieved total quality.

Institutions need to understand that many learners also like to switch and mix- 'n'-match styles and must try to be sufficiently flexible to provide choice in learning. Individual learners should negotiate their own action plans to give them motivation and direction. The process of negotiation may require the establishment of a quality steering committee or forum to provide feedback and to give the learners an opportunity to manage their own learning. Parents or employers might well be represented on it. Both teachers and students can ensure that all are on track by undertaking detailed monitoring through progress charting. This is important to ensure that timely and appropriate corrective action can be applied if there is a danger of failure.

The establishing of a strong feedback loop is an important element of any quality assurance process. Evaluation should be a continuous process and not just left until the end of the program of study. The results of evaluation processes should be discussed with the students, perhaps by means of completing a record of achievement. The very act of being involved in evaluation will assist in building up the students' analytical skills.

It is important that the institution uses the results of the formal monitoring to establish the validity of its program. It must be prepared to take the necessary corrective action if the customers' experiences

do not meet their expectations. None of this is easy, as teachers who have pioneered such processes know.

3. The Educational Leader

Senior management must give the lead and provide vision and inspiration. They need to communicate the mission and cascade it throughout the institution. The function of leadership is to enhance the quality of learning and to support the staff who deliver it. While this sounds obvious, it is not always the way management functions are viewed.

A key aspect of the leadership role in education is to empower teachers to give them the maximum opportunity to improve the learning of their students. Stanley Spanbauer, the former President of Fox Valley Technical College in Wisconsin who took a lead in introducing TQM into vocational education in the United States, argues that:

"in a quality-based approach, school leadership relies on the empowerment of teachers and others involved in the teaching/ learning process. Teachers share in decision-making and assume greater responsibilities. They are given more power to act and greater autonomy in almost everything they do."

4. Quality Frameworks

- *Developing a Leadership Strategy* – Leadership and strategy are key elements in any quality framework. Quality management requires a commitment from senior management for quality initiatives to succeed. This is the conclusion of all the major writers on quality. Linked to purposeful leadership, effective educational institutions need well-worked-out strategies to deal with the competitive and results-oriented environment in which they operate. Together with effective teamwork, leadership and strategy provide the engine for the transformational process of quality development. To be effective, educational institutions require processes for developing their quality strategy.
- *Designing Quality Champions* – Regardless of the actual position of this person in the hierarchy, it is important that the designated quality facilitator should report directly to the Head. The champions do not undertake all the quality projects. Their role is to assist and guide teams in discovering new ways to tackle and solve problems. It is the responsibility of these people to publicize the program, and to lead the quality steering group in developing the quality program. The quality steering group must represent key interests and must have representation from the senior management team. Its role is to drive and support the quality improvement process. It is both the powerhouse of ideas and the initiator of projects.
- Initiating Staff Training for Quality – Staff development can be seen as an essential tool for building the awareness and knowledge of quality. It can be the key strategic change agent for developing the quality culture.
- *Monitoring the Delivery of the Curriculum* – This is the stage where quality systems are vital. The methods of learning need to be established and followed for each aspect of the program. The type of information that needs to be part of it includes syllabuses, course submissions, schemes of work, records of work, assessment records, action plans and records of

achievement. The recording of failure and below-average performance, and the actions taken to correct them, should be documented. This includes documentation of the aims and objectives of each program, and the specification of the program. The process of curriculum and program management needs to be specified, including arrangements for teamwork. The roles within the team and their responsibilities and levels of authority should also be clarified.

- *Verifying the Assessment of Student Performance* – The details of both formative and summative assessments and the criteria for grading and the award of qualifications are necessary elements of the quality framework. A system for the internal verification of the assessment arrangements needs to be in place and documented. External examiners', moderators' and verifiers' reports will provide important evidence, where available, of the quality of the management of learning.
- *Communicating the Quality Message* – Staff development, training and team building are some of the most effective means of achieving it. It is important to highlight good practices so that positive attitudes and goodwill can be drawn on. An institution will need to find its champions and leaders and to recognize their successes. Achievement needs to be celebrated, and there needs to be public recognition of good work. This does not have to be monetary recognition, but the motivational effects of public recognition and praise should not be underestimated. All the staff need to be involved in the quality process. The importance of a clear and positive communications strategy also cannot be overstated. Dale and Boaden (1994) have made the point that management has to share the strategy and outline to employees what needs to be done to make mission statements and strategy documents a reality. Without clear thinking and thoughtful communication, energy can be misdirected and wasted. Too often institutions concentrate on doing things rather than doing the right things.
- *Measuring the Cost of Quality* – It is important to know both the cost of implementing the quality program and the costs of not undertaking it. The costs of ignoring the quality message could involve lost enrolments, student failures, damage to reputation, lost opportunities etc. The exercise is important as it highlights many of the reasons for pursuing quality improvements and provides a motivation for sticking with the program.
- *Teamwork* – Teamwork is the element that links teacher professionalism to the quality development process. It is the framework in which innovation and change become an accepted fact of life. Without teamwork, quality development cannot be instituted (Schotles et al, 1990). Teams can be seen as the engine of quality improvement They make quality management work. Teams can clarify issues and ideas, and they are the means by which conflicts over direction and policy can be constructively handled.

5. Student Satisfaction in Higher Education

Organizations, irrespective of their industry, focus on the quality of services provided because of its integral role in developing competitive advantage and in attracting new and retaining existing customers (Ugboma et al., 2007). Similarly, within the higher education context, provision of quality services is one of the most important priorities of educational institutes around the world (Trivellas & Geraki, 2008). It has been rightly pointed out that analyzing students' perceptions of service quality with a marketing approach may assist in attracting and retaining students (Sultan & Wong, 2013).

Students' satisfaction as a short-term attitude, resulting from an evaluation of a students' educational experiences. It is a positive antecedent of student loyalty and is the result and outcome of an educational system (Zeithaml, 1988). Elliot and Shin (2002) define student satisfaction as students' disposition by subjective evaluation of educational outcomes and experience. Therefore, student satisfaction can be defined as a function of relative level of experiences and perceived performance about educational service during the study period. By considering all, students' satisfaction can be defined as a short-term attitude resulting from an evaluation of students' educational experience, services and facilities.

Students' satisfaction is a multidimensional process which is influenced by different factors. According to Walker-Marshall and Hudson (1999) Grade Point Average (GPA) is the most influential factor on student satisfaction. Marzo-Navarro, et al. (2005) identified two groups of influences on student satisfaction in higher education as personal and institutional factors. Personal factors cover age, gender, employment, preferred learning style, student's GPA and institutional factors cover quality of instructions, promptness of the instructor's feedback, clarity of expectation, teaching style. Wilkins and Balakrishnan (2013) identified quality of lecturers, quality of physical facilities and effective use of technology as key determinant factors of student satisfaction. As well as, student satisfaction in universities is greatly influenced by quality of class room, quality of feedback, lecturer-student relationship, interaction with fellow students, course content, available learning equipment, library facilities and learning materials. In addition to that, teaching ability, flexible curriculum, university status and prestige, independence, caring of faculty, student growth and development, student centeredness, campus climate, institutional effectiveness and social conditions have been identified as major determinants of student satisfaction in higher education.

6. Discussion

Higher education service providers emphasize service quality because of its strategic role in enhancing competitiveness, attracting new students and retaining existing students (Wong & Sultan, 2010). Students are generally satisfied with various aspects of service quality within the Pakistani universities, in particular, academic and non-academic aspects, program issues, university reputation and access to university facilities. This confirms that all five dimensions of service quality influence student satisfaction which in turn influence institutional image.

Mizikaci (2006) integrates the principles and concepts essential to high quality in HE that reflect philosophy, values and norms of quality systems appropriate to HE. The principles and concepts are: the emphasis on service;

- anticipating and meeting the needs and expectations of the students;
- recognizing and improving transformation processes and systems;
- implementing teamwork and collaboration;
- instituting management based on leadership, knowledge-based decisions, and involvement;
- solving problems based on systematic identification of facts and the use of feedback systems and statistical methods or tools; and
- implementing a genuine respect for and development of human resources – the people who work in colleges and universities.

Hyper-competition in the higher education sector has resulted in a situation where students compare the "knowledge value" which they expect from service providers. This implies that students expect maximum value for each ringgit that they pay (Sharabi, 2013). The most important factors in creating this knowledge value are the quality of the academic staff and the curriculum including the structure and delivery of international programs. The findings from this study strengthen these arguments further and show that students with better perceptions of the various dimensions of higher education service quality (academic aspects, non-academic aspects, program issues, reputation and access) are more likely to have higher satisfaction levels resulting in better perceived institutional image and student loyalty. Amongst all these dimensions, program issues and academic aspects is found to be most important which suggest that the range and design of programs offered, their flexibility and a robust curriculum are most important in forming the perceptions of service quality. Higher education service providers should, therefore, concentrate their efforts on the dimension's students perceive to be important rather than focusing on a number of different attributes, which they feel are important determinants of service quality (Abdullah, 2006). While the idea of providing adequate services on all dimensions may seem attractive to most service marketers and managers, failure to prioritize them may result in inefficient allocation of resources.

Determining and assessing student satisfaction based on their perception of the quality of a university's services may not be an easy task, but it can be very helpful for the universities in order to build a strong relationship with their existing and potential students (Hanaysha et al., 2011). In the context of higher education service quality, students evaluate the depth of customer-orientation in university services based on their perceptions of multiple factors such as the structure, design and delivery of programs.

To meet the students' needs and expectations and to discover the quality gaps, there is a need for consistent interaction with the students. Beside focus groups, it is necessary to implement periodic satisfaction questionnaires that include different measurements of quality relevant to each HE service provider (lecturers and secretaries of the different departments, students' dean, enrollment and tuition fees units, cafeterias, maintenance department, logistics department, etc.). The purpose of this kind of periodic surveys is to give the top management a clear picture of the service provider's quality from the student's point of view and to identify the gaps which have to be reduced (Sharabi, 2010). Kordupleski and Simpson (2003) refer to this as designing an "attribute tree". We need to keep drilling down from what determines student value (what they get and what it cost) and attempt to link it to our business processes. If we then determine student weighting of each branch, we can accurately measure and predict how a change in an organizational process will impact the student. This can then be compared to actual customer behavior in order to validate our model. It is simple, but not easy. The risk is that we will continue to spend money on inconsequential things and not improve service quality. This is what has happened to most companies today which have taken the easy road and measured what is available, rather than what is necessary (Sharabi & Davidow, 2010).

Jancey and Burns (2013) stated that electronic communication provides an excellent means of engaging with the students and providing opportunities to personalize advice and feedback. It enables less confident students to ask questions, whilst allowing staff to provide non-judgmental and timely responses (Errey & Wood, 2011). By adopting these steps, the perception of students within universities can be improved, thus improving their satisfaction levels as well. This in turn can enhance

the image of universities' and help attract new students by using existing students as promotional channels. The results of this study show that students were relatively satisfied with issues related to their program and other academic aspects.

With the development of higher education in the world, the importance of students' satisfaction was emerged in the literature of higher education. At the beginning, industry based satisfaction models were applied to explain student satisfaction and later developed higher education based models to explain it. The paper was discussed the theoretical and empirical literature of higher education with the intension of enhancing existing stock of knowledge. The theoretical review proved that satisfaction is a psychological process and is affected by many factors in different settings.

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Ponder Over Quality Assurance Construction of Cross-border High Education Under China and ASEAN Multicultural Integration[1] - Based on the Perspective of High Context Cultural Theory

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Abstract
Cultural diversity is the distinctive unique feature in China- ASEAN Area which is mixed with Farming culture, folk culture, Buddhist culture and Chinese culture constitute the three main cultures. The high context culture is dominated by the oriental cultural circle. The implication for Quality Assurance Construction of Cross-border High Education under China and ASEAN Multicultural Integration seems to be a great challenge and complex while an easy to be solved.

On the one hand, cultural diversity does not refer only to ethnic diversity, it can be diversity in beliefs, gender, ability, sexual orientation, behavior, etc. In other words, a truly cultural diversity accommodates both its main stream and alternative. On the other hand, it should require the area states to act in unity in order to defend their national interests. Thus, China and ASEAN can fully make good use of its Oriental Culture Circle and try to realize the culture symbiosis and integration, based on the respect for cultural diversity and the characteristics of individual countries, regions and places and its subsidiarity, following the routine and principle of Multicultural Integration, Confucian Harmony Thought, in order to create harmonious atmosphere of the whole people. The aim is to promote the interaction and exchange of stakeholders (government, society, universities, enterprises, teachers, students, parents, etc.), and to enhance the cultivation of quality awareness, ideas and values.

It is possible to enhance and innovate the international education service ability of China-ASEAN higher education Area on the basis of quality assurance, and to improve the self-discipline and self-management mechanism of bilateral colleges and universities through advocating quality culture, quality awareness and quality ability improvement.

Key words: Cultural diversity; Quality Assurance of Cross-border High Education; China and ASEAN Multi-cultural Integration; High Context Culture

Introduction

According to Hall, Asia is regarded as a high context cultural area, showing the implicit, introverted, tactful, tolerance, face and so on. Chinese and ASEAN multicultural integration highlights its advantages under The Belt and Road construction. Although there are conflicts and friction of local cultural differences, overall is harmonious, reflected as the following forms of intercultural fusion: the high cultural context and value identity, Han - Tibetan language and other languages, different ethnic customs and habits, others, etc.. In intercultural communication theory, it is entirely possible to realize

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cultural and value identity, cultural tolerance and respect, cultural symbiosis and harmony, cultural inheritance and innovation.

Cultural diversity is the distinctive unique feature in China- ASEAN Area which is mixed with Farming culture, folk culture, Buddhist culture and Chinese culture constitute the three main cultures. The high context culture is dominated by the oriental cultural circle. The implication was plain, if left unstated. In terms of Quality Assurance Construction of Cross-border High Education under China and ASEAN Multicultural Integration, we can follow the routine and principle of Multicultural Integration, Confucian Harmony Thought. It is possible to enhance and innovate the international education service ability of China-ASEAN higher education Area on the basis of quality assurance, and to improve the self-discipline and self-management mechanism of bilateral colleges and universities through advocating quality culture, quality awareness and quality ability improvement.

Oriental high-context culture is the standard "meeting context" culture, semantic expression is presented outside the language, the degree of direct dependence on language expression is low, and the communication is often accomplished by non-verbal means such as environment, living habits and other non-verbal means. The main reasons for the formation of oriental high context culture are influenced by Confucian culture, advocating the doctrine of the mean, advocating the unity of nature and man, emphasizing dialectical thinking, emphasizing self-cultivation rather than formal argumentation. When observing things, we adopt a thinking mode based on the unity of subject and object. The indirect advantage of "meeting of intention" is that it points to the interpersonal value of "harmony is precious, tolerance is high" and "seeking common ground while reserving differences", and relies on the principle of "benevolence, righteousness, propriety, wisdom and faith".

To enhance and innovate the international service ability of China-ASEAN higher education on the basis of quality assurance, and to improve the self-discipline and self-management mechanism of bilateral colleges and universities through quality culture.

The development of cross-border higher education between China and ASEAN requires comprehensive regional internationalization and coordination among the leading institutions of bilateral higher education in terms of institutional framework, policy framework, educational structure and degree system. There is also a need for specific international service providers of higher education to strengthen capacity-building from school curricula, teacher building, management service levels and educational quality assurance; From macro to micro, it creates the conditions for realizing the mutual recognition of regional higher education.

The quality culture advocates the democratic participation and harmonious atmosphere of the whole people. The aim is to promote the interaction and exchange of stakeholders (government, society, universities, enterprises, teachers, students, parents, etc.), and to enhance the cultivation of quality awareness, ideas and values. Form the internal self-discipline and self-management mechanism of colleges and universities, and explore the construction of higher education district with the concept of green, ecological and quality culture.

How to achieve the goal? Firstly, the Quality Assurance Construction of Cross-border High Education Under China and ASEAN Multicultural Integration should put cultural diversity in its terms of reference and included it in its policy, strategic objectives and tasks instead of considering and managing cultural issues from an economic point of view. Secondly, it is of great importance to respect

the cultural diversity of countries and regions. In order to cooperate with the implementation of the measures of quality assurance. China-ASEAN Center should put forward a frame of reference, the main principles of which are respect for cultural diversity and the characteristics of individual countries, regions and places and its subsidiarity. At the same time, a variety of cultural diversity policy should be implemented in order to protect the cultural matrix of nations and to respect and understand each other.

Quality Assurance in Higher Education, Analyzing Issues for Way Forward

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Abstract
This study aims to recommend reforms for the betterment of Quality Assurance (QA) in Higher Education Institutions (HEIs) specifically in South Asian context. The concept of Quality in Education is not an old concept in Pakistan, but Higher Education Commission (HEC) and Degree Awarding Institutes (DAIs) are assertive to implement it in the Education sector in Pakistan, change is happening but it is very slow.

A multi- method approach was adopted to collect data from the target respondents, interview was conducted via telephone with department Heads, Deans and faculty members of 5 universities in Karachi, Lahore and Islamabad, discussions with peers and observation and experience of the author was also the source of data during this research. Conclusively, Quality Enhancement Cells (QECs) are working in every university in Pakistan, but all of them are facing some common issues like irrelevant faculty, less adaptive to change mind set, non-adoptive to technology, nepotism, lack of strategic planning, poor policy implementation, poor governance and plagiarism.

This study also recommended the solution to overcome the QA issues such as the implementation of ISI 21001 EOMS, development of proper strategic plans by taking stakeholders on board, resource sharing, development of MooCs and distance learning courses.

Keywords: QUALITY ENHANCEMENT, QUALITY ASSURANCE, ISO 21001 EOMS, HIGHER EDUCATION

1. Introduction

Issues of Quality Assurance, assessment and enhancement is higher education is in the lime light all over the globe. These issues are revolutionizing the trends and activities related to Quality. Countries of Central eastern European and other parts of the world are not only modernizing the curricula, infrastructure, management and administration of their institution but also developing Quality Assurance mechanism to further improve the Quality Standards of their institutions. Each institution is also trying to make Quality as the Hallmark for their institution.

The issue of Quality Assurance can be viewed from two different perspectives which are not necessary been convergent.

According to one school of thought QA practices, mechanism, criteria and curricula already exist and Institution need to preserve what is already existent.

The other school of thought's perspective is that the Quality of Education can be assured and enhanced to cater the changes in the environment.

First perspective is inclined towards the continuity of existing QA practices, the second looks for the innovative ways of improvements, thus emphasizing in discontinuity. Indeed, the first view is more defensive as compare to the second school of thought.

As far as the Pakistani Higher Education landscape is concerned, there are more than 180 Universities exist. And the concept of Quality is also brought into consideration in recent past approximately 15 years ago. Before that there was no Quality Assurance mechanism within the Universities and not even with Higher Education Commission of Pakistan. Thus, it is a high time to evaluate the challenges, weaknesses and issues faced by the universities/institutions to prepare a competitive professional who are equipped to serve the various business and community.

Objectives of the study

1. Identify the basic issues of Education Industry in Pakistan
2. Suggest measures and strategies to improve the QA standards in Pakistan

Research Design

Following methods were used to collect data:

1. Telephonic Interviews
2. Literature
3. Discussion with peers and practitioners

A multi- method approach was adopted to collect data from the target respondents, interview was conducted via telephone with department Heads, Deans and faculty members of 5 universities in Karachi, Lahore and Islamabad. From Karachi Institute of Business Management and Iqra University was selected, from Lahore, University of Lahore and University and central Punjab was selected and from Islamabad Riphah International University and Iqra University Islamabad campus was selected for interview.

Literature and documents available on HEC website were also thoroughly read for reference and policies proposed to Higher Education Institutions and numbers of personal discussions with peers and practitioners were done during this research.

2. Quality Assurance, Present Scenario

Defining QA:

"A program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met"

(Merriam-Webster's Online Dictionary)

"A voluntary, non-governmental system of evaluation used to protect the public interest and to verify the quality of service provided by member institutions"

(ALA, 2007)

"Quality" is a buzz word of recent time specifically in the education industry, when we say what Quality Assurance is, it is a mean by which the quality of education is assured with acceptable standard

of education, infrastructure and scholarship. Chernay (1990) described that accreditation serves the purpose of systematic review for assurance and enhancement of quality, resource and infrastructure which is integral for education institution. As far as QA models in Pakistani industry are concerned, they have internal and external elements in it. Internal Quality Assurance, includes planning, monitoring and evaluation for improvement and external Quality Assessment, including benchmark activities, external audit or external quality assessments and Accreditations like NBEAC, NACTE, NCEAC and international accreditation agencies such as AACSB.

ALA Standards (1992) for accreditation addresses the six major areas: Mission, Goals and Objectives; Curriculum; Faculty; Students; Administration and Financial Support; and Physical Resources and Facilities. Literature review also signifies that, since 20th century the issue of standardization and quality in education has gripped the attention of intellectuals IFLA (2000). The Williamson Report is also referrers the, "first steps toward standards" by Shera (1972, p. 235), reports also bring into consideration how other countries of Europe followed the USA to achieve Quality in the library education programs.

This issue of QA is also been in lime light in Asian countries, and the main variables playing role in QA are curriculum, Faculty, research produced and faculty to student ratio.

3. Issues in Higher Education in Pakistan

Interviews with educationists, peer discussions, website and printed handbooks, telephonic interview with Head of Departments allowed is to jot down the below mentioned issues of Pakistani Education Landscape:

- **Strategic Plan:**
  Mission, Vision objectives and outcomes are nonexistent at program and course level, if exist they don't have alignment with the mission and the vision of the University. In some cases, mission and the vision of the institution is missing. Mission is outdated and not periodically reviewed and updated.

  Lack of inclusiveness is also one of the issues observed. The strategic direction of the institution is set by individuals. Stakeholder like industry, parents, regulatory agencies and community is not onboard while setting up the mission and the vision of the institution.

- **Curriculum: Mismatch between the need of the stakeholders and the courses taught:**
  Although the composition of Board of Faculty (BOF) and Board of Studies (BOS) restricts the institutions to take industry representative on board but in some cases these meetings are not held frequently to keep the curriculum to the stakeholder's need and in some cases the industry representative is not present. It creates a huge gape what is needed to the industry and what is been taught in the classroom. At the end of the degree, this issue leads to poor performance of graduates and poor employer feedback.
  All universities implement the curriculum proposed by the Higher Education Commission of Pakistan, although HEC is giving a broad line which can be adapted and minor changes can be done but very few HEIs do this.

- **Poor policy implementation:**
  HEC of Pakistan provides almost all the policies to run an institution such as Semester System Guidelines, Accreditation Manuals, Policy Manuals, but very few universities follow then in true letter in spirit. Just because of this poor policy implementation more than 430 MS, MPhil and PhD programs of different universities all over Pakistan were shut down by the Higher Education Commission of Pakistan, these programs were not meeting the minimum standard laid down by HEC of Pakistan. For example, HEC notify Universities that one PhD faculty member can supervise 5 PhD students and 7 MS/M.Phil students but some faculty members were assigned more students than the prescribed load.

  Moreover, the minimum and maximum duration of the degree is also been violated by the HEIs in Pakistan which leads to "shortage" in-terms of number of years of schooling while applying for higher degrees.

- **Poor Governance, Education as business:**
  It was observed that, most of the private institutions are owned by the business men, they are more interested in maximizing the profitability rather than governing an institution to spread education and making student life worthwhile. Ratios are drastically disturbed as compare to the HEC prescribed faculty to student ratio which is 1:30. Less experienced faculty teaches humongous number of students.

- **Slow / inefficient processes and IT systems:**
  Some university still follow old legacy systems, which are slow and inefficient, although HEC has given a great value to technology in its vision 2025 but very few are working on cloud based predictive analysis system. Due to this sometimes the student's record of courses and grades is inaccurate, registrations get late and proper tracing of their previous degree report and current degree plan is misaligned.

- **Faculty:**
  This is one of the greatest shortcomings and a dent on Quality in Education in Pakistan. Shortage of relevant faculty specifically doctorate faculty is an impediment in QA. On the other hand some institutions are more dependent on part time faculty members which is also a negligence of HEC standards.

- **Plagiarism:**
  Number of Research Publication is very important for Promotions of faculty members and for high academic ranking of an institution in Pakistan. This number game is not only undermining the quality of research in Pakistan, but it is also boosting the culture of Plagiarism in education fraternity. Although HEC of Pakistan has made a strict plagiarism Policy (19%) to overcome this issue but due to the lack of awareness among faculty and students, avoidance is such academic misconduct is negligible.

- **No clears JDs, no accountability:**
  During the interviews, it was also notices that very few HEIs clearly define the job description of academic and administrative staff due to which the accountability becomes a question mark. Faculty and staff are unaware about their job responsibility such as number of publications they have to produce and their role beyond classroom teaching. Faculty members are expected to plan a vital role during the visits of regulatory agencies etc. but this responsibility is never been communicated to they at the time of appointment.

- **Lack of Teacher's Training:**
  Lack of Training and development is also one of the short coming to Quality in Education in Pakistan, although HEC runs 8 weeks Faculty Development Program every year and trained more than 900 faculty members in last 6 years but more responsibility lies with the Institution itself. T &D is considered as expense in most of the private institutions and faculty members are not offered trainings to polish their skills.

4. Areas to Be Focused For QA

Analysis of overall data from different HEIs of Pakistan demonstrates that the below mentioned issues need to be addressed immediately:

- Devising a comprehensive University wide strategic plan which should be align from Departments to Programs and then course level.
- Curriculum revision should be a regular practice, and stake holder involvement should be practices in true letter in spirit.
- Faculty strength should be increased to overcome high student to teacher ratios.
- Academic dishonesty to be overcome by arraigning different training workshop and courses.
- Teacher training should be a regular feature
- ICT in education should be adopted, Cloud based computing, Predictive analysis and BI systems to be adopted.
- IQA and EQA to be further strengthen.

5. The Role of Higher Education Commission (HEC) In QA

HEC has taken significant steps for implement QA in Higher Education in Pakistan, in 2002 HEC asked universities to establish Quality Enhancement Cells with the Institutions.

The idea behind the establishment of QEC within the universities was to promote a Quality Culture and concoct an IQA mechanism responsible for preparing Self-Assessment Reports to overcome weaknesses of that institution.

Moreover, to further strengthen that QEC to handle EQA issues and make institution comply with the accreditation agencies such as National Business Education Accreditation Council (NBEAC) he National Computing Education Accreditation Council (NCEAC), National Accreditation Council for Teacher Education (NACTE) etc.
(http://www.hec.gov.pk/new/QualityAssurance/)
HEC has established:

- QA Cell' in HEC
- Quality Enhancement Cell (QEC) at all Universities
- Programs, grants, scholarship for research, faculty development, collaboration and training etc.
- HEC Digital Library

6. Barriers In QA

- Cultural Lethargy and behavior
- Procedural (Red tapism)
- Political dynamics
- Lack of sound strategic planning
- Lack of understanding among HEC, university administration and academic staff

However, changing the culture and making system for external and internal quality assurance through Qualitative and Quantitative assessment is not easy in local culture and will take its due time. Vested interests of HEIs also not allow to set up the strategic direction which is focused towards society wellbeing and spreading knowledge to masses. Although, Government provides grants to education sector, but most of the grant is provided to public sector HEIs. Culture lethargy, procedural formalities and bureaucratic mindsets do not allow that funding to penetrate till grass roots as well. It is also a harsh reality of Pakistani education system that Faculty members are also not well trained to attract the funding from local and international resources.

7. Suggestions

- To implement the QA in true sense, all Institutes should prepare their strategic plans keeping in mind the HEC policies and standards. HEIs should keep in mind the inclusiveness of stakeholders such as Industry, Alumni and Society while setting up their strategic Direction.
- Education organizations may implement ISO 21001 EOMS in future to develop consistent processes and evaluation tools to demonstrate an increase effectiveness and efficiency, it's a mean by which educational organizations may demonstrate their commitment to effective Quality Management practices.
- Resource sharing among the HEIs to be encouraged, in-terms of Faculty, Staff, Library, Labs and Equipment. Student exchange among universities within Pakistan is also a missing part which need to be addressed.
- Curriculum revision should be a regular practice and industry needs should be kept in mind while revising the curriculum.
- Feedback from Students, Alumni, Graduating students, Faculty and employer should be taken seriously for quality improvements.
- Assessment methodology to be uniformed for standardization and to maintain the quality
- ICT in education should be introduced radically, faculty should be trained to use technology during the class and for distance learning and for research purpose.

8. Conclusion

Literature review, data collected through interviews, peer review and observations signify that the QA issues of Pakistan are pretty much similar to the other countries in the region precisely India. Nevertheless, there is an increase in awareness about Quality in the competitive environment of

Pakistan but teething problems are also existent. We are still transitory phase, so the development for a formal IQA models within the HEIs is the suggestive. There are numerous opportunities available for faculty specifically in local market and aboard. Public sector has also funded for the development of faculty and infrastructure but there is still room for improvement to ensure quality. It is also suggested that a policy should be made by the HEC to enforce resource sharing in-terms of faculty, physical resource and infrastructure. Not just local but collaborations among international institutions in all possible manners will lead to Quality Enhancement of Pakistani Education Industry.

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Reconsidering Evidence in Academic Quality

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Abstract
Rapid changes in data forms and availability and evolving requirements in external quality assurance regimes are combining to prompt reconsideration of the nature of evidence in quality assurance. Although evidence is a longstanding feature of both internal and external quality assurance, much of the commentary is limited to examples of types of evidence with less attention paid to what constitutes good evidence. Evidence for quality assurance can be categorised as being pre-existing or bespoke, qualitative or quantitative, and for and from particular groups or perspectives. Each of these categorisations has implications for how evidence should be considered by universities in their self-review activities and by external audit panels. The quality of evidence itself can be assessed using criteria of relevance, representativeness, verifiability, its cumulative nature, whether it is actionable, contextual and holistic and able to be triangulated. The academic audit framework for the sixth cycle of academic audit for New Zealand universities applies to all students, all delivery and all staff who teach or supervise or support teaching or supervision. Consideration will need to be given to how evidence reflects this embedded or systemic approach to academic quality. The paper develops guidelines for reconsidering evidence in quality assurance.

1. Introduction

Appreciation of the importance of evidence in academic quality is a longstanding feature of many quality assurance regimes including the quality assurance arrangements for New Zealand universities (Woodhouse, 1998 (3rd Ed.), UNZ and AQA 2013). As these quality assurance arrangements evolve and change and new forms of evidence become available it is timely to re-consider evidence in academic quality and how these changes may present challenges and opportunities for universities and quality assurance bodies.

New Zealand provides a case study in which to examine these changes, challenges and opportunities as it has recently developed a new audit framework with implications for how evidence is developed and used. The audit framework consists of 30 guideline statements phrased in outcomes-oriented language and applies to all students, all delivery and all staff who teach or supervise or support teaching or supervision.

This paper considers the nature and expectations of evidence in external quality assurance by examining the types, sources and characteristics of 'good' evidence and develops guidelines for universities and auditors.

2. Types of evidence in academic quality

Most comment on evidence in academic audit agrees that evidence can take a variety of forms. (Cameron, 2013) suggested that it included:

- Documents such as existing policies, reports and analyses, principally from internal sources;
- Statistical evidence from internal and, where appropriate, external sources;

- Oral evidence collected during the self-review or audit process; and
- Might also derive from samples of the available information or from tracking audit trails [original emphasis].

Alongside the more specific examples of types of evidence, it may also be useful to take a broader perspective and consider that evidence can be:

- Pre-existing or bespoke
- Quantitative or qualitative
- For or from other functional areas, individuals or groups

These descriptors of evidence are not mutually exclusive. For example, evidence could be pre-existing, quantitative and from university planning managers.

Pre-existing or bespoke

It is anticipated that most of the evidence presented in academic audit will be pre-existing. This is consistent with the view that audit should not be an event in of itself and that it should utilise evidence that the university uses in its ongoing management of academic quality. Insofar as an audit framework should be designed to capture and elucidate aspects of academic quality that are important to universities themselves in achieving 'good' student outcomes and experience, a reasonable level of congruence between the information that a university would collect anyway and that sought for academic audit might be expected. Nonetheless the relevance of evidence presented in respect of guideline statements needs to be critiqued. This can also assist in identifying gaps in evidence.

Pre-existing evidence may also be referred to as being secondary evidence, or indirect evidence (Love, 2012). These terms should not infer that it is of less value or importance than bespoke, primary or direct evidence (Stevens et al., 2005). It is important that existing bodies of evidence are known and examined before committing to the collection of new evidence.

Secondary data can be further categorised into internal and external data sources (Stevens et al., 2005). The main advantage of secondary data is that it is already available and may provide a longitudinal view. Potential disadvantages are that that it may be a poor fit with the guideline statement, may be dated, or that the collection parameters are not well specified. Secondary data is likely to be the main type of evidence in academic quality assurance. Therefore, it is important that institutional data are well specified and curated. The QAA (2018) in the UK have recognised that institutional data capability is of increasing importance and have issued a briefing note on "Helping providers get the most from their data". It may also be useful to recognise evidence for audit evidence as indirect as this then raises questions of for what purpose and how the evidence was developed or collected and analysed.

Use of existing or secondary evidence also helps reduce the administrative burden of academic audit. What is important however, is that where universities do use evidence that was compiled for another purpose, the purpose be identified and the commentary address its appropriateness for the academic audit.

There are a number of challenges associated with use of existing evidence, with the main issue being its relevance to the guideline statement. National performance indicators have been a cause of concern in this regard, particularly if they utilise what can be measured rather than being constructed to evaluate the topic of interest (Harvey 2016). Harvey (2016) also suggests that concerns with national indicators have transferred to rankings.

In the New Zealand context national indicators are mainly confined to the Tertiary Education Commission's (TEC) educational performance indicators and to a lesser extent some indicators available from the Graduate Longitudinal Survey New Zealand (glsnz) (Tustin, et al., 2012) and other surveys such as the ISB and previously the AUSSE. However, national indicators are more widely used, although not without criticism, in other jurisdictions (for example QILT in Australia[1] and the National Student Survey in the UK[2]). Use of the Integrated Data Infrastructure (IDI)[3] in New Zealand also has the potential to increase both the specificity and availability of national indicators.

Bespoke evidence may also be referred to as primary, or direct, evidence. Primary evidence is that generated for a specific purpose, in a specific format and from a specific population or sample (Stevens et al., 2005). Collecting primary evidence brings in questions of research design and analysis. Its main advantage is that it is targeted to the question or guideline statement. However, it may be more expensive to collect and may have a more limited scope compared with secondary data sources.

Quantitative and qualitative

The distinction between quantitative and qualitative evidence is a common one in social science and often relates to differences in underlying philosophies of knowledge (for example Carson et al., 2001). This paper does not attempt to explore the ontological, epistemological and methodological bases of quality assurance, except that to note that preferences expressed across jurisdictions for multiple pieces of evidence and recognition of the importance of context, probably reflect a more interpretative than positivist approach.

Academic quality assurance tends to take an inclusive (and largely atheoretic) view of types of evidence that may be used to support or assess whether a university meets a guideline statement and tends to describe relatively specific 'types' of evidence that could be used. This may be helpful at a practical level, but possibly less so when new types of evidence are developed or when evidence for new academic quality assurance requirements is required.

Both quantitative and qualitative evidence are likely to be used in academic audit. Growth in learning analytics may mean an increased use of quantitative data. While bodies of practice may constitute qualitative evidence, anecdote and opinion are not evidence – neither for universities nor audit panels.

1https://www.qilt.edu.au/

2https://www.timeshighereducation.com/student/news/national-student-survey-2018-overall-satisfaction-results

3https://www.stats.govt.nz/integrated-data/integrated-data-infrastructure/, accessed 20181022

Who is evidence for and from?

Types of evidence may also be differentiated in terms of who the evidence is for or from. With respect to academic audit, the main distinction to date has been between evidence for the university and evidence for auditors. Within the university, further distinctions may be made in terms of functions and purpose that evidence was collected for – for planning, reporting to government, professional accreditation, improving student learning or academic quality. Again, such distinctions may not be mutually exclusive. For the most part auditors will utilise evidence in the self-review portfolio presented by the university but may also generate their own evidence through interviews or other analyses such as "tracking audit trails" (Cameron, 2013).

As well as asking who is the evidence for, universities and audit panels might also ask who is this evidence from? A number of guideline statements in the Cycle 6 audit framework will be important for multiple groups. Evidence based on indigenous knowledge systems might be appropriate for some aspects of the Cycle 6 audit framework. NZQA have developed Te Hono o te Kahurangi as a quality assurance framework for Māori tertiary education organisations and Te Mana Raraunga (2018) have developed Principles of Māori Data Sovereignty. Cycle 6 academic audit and the audit framework itself reflect a western view of academic quality and universities and panels should be open to how academic quality might be expressed and demonstrated for ākonga Māori and Māori staff.

Quality of evidence

The above discussion has focussed on types of evidence and who evidence is for. It has not explicitly considered what constitutes 'good' evidence – although some of the caveats regarding types of evidence begin to address this question. Examining guidelines from other jurisdictions also yields a number of ways in which evidence can be characterised as 'good'.

WASC (2015 and 2002) provide five principles of good evidence. Evidence should be:

1. Relevant
2. Representative
3. Verifiable
4. Cumulative
5. Actionable

Other jurisdictions reflect and add to these criteria, in advising that evidence should be:

- contextual and holistic (QAA-Scotland, 2017)
- triangulated (Cameron, 2013).

Scheffel et al. (2014) have suggested quality indicators for learning analytics. Other work by Berger et al., (2018) suggest that learning analytics have special characteristics including the complexity of learning as a trait, the temporal and changing nature of student behaviours and ethical considerations of intervention-based research.

That evidence should be relevant is reflected in advice from a number of jurisdictions (WASC, 2015; HKCAAVQ, 2018). WASC (2015) suggest that relevance implies validity and that institutions should explain the connection between the evidence and the (in their case) standard.

Relevance of evidence is likely to have two components with respect to Cycle 6. The first is how well (face validity) the evidence addresses the substantive topic of the guideline statement; and the second the extent to which it reflects the embedded nature of academic quality sought in Cycle 6. This embedded dimension is reflected in the scope of the Cycle 6 audit framework which extends to all students, all delivery and all staff who teach or supervise or support teaching or supervision.

Evidence reflecting the embedded or systemic nature of quality practices may mean that the representative or typical criterion suggested by other external quality assurance bodies including WASC (2015) or the sampling approach indicated in the Guide to Cycle 5 (Cameron, 2013) needs to be considered further, or differently. Cycle 6 academic audit will be seeking evidence that the guideline statement is met across a university and representative evidence is unlikely to be able to demonstrate this. Rather than seeking to provide representative evidence in this sense, universities should consider how evidence reflects all students, all delivery and all staff who teach or supervise or support teaching or supervision. This could mean providing indicators or measures of dispersion, as well as central tendency, or providing evidence for each of the groups of students or staff or forms of delivery that are appropriate for the university.

An initial assessment might be that learning analytics data could assist in providing evidence of embeddedness. However, caution may need to be exercised as that may involve aggregating learning analytics data in ways that may not be appropriate as much learning analytics data will be intended to operate at the scale of the individual student.

Reconsidering the representative nature of evidence in the context of learning analytics which emphasises large volumes of data with potentially high levels of change, suggests that 'representative' in Cycle 6 should capture the direction of change. Knowing whether evidence reflects an increasing or decreasing trend will be valuable to auditors and universities themselves and will help counter the 'point-in-time' criticism of academic audit.

The ability to verify evidence is also a common feature of other jurisdictions. WASC (2002) suggest that this characteristic is associated with reliability of evidence or data and focus on replicability. The term however, is used in a variety of ways and Cycle 5 in New Zealand (Cameron, 2013) associated verification with triangulation. The two treatments are compatible although WASC is concerned with the ability to reproduce the evidence and transparency of the evidence chain, whereas Cameron (2013) suggests that multiple pieces of evidence be used to support a claim.

This approach reflects a recognition that aspects of academic quality (and academic quality itself) may be complex phenomena that cannot be directly observed, and multiple perspectives will strengthen assessment. WASC (2002) refers to this as evidence being cumulative.
In practice, audit panels are unlikely to be able to reproduce evidence. They can however, explore a guideline statement from a different perspective by asking questions of interviewees, either singly or in groups. While triangulation by audit panels was by no means new, a review of Cycle 5 processes (Matear 2018) suggested that audit panels should be explicit about identifying a set of questions that are triangulation/validation questions. This would be consistent with the QAA-Scotland (2017)

suggestion that external quality assurance, such as academic audit, can "verify the effectiveness of institutions' internal quality assurance" (p.30).

Finally, WASC (2002) suggests that good evidence should be actionable "such that the institution is able to use this information to improve what it does" (p.12). This is consistent with the enhancement-led approach to quality assurance adopted by New Zealand universities. It is also consistent with the Cycle 6 scope of all students, all delivery and all staff who teach or supervise or support teaching or supervision and WASC (2002) suggest "that both the analysis and presentation of evidence must be appropriately disaggregated to reveal underlying patterns of strength and weakness, or to uncover specific opportunities for intervention and improvement" (p.12).

Disaggregation is discussed above in terms of the need to demonstrate embeddedness of quality practices. The reference to patterns however is valuable as while academic audit occurs at a point in time, evidence should include changes over time. Growth in availability of data as potential evidence presents particular opportunities and challenges here.

QAA-Scotland use two further descriptors for evidence – that it should be contextual and holistic. Cycle 6 Academic Audit also places emphasis on the importance of context, meaning that the audit should reflect the characteristics and priorities of the university being audited. While the same audit framework applies to all universities and audit panels and the guideline statements set out expectations of outcomes and standards that a university of good international standing would be expected to demonstrate, these are not fixed minimum standards, but are relative and dynamic and universities will differ in the emphasis that they place on guideline statements.

In terms of being holistic, the scope of Cycle 6 encompasses all students, all delivery and all staff who teach or supervise or support teaching or supervision. While universities and audit panels will address all guideline statements, academic audit will not provide a summative single assessment of the academic quality of a university as the methodology does not support such an assessment.

3. Conclusion and Guidelines

Both the forms and volume of data available to support claims of academic quality and approaches to evaluating academic quality are changing. These changes provide a motivation for reconsidering evidence in academic quality. This paper has outlined types of evidence and considerations for provision of evidence. It has used the development of the sixth cycle of academic audit in New Zealand universities as a lens through which to examine these changes and their implications. This final section suggests some guidelines for universities in presenting evidence and audit panels in considering evidence.

1. Evidence in Cycle 6 will be presented in the context of an individual university. What is appropriate evidence for one university may not be for another.
2. Both universities and audit panels should anticipate that the majority of evidence presented in Cycle 6 will be pre-existing evidence.
3. Quality units are not the only parts of the university with interests in data and information and self-review activities should, at an early stage, examine the university's information architecture.

4. Evidence should be relevant, representative, verifiable, cumulative, actionable, contextual and holistic and triangulated.
5. The most important criterion for evidence is relevance. In Cycle 6 this means relevance of the evidence to the guideline statement and relevance to the embedded or systemic nature of evidence.
6. Tensions are likely to exist between the pre-existing nature of evidence and relevance of that evidence, and universities may need to both explain how the tension has been resolved and use other criteria to determine whether the evidence is indeed appropriate for the guideline statement.
7. Where possible and appropriate, evidence should reflect a longitudinal component so that universities and audit panels can appreciate the direction of change.
8. Universities and audit panels should be open to and expect that evidence may take a variety of forms and some evidence may be based on indigenous knowledge systems.
9. Evidence can be strengthened by drawing on multiple perspectives.
10. Provision of evidence is only part of a university and an audit panel's assessment of whether a guideline statement has been met and the self-reflective analysis and panel assessment remain important.

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Redesigning Curriculum in line with Industry 4.0

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Abstract
Development in IT has resulted in further revolution in all aspects of life, this revolution has realized in form of IR4.0. The IR4.0 will reduce the gap between digital and physical world. Keeping ultramodern developments in view, an amalgamation of physical and digital systems will prove to be revolutionary. Universities are required to prepare curriculum, academicians and students, alike, to elevate from the current state thus Academia should weigh their capabilities putting effort to equip our generations with latest knowledge and skills to face future realism. This paper is based on qualitative research along with a deductive approach focused towards redesigning curriculum and teaching practices in line with IR4.0 practices. The research is focused upon various emerging challenges related to fundamental elements and objectives in Academia, based on the qualitative research a Curriculum matrix has been proposed, the suggested matrix will enable universities to enhance their current curriculum in line with the technological competencies required in the upcoming era of Industry 4.0.

Keywords: Education 4.0, Industry 4.0, IR4.0, Artificial Intelligence, Big Data, Cloud Computing, Artificial Intelligence, Augmented Reality

1. Introduction

IR4.0 has widely impacted the aspects of Human Life. The term “Industry 4.0” was first coined by the German Government in the year 2013 as a strategic plan by Industry Science Research Alliance in partnership with Acatech, this new project has led Germany to position itself as a pioneer of industrial It Practices (MacDougall, 2013). As the Industrial Revolution 1.0, 2.0 and 3.0 resulted in Mechanization, Mass production and Digitization through the introduction of steam engines, electronics and Information technology. Additionally, IR4.0 has resulted in a fusion of digital and physical world through the advent of technologies Such as Internet of things, internet of services, thus an amalgamation of physical and digital systems will prove to be revolutionary. These Cyber Physical systems would enable communication between the physical objects and cyber infrastructure, These Cyber Physical Systems (CPS) will enable accessibility of information and services simultaneously at multiple ends (Jazdi, 2014)..

Through these upcoming technologies and by the induction of upcoming IR4.0 practices efficient and effective communication would be possible resulting in time and cost savings Applications of Cyber Physical systems are quite broad covering almost every aspect of life. (Jazdi, 2014).

2. Research Problem

Emerging as a new challenge, IR4.0 will be a significant revolution that will modify human activities concerning every corner of their lives practically.

Without the universities customizing their academics in line with these advancements, there will be great scarcity of needed knowledge and skills.

3. Research Questions

- How are universities required to respond the advance IR4.0 practices?

4. Objectives of Research

The Research Aims to:

- To propose a Model Curriculum Matrix as a roadmap for universities to incorporate and adapt IR4.0 in their curriculum. (Contribution to practice)

5. Methodology

In order to determine the major technological developments and required competences for the upcoming revolution content analysis methodology was applied.

Content analysis can be defined as a technique used to examine written, verbal and visual communications (Cole, 1988). It involves creating replicable and workable connections with facts and figures in relation to their background and surroundings (Krippendorff, 1980). In order to identify certain characteristics of the upcoming revolution research papers from 2013 till 2018 related to IR4.0 were selected for content analysis. Content analysis also empathizes on the features of the language along with a focus on its content or context (Budd, Thorp, & Donohew, 1967). Qualitative content analysis does not only incorporate words quantification but is also examines the overall communication thus ensuring proper grouping of extensive data into categories representing similar context (Helgevold & Moen, 2015). There was a need to determine certain technological developments, competences and capabilities from the established literature thus content analysis was the most relevant and appropriate approach in such a situation.

Following steps were also applied to implement the research methodology successfully:

- 71 Research papers were selected for the word frequency quantification and content analysis, It should be noted that all the 71 Research papers that were selected as a sample to detect the word frequency and content analysis were focused on the general principles and aspects of IR4.0, rather than being specific to certain technological aspects of IR4.0 such as (Big data, Cloud Computing etc.).

- 71 research papers for frequency analysis were selected based on filtration, The reason for filtration was to identify the domains that were reflected in by papers related to IR4.0 Papers from only those domains were selected that were represented in at least 5 research papers.

Domains	**# of Papers**

Manufacturing	26
Knowledge & Research	23
Management	15
Information Technology	7
Total	**71**

- Word frequencies were counted to identify the repeated words, Each and every word from top 1000 repeated words was analyzed in relation to the context in which these words were used. To determine the context and relationship of these 1000 words each and every phrase consisting top 1000 words was read thoroughly after which 5 competencies and characteristics of technological developments that are associated with IR4.0 were determined.

- Word Frequencies to determine the repeated words were quantified through word frequency tool in NVIVO12 software.

- While analyzing the content and frequency of words, there were certain words that were frequently used in relation with other words thus forming new contextual terminologies, as these words made new sense when used together therefore such relations in between the repeated words were determined by using a Word Tree Map tool in NVIVO12 software.

- A Model portraying Curriculum Matrix for Redesigning curriculum in line with IR4.0 has been proposed in Figure 1, the following model can be used by universities to adopt and incorporate IR4.0 practices in their curriculum. The model in Figure 1 addresses the research questions and objectives.

Table I: Depicting the Authors and themes of all the selected Papers.

Themes of selected 71 papers	
Industry 4.0: A Best Practice Project of the Automotive Industry.	Emerging manufacturing paradigm shifts for the incoming industrial revolution.
Recommendations for implementing the strategic initiative Industry 4.0.	Engineering the smart factory.
Capabilities on the Horizon. Deutsche Bank	Implementing Smart Factory of industry 4.0: An Outlook.
Collaboration mechanisms to increase productivity in the context of industry 4.0.	industry 4.0 - From the Perspective of Applied Research.
The expected contribution of Industry 4.0 technologies for industrial performance.	Industry 4 . 0 and Sustainability Impacts : Critical Discussion of Sustainability Aspects with a Special Focus.
Cyber physical systems in the context of Industry 4.0.	Industry 4.0 Development and Application of Intelligent Manufacturing.
Cyber-physical production systems: Roots, expectations and R&D challenges.	Industry 4.0: A review on industrial automation and robotic.
How-Virtualization-Decentralization-and-Network-Building-Change-the-Manufacturing-Landscape	Industry 4.0: Reality, Future or just Science Fiction? How to Convince Today's Management to Invest in Tomorrow's Future!

	Successful Strategies for Industry 4.0 and Manufacturing IT.
Industrie 4 . 0 - Advanced Engineering of Smart Products and Smart Production	Industry 4.0: Towards future industrial opportunities and challenges.
Industrie 4.0: Hit or Hype? [Industry Forum].	Management approaches for Industry 4.0: A human resource management perspective.
Industry 4 . 0 : Solving the agency dilemma in supply networks through cyber physical systems Industry 4 . 0 : Solving the agency dilemma in supply	Procedure for Defining the System of Objectives in the Initial Phase of an Industry 4.0
Industry 4.0. Business and Information Systems Engineering	Process Modelling for Industry 4.0 Applications.
Information technology for the factory of the future - State of the art and need for action.	Smart Factory for Industry 4.0 : a Review.
Smart factories in Industry 4.0: A review of the concept and of energy management approached in production based on the Internet of Things paradigm.	Strategic guidance towards Industry 4.0 – a three-stage process model,
The Fourth Industrial Revolution Things to Tighten the Link Between IT.	The Application Centre industry 4.0 - Industry-driven Manufacturing, Research and Development.
A CPPS Architecture approach for Industry 4.0.	The Impact of Industry 4.0 on Procurement and Supply Management: A Conceptual and Qualitative Analysis.
A perspective on knowledge based and intelligent systems implementation in industry 4.0.	The industry 4.0 revolution and the future of Manufacturing Execution Systems.
Business Model Innovation for industry 4.0: Why the “Industrial Internet” Mandates a New Perspective on Innovation.	The Internet Information and Technology Research Directions based on the Fourth Industrial Revolution.
Design and Governance of Collaborative Business Processes in Industry 4.0.	The Transformation and Upgrading of the Chinese Manufacturing Industry
From automated home to sustainable, healthy and manufacturing home: a new story enabled by the Internet-of-Things and Industry 4.0.	Analysis of Control Architectures in the Context of Industry 4.0.
industry 4.0: Enabling technologies.	Fourth Industrial Revolution: technological drivers, impacts and coping methods.
Industry 4.0 : Invited Paper for Souvenir.	Industrial Cyberphysical Systems.
Industry 4.0 with cyber-physical integration: A design and manufacture perspective.	Industry 4.0 and the current status as well as future prospects on logistics.
Industry 4.0. The Future of Productivity and Growth in Manufacturing.	Industry 4.0 Impacts on Lean Production Systems. Procedia CIRP.
Navigating the fourth industrial revolution.	Past, present and future of Industry 4.0 - a systematic literature review and research agenda proposal.
Smart Factory Systems.	Smart Factory of Industry 4.0: Key Technologies, Application Case, and Challenges.
Strategic Factor Analysis for Industry 4.0.	The Fourth Industrial Revolution “Industry 4.0.”

Transforming to a Hyper-connected Society and Economy – Towards an "Industry 4.0.	The Fourth Industrial Revolution (Industry 4.0).
Visual Computing as a Key Enabling Technology for Industry 4.0 and Industrial Internet.	The Vision of "Industry 4.0" in the Making.
A Categorical Framework of Manufacturing for Industry 4.0 and beyond.	Towards Lean Production in Industry 4.0.
A Complex View of Industry 4.0.	Digitalization of industrial value chains – a review and evaluation of existing use cases of industry 4.0 in Germany.
A Maturity Model for Assessing Industry 4.0 Readiness and Maturity of Manufacturing Enterprises.	Evaluating challenges to Industry 4.0 initiatives for supply chain sustainability in emerging economies.
A Perspective on Industry 4.0: From Challenges to Opportunities in Production Systems.	Industry 4.0 framework for management and operations: a review.
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6. Analysis

Table II: Content Analysis

Identification and Evaluation of the term "Big Data"	
Basic word identified through word frequency: DATA	
Total # of Papers used as Sample	71
# of papers consisting word "Data" Quoted as a reference	71
Word Frequency count Rank out of 1000 words	3rd
# of times "Data" Quoted as a reference	2405
Term generated in connection with other words : Big Data	
# of papers consisting words "Big Data" Quoted as a reference	52
# of times words "Big Data" Quoted as a reference	384
% of quotations consisting "Big Data" against quotations consisting "Data"	16%
% of papers consisting "Big Data" against total # of papers	70.27%

It is quite notable that the word “data” has been quoted 2405 times in the literature making it the 3rd most repeated word in the available literature and has been quoted in all the 71 papers selected as sample.

Furthermore, after evaluation performed through the Word Tree Map tool, the most frequent word quoted in connection with data was identified as “Big” thus indicating a new term “Big Data”, the reliability and validity related to the existence of the identified term “Big Data” can additionally be justified by considering the fact that the identified term has been quoted 384 times in 52 Research papers out of 71 selected. Therefore, the term “Big Data” can be deemed as a significant technological development and a required competency for the upcoming IR4.0

The origin of the Term “Big Data” is still quite vague, according to (Laney, 2001). Big Data can be associated with three Vs (Volume, Variety and Velocity), these three aspects can be linked to define Big data (Laney, 2001). Gartner, Inc. also explains “BIG DATA” by relating it with information that involves excessive volume, excessive velocity and excessive variety and processing in a cost-efficient manner in accordance with the modern processing of information thus leading to better decisions (Gartner, 2013). The unstructured data is being gathered by organizations because the latest data management and analytics infrastructures have enabled organizations to exploit this data in an innovative manner, for example through face detection in context of super mart can analyze data related to customers such as age store traffic, age and gender distribution and buying patterns of customers. The information can further be used for placement, planning, procurement and staffing strategies. SMEs and retailers also generate a lot of data that can be used for further analytics, around 1 million transactions are being processed by Walmart, within an hour (The Economist, 2010).

Big data analytics has emerged as a significant factor for industry and academics according to a survey by Bloomberg BusinessWeek (2011), 97% of organizations with revenues exceeding $100 million were discovered to be associated with data analytics. The continuous adoption and growth of Big Data Analytics makes it as an important characteristic of the upcoming IR4.0.

Identification and Evaluation of the term “Internet”	
Basic word identified through word frequency: Internet	
Total # of Papers used as Sample	71
# of papers consisting word "Internet" Quoted as a reference	71
Word Frequency count Rank out of 1000 words	18th
# of times "Internet" Quoted as a reference	1191
Term generated in connection with other words : Internet of Things	
# of papers consisting words "Internet of Things" Quoted as a reference	66

# of times words "Internet of Things" Quoted as a reference	530
% of quotations consisting "Internet of Things" against quotations consisting "Internet"	45%
% of papers consisting "Internet of Things" against total # of papers	89.19%

It is quite notable that the word “Internet” has been quoted 1191 times in the literature making it the 18th most repeated word in the available literature and has been quoted in 71 papers out of total 71 papers selected.

Furthermore, after evaluation performed through the Word Tree Map tool, the most frequent word quoted in connection with data was identified as “Things” thus indicating a new term “Internet of Things”, the reliability and validity related to the existence of the identified term “Internet of Things” can additionally be justified by considering the fact that the identified term has been quoted 530 times in 66 Research papers out of total 71 papers investigated. Therefore, the term “Internet of Things” can be deemed as a significant technological development and a required competency for the upcoming IR4.0

There are wide variety of definitions related to “Internet of Things” There is a variance in every definition but one thing that is unique about every definition is that first phase of internet incorporated data created by humans while as a second phase data started to be generated from devices as well. Therefore, the most appropriate definition of internet of things would be:

“An open and comprehensive network of intelligent objects that have the capacity to auto-organize, share information, data and resources, reacting and acting in face of situations and changes in the environment”
(Madakam, Ramaswamy, & Tripathi, 2015).
Internet of Things often referred as IoTs is one of the most anticipated trend in the IT Industry since the past few decades Internet of Things has gained popularity by visualizing an evolution in global infrastructure through networking of objects around us, enabling these physical objects to connect for any purpose (Kosmatos, Tselikas, & Boucouvalas, 2011).
The development of IoTs would lead to better management of environment in which we live in because when things around us could sense and communicate these objects could be used as a tool to monitor, measure and respond to uncertainties and complexities. The emergence of IoTs would surely be a revolution for mankind (Reinhardt, 2004).

Identification and Evaluation of the term “Cloud Computing”	
Basic word identified through word frequency: Cloud	
Total # of Papers used as Sample	71
# of papers consisting word "Cloud" Quoted as a reference	58

Word Frequency count Rank out of 1000 words	54th
# of times "Cloud" Quoted as a reference	552
Term generated in connection with other words : Cloud Computing	
# of papers consisting words "Cloud Computing" Quoted as a reference	42
# of times words "Cloud Computing" Quoted as a reference	216
% of quotations consisting "Cloud Computing" against quotations consisting "Cloud"	39%
% of papers consisting "Cloud Computing" against total # of papers	56.76%

It is quite notable that the word “Cloud” has been quoted 552 times in the literature making it the 54th most repeated word in the available literature and has been quoted in 58 papers out of total 71 papers selected.

Furthermore, after evaluation performed through the Word Tree Map tool, the most frequent word quoted in connection with data was identified as “Computing” thus indicating a new term “Cloud Computing”, the reliability and validity related to the existence of the identified term “Cloud Computing” can additionally be justified by considering the fact that the identified term has been quoted 216 times in 42 Research papers out of total 71 papers investigated. Therefore the term “Cloud Computing” can be deemed as a significant technological developments and a required competency for the upcoming IR4.0

AMR Research defines cloud computing an application for upcoming generations, through the utilization of cloud computing IT infrastructure is rented by service providers at low costs, the buyer can now influence its IT infrastructure more securely, and there is a less of hassle as there is no need for in-house data management centers. IT resources can now easily be scaled according to the needs. Burton Group defined cloud computing as a “set of subjects, technologies and business activities utilized to provide on demand services based on IT capabilities”

Cloud Computing has emerged a significant model in the field of Information Technology (IT), The emergence of Cloud Computing has added more value in software’s and has completely revolutionized the designing and purchasing of IT hardware’s and services. Cloud Computing will allow to store data on external servers and services would be charged according to the consumption, Due to the potential and growing demand Cloud computing is an important aspect of IR4.0.

Identification and Evaluation of the term “Artificial Intelligence”	
Basic word identified through word frequency: Intelligence	
Total # of Papers used as Sample	

	71
# of papers consisting word " Intelligence " Quoted as a reference	48
Word Frequency count Rank out of 1000 words	261th
# of times "Intelligence" Quoted as a reference	194
Term generated in connection with other words : Artificial Intelligence	
# of papers consisting words "Artificial Intelligence" Quoted as a reference	23
# of times words "Artificial Intelligence" Quoted as a reference	54
% of quotations consisting "Artificial Intelligence" against quotations consisting "Intelligence"	28%
% of papers consisting "Artificial Intelligence" against total # of papers	31.08%

It is quite notable that the word “Intelligence” has been quoted 194 times in the literature making it the 261th most repeated word in the available literature and has been quoted in 48 papers out of total 71 papers selected.

Furthermore, after evaluation performed through the Word Tree Map tool, the most frequent word quoted in connection with data was identified as “Artificial” thus indicating a new term “Artificial Intelligence”, the reliability and validity related to the existence of the identified term “Artificial Intelligence” can additionally be justified by considering the fact that the identified term has been quoted 54 times in 23 Research papers out of total 71 papers investigated. Therefore the term “Artificial Intelligence” can be deemed as a significant technological development and a required competency for the upcoming IR4.0

When it comes to define the term “Artificial Intelligence” the understanding of this term has been quite complex because of the discussions over it, there are around four different definitions of “Artificial Intelligence” in a single dictionary:

- An academic subject of computer science, AI is related to the evolution of computers possessing though processing like humans.

- It’s a thought of such machines that possess such abilities that enable them to think like humans for example: Learning, Self-Correcting and adapting.

- It’s a growth in human intelligence just like physical power was enhanced through mechanical tools.

- It is the science to enable more efficiency in computer usage through advance programming. (The New International Webster's Comprehensive Dictionary of the English Language, Encyclopedic Edition)

"Artificial Intelligence is analysis of structures linked with intelligent agents" Computational Intelligence is the study of the design of intelligent agents." (Poole, Mackworth, & Goebel, 1998) "Studying reactions of artefacts can be coined as Computational intelligence" (Nilsson, 1998)

Identification and Evaluation of the term "Augmented Reality"	
Basic word identified through word frequency: Reality	
Total # of Papers used as Sample	71
# of papers consisting word "Reality" Quoted as a reference	45
Word Frequency count Rank out of 1000 words	336th
# of times "Reality" Quoted as a reference	161
Term generated in connection with other words : Artificial Intelligence	
# of papers consisting words "Augmented Reality" Quoted as a reference	15
# of times words "Augmented Reality" Quoted as a reference	59
% of quotations consisting "Augmented Reality" against quotations consisting "Reality"	37%
% of papers consisting "Augmented Reality" against total # of papers	20.27

It is quite notable that the word "Reality" has been quoted 194 times in the literature making it the 336th most repeated word in the available literature, and has been quoted in 45 papers out of total 71 papers selected.

Furthermore, after evaluation performed through the Word Tree Map tool, the most frequent word quoted in connection with data was identified as "Augmented" thus indicating a new term "Augmented Reality", the reliability and validity related to the existence of the identified term "Augmented Reality" can additionally be justified by considering the fact that the identified term has been quoted 59 times in 15 Research papers out of total 71 papers investigated. Therefore, the term "Augmented Reality" can be deemed as a significant technological development and a required competency for the upcoming IR4.0

The practical Applicability of the term “Augmented Reality” has enhanced in such a manner that its application can be witnessed in cell phones and other devices as well (R.Buja, Radu, Catrambone, MacIntyre, & Zheng, 2013). Augmented Reality enables to converge digital objects with physical ones, resulting in existence of virtual objects simultaneously with real objects (Azuma, et al., 1997). Augmented Reality enables convergence of digital content with the actual world (Azuma, Billinghurst, & Klinker, 2011). The distinct nature of Augmented Reality makes it different from user being completely influenced by virtual environment because Augmented Reality promotes reality, rather than replacing reality (Azuma, 1997) According to El Sayed, Zayed, & Sharawy (2011) the add on of Virtual objects in real life scenarios allows to increment missing information through digital scenes added in real life situations (Sayed, Zayed, & Sharawy, 2011).

7. Findings/Conclusion

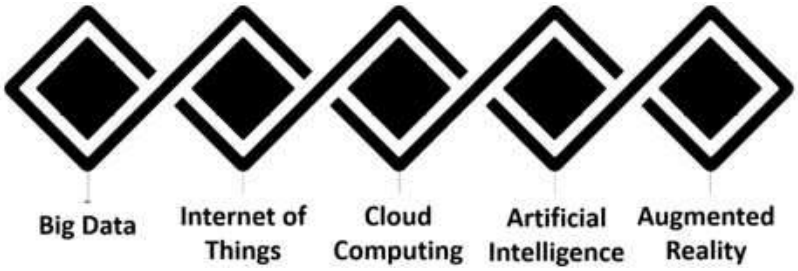

Figure 1: Curriculum Matrix for Industrial Revolution

Based upon the above content analysis and after evaluating the validity and reliability of terminologies a curriculum matrix has been proposed as Figure I, the following curriculum matrix portrays the five composite variables of the IR4.0 that are identified through this research. The main reason of this research was to identify the key competencies required for the IR4.0 and to determine the significance of these key characteristics of IR4.0, The identified competencies are then portrayed in Figure 1 as a curriculum matrix, The proposed Curriculum Matrix is basically a framework and can be applied as a roadmap for universities to incorporate Adapt IR4.0 in their curriculum.

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Reflections on the Quality Assurance Process in Higher Education in Sri Lanka

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Abstract
Quality has a relative meaning. With the increasingly growing pattern of higher education, quality and quality assurance has become a central concern of the relevant authorities. Sri Lankan Higher Education system also embraced the assessment approach to assure the quality of procedures adopted by the Universities and it is compatible with the quality assurance mechanisms in other countries. The Quality Assurance and Accreditation Council established under the University Grants Commission is responsible for conducting Institutional Reviews and Programme Reviews with the support of senior academics of universities trained for the task. The main aim of this article is to reflect on the experience gained through engaging in the quality assurance mechanism of universities in different capacities to provide an insight on the strengths and weaknesses and to make recommendations for further improvement of the process. The reflections are analysed under three main aspects: reflections on the review manuals and training, reflections on the review process and reflections on the follow-up action after review.

Key words: Quality Assurance, Higher Education, Institutional Review, Programme Review

1. Introduction

There is much discussion about quality in higher education among the higher education community. Quality is one of the most intangible concepts in higher education discourse and the measurement of quality depends on the definitions proposed by different people in different contexts. Further, establishing a common set of quality indicators across institutions in a country will run into a problem when institutions have very different visions and missions. The UNESCO (2013) defines quality assurance as a systematic process of assessing and verifying inputs, outputs and outcomes against standardized benchmarks of quality, to maintain and enhance quality, ensure greater accountability and facilitate harmonization of standards across academic programmes, institutions and systems. According to World Declaration on Higher Education for the 21st century, "quality in higher education is a multidimensional concept, which should embrace all its functions, and activities: teaching and academic programs, research and scholarship, staffing, students, buildings, facilities, equipment, services to the community and the academic environment" (2012). However, in Sri Lanka "the quality assurance mechanisms have a narrow coverage and should be considerably broadened "(World Bank, 2009: E7). Further, the report highlights that "the country lacks quality assurance mechanisms for the alternative higher education sector" (2009, E7).

With the expansion in the number of student enrollment, number of programmes and variety of institutions (e.g. non-state universities, affiliated universities etc) providing a variety of programmes using different modes of instructional deliveries, the Sri Lankan higher education sector has experienced considerable changes that have required consequential changes in the approaches to regulation and quality. In the state universities only, the total student enrollment in study programmes

had increased up to 91905 in 2017 (UGC Statistics, 2017). Further, the relevance of some courses to the world of work and the quality of graduates produced by some higher education institutions have been repeatedly questioned. The direct impact of higher education to the development of the country has been highlighted by many researchers. According to Gunawardena (2015) Sri Lanka's future in the global knowledge economy in the 21st century depends critically on the country's intellectual and human capital and on the quality of its universities. As Sabio & Sabio (2014) pointed out, it is the quality of higher education that decides the quality of human resources in a country. So, quality of higher education has become an agenda item of the discussions, debates and forums in Sri Lankan universities.

Through the implementation of IRQUE Project (Improving Relevance and Quality of University Education) and DEMP Project (Distance Education Modernization Project) several steps had been taken to improve the relevance and quality of university education. The establishment of the QAA Unit of UGC (2004) and later renaming it as the QAA Council (QAAC, 2005) , development of the Quality Assurance Handbook for Sri Lankan Universities and Subject Benchmark Statements for subject disciplines and preparation of National Policy Framework for Higher Education (2008) could be considered as significant milestones in the quality assurance of higher education system in Sri Lanka. So far, two cycles of Institutional Reviews of state universities and subject reviews of Departments (2004-2014 and 2015- 2018) have been completed. In 2019, it is expected to commence the third cycle of Institutional Reviews by the QAAC, UGC while continuing with the newly introduced Programme Reviews.

Having completed more than 30 years of service in the university system (Open University) the researcher have been fortunate to be involved in the quality assurance mechanism of the university system in many different capacities. Further, being a senior staff member, Head of the Department and the Dean of a Faculty the researcher had the privilege to be a part of the reviews of proposals of external/ distance education programmes submitted to the HETC project by different Universities.

Therefore, the aim of this paper is to reflect on the experience gained through participating in the quality assurance process of University system in different capacities such as a member and chairperson of Institutional Reviews, Subject Reviews and Programme Reviews as well as a member of the SER writing teams since 2002 and analyse the strengths and weaknesses of the process with a view to improve the present status score. The reflections recorded by the researcher are analysed under three headings as "Review Manuals and Training"," Review Process" and "Follow up actions after reviews".

2. Reflections on Review Manuals and Training

The quality assurance mechanism of Higher Education in Sri Lanka adopts the 'assessment' Approach which is based on the diagnostic review and evaluation of the Universities compliance with a set of best practices and the degree of attainment of the Standards/Benchmarks prescribed by the QAAC. The other two approaches of quality assurance, namely the 'accreditation' which is "an evaluation of whether an institution or programme meets a threshold standard and qualifies for a certain status" or "the 'quality audit' which "checks the extent to which the institution is achieving its own explicit or implicit objectives" (Woodhouse, 1999) are not applicable to Sri Lanka. From 2002, Quality

Assurance Handbook for Sri Lankan Universities prepared by the Committee of Vice Chancellors and Directors and the University Grants Commission with the assistance of Quality Assurance Council of United Kingdom had provided the directions for quality assurance at Institutional and Subject level. Then, a revised set of manuals titled "Manual for Institutional Review "and "Manual for Programme Review" of Sri Lankan Universities had been finalized in 2015 through a series of workshops conducted with academic and administrative staff of Universities. These workshops had provided a platform for the participants to familiarize with the general principles applicable to the quality assurance mechanism and to critically argue on the criteria and standards developed for IRs and PRs. The manual itself accepts that "the document and structure which are now in place are the products of the collective efforts of a large number of academics" (2015, 11). The IR is concerned with the effectiveness of a university's processes for managing an assuring the quality of academic activities undertaken by the university.

The PR evaluates the quality of activities related to a specific programme. The 8 aspects incorporated in PR and 10 aspects in IR are compatible with European and ASEAN standards. It could be noted that the incorporation of the widely accepted reference points such as Sri Lanka Qualification Framework, Subject Bench Marking, Code of Practice, External quality Assurance and Internal Quality Assurance had resulted in revolutionary changes in the day-to-day practices of the university system. When compared with the previous manuals, the present manuals are more comprehensive and they encompass the essential components to assure quality through an objective, reliable and systematic mechanism. However, having referred to the same modules several times, listen to reviewers' comments presented in different discussions and observed SERs prepared by the Universities the following drawbacks could be identified.

- Problems relating to some standards incorporated under the 10 criteria (i.e., Problems such as the same standard is repeated in several criteria, some standards are more suitable for another criteria, some standards can be combined together, some standards are not relevant to all universities/ programmes etc)
- Quality standards have a narrow focus which resulted in producing a very superficial report with code numbers. Even though the institutions are requested to describe the extent to which the University has adhered to the best practices defined in the ten criteria, the tabular format does not provide enough room for the respective institutions provide qualitative information about their present practices.
- Lack of in-depth understanding of academics on the specific standards applicable to different criteria of IR and PR reviews and the evidence to be provided. This had been observed through the list of evidence provided by different Universities.
- Too many standards included in PRs (145) and IRs (125) which make the review process very cumbersome (As informed by the international reviewer, in China, they have very few standards which focus on quality)
- When considering IR and PR manuals together, there are standards where a clear demarcation is not given about what to produce as evidence (whether the University, Faculty or programme should be the focus?)

- Score guide provided in a four-point Likert scale (0 to 3) is also somewhat misleading. There were instances where some reviewers have given 1.5, 2.5 etc for those standards.

The Quality Assurance and Accreditation Council can fine-tune the standards with the support of some experienced reviewers and the academics who are willing to join as Programme/ Institutional Reviewers can be trained on the revisions incorporated.

3. Reflections on the Review Process

Quality assurance in higher education is a systematic process of assessing and verifying inputs, outputs and outcomes against standardized benchmarks of quality, to maintain and enhance quality, ensure greater accountability and facilitate harmonization of standards across academic programmes, institutions and systems (UNESCO, 2013). In Sri Lanka, soon after the introduction of the QA mechanism, many academics in the University System responded to it with skepticism, mistrust and apprehension (IR Manual, 2015). However, once it is established, the majority have come to accept the value of introspection and reflection on what they are doing and to submit themselves to peer review after a critical self -evaluation" (2015, p11). The review process not only provides opportunities for self -learning and critical self-reflections on the activities of staff and the university, but also it leads to develop insights for future directions of the University/ staff. Through the first-hand experience obtained during site visits of IR and PR, it could be clearly noticed that the establishment of the quality assurance mechanism in Sri Lankan Universities has created a revolutionary change in all functions and procedures adopted by the university and staff. This impact was solid in universities where a very enthusiastic, committed and dedicated IQAC Director with a very strong personality has been appointed. Further, the mutual understanding and close interaction between the supreme authorities of the University and IQAC Director has paved the way towards developing a quality culture within the University. However, it requires a strong and steady commitment of all stakeholders including students which will help to embrace its challenges and benefits. Further, once an Institutional or Programme Review has been completed all people concerned should study the report very carefully, identify the short-term and long- term strategies for achieving the set targets and incorporate them in the strategic/action plans for implementation and monitoring during the next five years.

The quality assurance mechanism of Higher Education in Sri Lanka embraces many components common to both developed and developing countries. A comparison of standards/criteria adopted by QAAC, Sri Lanka, U.S. Middle States Commission on Higher Education and European Standards for Internal Quality Assurance in HE is given in Table 1. However, the two standards/criteria unique to Sri Lankan system namely Post Graduate Studies, Research, Innovation and Commercialization and Distance Education might have been added considering the specific requirements of the Sri Lankan higher Education system.

Table 1- Comparison of QA Standards/Criteria

QAAC Sri Lanka (IR Manual)	U.S. Middle States Commission on Higher Education	European Standards for Internal Quality Assurance in HE
1 Governance and Management 2 Curriculum and Programme Development 3 Teaching and Learning 4 Learning Resources, Student Support and Progression	**Standard I**: Mission and Goals Standard **II**: Ethics and Integrity **Standard III**: Design and Delivery of the Student Learning Experience **Standard IV**: Support of the Student Experience	1.1 Policy and procedures for quality assurance: to assure the quality and standards of their programmes and awards 1.2 Design and Approval, of programmes and awards

5 Student Assessment and Awards 6 Strength and Quality of Staff **7 Post Graduate Studies, Research, Innovation and Commercialization** 8 Community Engagement, Consultancy and Outreach **9 Distance Education** 10 Quality Assurance	**Standard V**: Educational Effectiveness Assessment **Standard VI:** Planning, Resources, and Institutional Improvement **Standard VII:** Governance, Leadership, and Administration Source: MSCHE	1.3 Student-centered Learning, Teaching and Assessment. 1.4 Student Admission, Progression, Recognition and Certification 1.5. Quality Assurance of Teaching Staff: 1.6 Learning Resources and Student Support: 1.7 Ongoing Monitoring and Periodic Review of Programs – 1.8 Information Management 1.9 Public Information: 1.10 Clinical External Quality Assurance

Sources- Manual For Institutional Review of Sri Lankan Universities, 2015, Matei, L & Jwinska, Y (2016)

Like in many other countries, Sri Lanka also follows self-reviews (SER) and desk reviews and site visits of peers to assure quality of Higher Education Institutions and their programmes. In an Institutional Review at least five members are included in the review panel and they spend nearly 6 days for the site visit. In a Programme Review, three members will spend four days to complete the review process. From 2018 an international Reviewer also has been assigned to IRs which can be considered as a remarkable improvement in the review process. The participation of an international reviewer will provide opportunities for both the institution under review and for the local review panel to bring their practices to an international standard. However, it is reported that there are major differences among QAAs regarding the procedures used during the site visit to the programme or institution. “The British spend up to four days on a visit which even includes observations by experts of class room teaching. The Danes concentrate on a one-day visit which, however, is so carefully planned that all relevant groups from the level of Rectors/Deans down to students are covered in sessions” (Thune, 1998). Site visit is also used US accreditation procedures, where the self-review is used as a foundation during the site visit (Eaton, 2004).

It could be observed that the successful implementation of quality assurance mechanism in Universities facilitated the following factors:

- Proactive and committed leadership (both VC and IQAC Director) with a strong personality
- The strong congruence relationship between the above two personnel
- Training provided for academics
- Dedicated and committed staff
- Team approach with engagement of all parties
- Positive attitude towards the quality assurance process in all stakeholders

The quality assurance mechanism introduced by the QAAC has produced a variety of positive outcomes to the respective universities as well as to the academic community.

- The institutions receive confirmation and validation on its strengths, weaknesses, opportunities and threats through an informed review. This leads to thrive its confidence on the policies and practices introduced with the understanding that the institution is doing the right thing.

- Through involvement of external reviewers intra institutional, inter institutional as well as international partnerships and collaborations will be promoted. The procedure adopted to incorporate International Reviewers is most welcomed as the beginning of such affiliations were observable at the sites itself.
- It was observable that the institutions try to work with a new sense of enthusiasm, commitment, direction and identity after getting positive outcomes at the wrap up meetings. It is most likely that this process would further facilitate incorporation of new targets and goals for their future missions.
- The institutions are eager to introduce new innovative and modern methods of pedagogy. This would pave the way to adopt SBS, SBL, PLOs, ILOs etc to all programmes and to apply sophisticated technologies such as MIS, blended on-line learning etc to the teaching-learning process.
- While writing SER and through engaging in IRs and PRs, a cooperative and collaborative culture is developed among academic and non-academic staff of the Universities. This was visible in all three Programme Reviews and two Institutional Reviews which should be considered as a positive outcome of the quality assurance process. All the categories of staff were working with team spirit to elaborate on the best practices adopted by their institutions.
- The review process will result in giving reliable and accurate information on the quality of education offered by the institution to the public. Even though the government decides on the number of students to be accommodated in each University, students tend to give their priority to institutions with high reputation on quality Education.
- Through development of SERs and participating in IRs and PRs, the academic community in Sri Lankan Universities get a chance to reflect on their own professional practices and take progressive steps towards developing and maintaining a quality culture in their own institutions.
- It is very important that the dialogue on Quality assurance among the academic community should be continued after IRs and PRs and it should become a continuous process of evaluating – assessing, monitoring, guaranteeing, maintaining and improving – the quality of higher education provided.

Form the reviewer's point of view, by engaging in the review process, they had the opportunity to experience best practices in other institutions and to improve their confidence and faith in the review process which intern impacted positively on the quality assurance mechanism in their own institutions. Further, developing a culture of quality requires strong, committed stewardship from the leadership in higher education. Further, QA can only be effective when all stakeholders in the higher education institutions understand and embrace its challenges and benefits.

However, the following issues need to be considered to make the review process more effective and meaningful for both parties.

- Limited capacity of some reviewers to conceptualize their roles as professional peers who would provide constructive and worthwhile feedback for the respective higher education institutions to move forward. Both reviewers and the institutions under review should develop a mutual understanding and trustworthy relationship and engage in the review in a very respectable and accountable manner. There were instances where the two parties were critical

about each other and reluctant to come to a settlement about the outcomes of the reviews which should not have happened.

- The capacity of some reviewers to engage in the review process in an objective and impartial manner about the quality assurance mechanism of the institution under review is somewhat questionable. There were instances where some of them were driven by presumptions and prejudices where as several others were predisposed by the activities of their own institutions. It was evident that a few had tried to act beyond their scope and intervene to matters of the institutions.
- Lack of willingness of the reviewers of IRs and PRs to take part in the review process with full commitment and accountability - There were problems with managing time when conducting stakeholder meetings and observing documents and meeting deadlines when writing the report. It was very frustrating that some members in the review panels did not even bother to complete the parts of the reports allocated to them which resulted in delegating the whole responsibility of report writing to the chairperson.
- The negative attitudes of both parties (reviewers and reviewees) towards the quality assurance mechanism. There were instances where the whole review process was criticized by both parties. This may have caused some institutions to express their dissatisfaction about the final outcomes of the review process.

Similar finding was reported in the literature. Kis (2005) also identified "lack of preparedness of staff to quality assurance activities" as a problem. Similarly in a study conducted by Sabiote and Gutierrez (as cited in Kis, 2005, p. 25) inadequacies of the selection process of and the training offered to evaluators, and the lack of effectiveness of evaluation committees were emerged as major problems. According to the point of view of academics involved in the SER writing, they were overloaded with multiple tasks such as collecting information, analyzing them and organizing them according to the format and producing reports. Existing literature also supports that the evaluation systems created a considerable workload for academic staff (Harvey, 2002; Stephenson, 2004). The consequences of this exercise were also highlighted in the literature. For example, Harvey (2002) noted that there was a risk to emphasize procedural elements of quality rather than innovative processes, and it would result in detailed paper trails but entirely stifle development and innovation.

- Limited time allocated for site visits of PRs and IRs. Till the end of 2017, only three days for PR and five days for IR had been allocated and reviewers had to continue their work till late evening to complete observations of evidence. Since 2018, one additional day has been allocated for both PR and IR which can be considered as a progressive step.
- Concerns were expressed about the residential facilities and travelling arrangements made during the review process for the reviewers.

A significant difference that could be observed through the analysis of literature is the prominence given for the student community in the quality assurance process. In Europe, students are very important stakeholders in both the design and implementation of quality assurance systems. "The best example is the crucial role of the European Students' Union in development and later revisions of the Standards and Guidelines for Quality Assurance in EHEA. According to Williams and Cappuccini - Ansfield (2007), collecting feedback from students about their experiences in tertiary institutions has

become one of the central pillars of the quality process. In many countries in Europe, it is required that external review panels/groups involve students as members" (Dew, 2009). The National Student Survey in the United Kingdom is considered as a new quality tool. The Higher Education Funding Council for England (HEFCE) requires a range of student views on their experience in higher education to consider distribution of government funding to higher education institutions in England (Okogbaa , 2016). According to William and Cappuccini-Ansfield (2007) student feedback is to be collected and published on a range of issues relating to the quality of teaching, learning, course organization, assessment and the learning resources available to them. Even in Sri Lanka, student feedback is considered as an integral component of the quality assurance mechanism. However, the higher education institutions are reluctant to give prominence to students views due to various unfortunate incidents taken place in universities. During IRs and PRs, the current and passed out students including student unions are called for only one meeting to listen to their grievances. As the students are the best people to express opinion on the activities and facilities of a university, it would be worthwhile to spend more time with them to identify their concerns.

4. Reflections on the Follow-Up-Actions after Reviews

Quality, in its aspect of a continuous improvement process (Dew, 2009), is seen as cumulative over time. As such, quality assurance should be considered as something more than a series of data-collection activities and be viewed as a process that requires continuous attention and monitoring of all parties. All staff members should be knowledgeable about strategies adopted by the institution to assure quality, their roles and functions in-line with them and their full commitment and devotedness to implement and maintain them in their full spirit. Within the University also, there should be a mechanism to recognize the contributions of academic and administrative staff once the targets have been reached. Therefore, the impact of IRs and PRs on respective institutions to be considered as a prime important.

In Sri Lanka, the institutions which are undergoing QA reviews must bear the cost of the review. So, after spending huge amount for the reviews, the institution should gain worthwhile outcomes through the review. According to the IR manual, "the institutional report may provide valuable data to the University HEI at its annual Audit review, fund allocation and cadre review meetings" (2015, page 27). However, the linkage between performance of institutions and funding should be carefully integrated without leaving any room for political interference. However, the information driven funding approach is a controversial issue in the literature. Thune (1998) presented an argument warning against direct link between evaluation and funding which pointed to the real damage of creating a compliance culture among the higher education institutions. Similarly, Middlehurst and Woodhouse (1995) stated that funding rewards generate a compliance culture and skew the system to follow the money. Several others argued that linking funding to evaluation results serves the objective of accountability and can constitute incentives for quality improvement and that risks of compliance exist under any evaluation system whether they are linked to funding or not (John Brennan, 1997; Vroeijenstijn, 1995b). However, the outcomes of this process should facilitate resource allocation and carder provisions to the respective institutions. On the other hand, it is important to mention that Quality Assurance Reviews can lead to anxiety, resistance and potential conflict among some of the stakeholder groups. This is linked with the fact that quality assurance is typically associated with evaluation and judgments (Reisberg, 2010).

One good practice adopted in line with the review process is to have a section in the SER on the major changes since the last review. It provides opportunities for the respective institutions to critically reflect on the changes introduced and their impact on the policies, procedures, programmes and staff. IRs and PRs need to be conducted in every five years to facilitate the continuous engagement of the institution in the quality assurance process. Further, continuous self-review should be considered as a key element in the review process. IR manual also highlights that that the most important follow up actions must be at the University/HEI itself. It provides a standard against which the HEI can measure itself and a framework for building up a definition of quality. Thus "it helps the HEI check how far it is achieving its strategic mission and goals, and it allows it to prepare an action plan for further development" (Thune, 1996).

The manual further suggests that institutional report should be made available to public scrutiny through the University website (2015, p27). This expands opportunities to the respective institutions to showcase their best practices to all stakeholders. In addition, it will open the door for higher education institutions also to learn from the best practices of their sister institutions and find meaningful solutions to their problems. Out of the three programmes and two institutions reviewed there were several best practices that can be shared with other academics.

5. Conclusions

The Quality Assurance Mechanism of Sri Lankan Universities is consistent with most of the mechanisms adopted by other countries. It has produced both positive and negative outcomes to the respective universities as well as to the academic community. The whole institution will undergo a thorough review under the internal members appointed for writing SER as well as under the external reviewers appointed to do the evaluations. The successful implementation of the quality Assurance mechanism in the university system will depend on the characteristics of the leadership. There are drawbacks in the review manual, training of reviewers and reviewees, writing of SERs, conduct of Reviews and writing and submitting final reports which must be rectified to get the maximum benefit out of the review process. Extension of number of days for the reviews and incorporation of international reviewers could be identified as two progressive steps towards improving the quality of the review process.

6. Recommendations

Quality Assurance mechanism of Sri Lankan Universities should be continued in its full spirit with some changes to the standards, scoring system and the processes adopted. The selection of reviewers for IR and PR should be carefully done and the responsibilities to be allocated after an extensive training. Training for SER writing groups should be done by the QAAC, UGC. Strong personalities with full commitment and capacity should be appointed as IQAC Directors. Student community should be given prominence in the review process as they are the main beneficiaries of this whole process. A The possibility of linking resources, cadre and finances with the reviews to be explored and a mechanism to be identified to reward best practices and eradicate malpractices. Finally, the institutions should also should consider quality as a continuum and commit themselves explicitly to the development of a culture which recognizes the importance of quality, and quality assurance, in their work.

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Staff Reward and Recognition Scheme to Motivate Academic Staff in Higher Education: Case Study in SLIIT, Sri Lanka

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Abstract
The Vroom's expectancy theory of motivation [2] suggests that employees are more likely to be motivated to perform well when they perceive that there is a strong link between their performance and the reward they receive. When the staff is performing well, it directly impacts the quality of an organization. Therefore, staff performances recognizing and rewarding systems can serve the purpose of attracting, retaining and motivating the staff. In the Sri Lankan context, there are only limited attempts of establishing staff reward and recognition schemes of higher educational institutes. Therefore, this study focused on the investigating staff reward and recognition scheme (a performance-based evaluation scheme) of a non-state higher education institute: Sri Lanka Institute of Information Technology (SLIIT) and how it has helped SLIIT to enhance the quality of its teaching and learning environment.

1. Introduction

Higher education institutions not only functions as a provider of knowledge but also as a pertinent sector for the nation's grown and societal wellbeing. The academic staff of higher education institution is a key resource to institution's success. The performance of academic staff, as teachers, researchers and managers, determines, the quality of the higher education and has a significant impact on student learning.

The motivation of the academic staff is crucial in determining the quality of their performances. With appropriate support, well-motivated academic staff can build an international reputation for themselves and the institution. Such academia has a significant impact on the ability of the institution to attract high calibre students, research funds and consultancy contracts. However, failing to increase the motivation of the academic staff, the higher education institute risks losing valuable academic staff and suffers from high turnover rates. Rewarding systems can serve the purpose of retaining, motivating the academic staff, as well as assisting achieving academic staff objectives. This is very important in competitive academic environment, where institutions are fighting for high-calibre academic staff in order to improve the quality of teaching and gaining excellent reputation.

Various studies have explored the concept of staff reward and recognition schemes and the effect they have on staff motivation and performance. In the last decade, staff reward and recognition schemes, special performance-based evaluation schemes, in public service have received much attention in Sri Lanka. There are lots of challenges and questions to be answered when designing and implementing a staff reward and recognition schemes such as:

(1) how the scheme can capture all aspects of staff work output,
(2) is the scheme having the capability to complement quality of the staff work output,

(3) what types of rewards and recognitions can be offered,
(4) how do they contribute positively to job performance and motivation etc.

This study therefore, pursues to fill the knowledge gap by investigating staff reward and recognition schemes of higher educational institutes in Sri Lanka, and their effect towards the academic staff performances in the institute. However, in the Sri Lankan context there are only limited attempts of establishing staff reward and recognition schemes of higher educational institutes. Specially the state universities have not adopted to performance-based evaluations schemes yet. Therefore, this study focuses on the investigating staff reward and recognition scheme (a performance-based evaluation scheme) of a non-state higher education institute: Sri Lanka Institute of Information Technology (SLIIT).

2. Recognizing and Rewarding Staff

Every organization is competing to survive in this challenging market environment, and in order to survive; they need pools of talented and productive human capital to work in organizations. Due to this, organizations need to provide their employees with suitable benefits such as a good salary, appreciations, good remuneration etc. [1].

The Vroom's expectancy theory of motivation [2] suggests that employees are more likely to be motivated to perform when they perceive that there is a strong link between their performance and the reward they receive [3]. Also, employees are motivated to improve their performance if they believe that by working harder, they will increase their performance outcomes, and that the resulting performance improvement will be adequately rewarded [4].

There are very limited studies on exploring the concept of staff reward and recognition schemes of the higher education institutes. A study in [5] was conducted to identify academic staff rewards related problems at Jimma University, Ethiopia. A descriptive survey was carried out with 150 academic staff. The result of the study indicates that lack of recognition and appreciation, unsatisfactory financial rewards and poor performance evaluation were ranked as major problems. Their suggestions were on improving the performance evaluation and reward system of the university.

The work in [6] focused on determining the effects of reward on employee job performances in Kenyatta University. Moreover, the relationship between other factors affecting performances (working environment and leadership styles) was also explored.

The author of [7] focused on studying the job satisfaction of academic staff in the higher education sector of United Arab Emirates. The results of his study show that, having a performances-based evaluation system effects the job satisfaction.

The research [8] focused on studying the impact of total rewards on organisational commitment among academic staff in higher education institutions. The findings in the study reveal that performance management has a positive relationship with organisational commitment.

3. SLIIT Staff reward and recognition scheme: performance-based evaluations

SLIIT is a leading non-state higher education institute in Sri Lanka, approved by the University Grants Commission (UGC) under the Universities Act. SLIIT is a member of the Association of Commonwealth Universities (ACU), as well as the International Association of Universities (IAU). There are around 7000 undergraduates currently studying at SLIIT, with around 300 permanent academic staff members.

SLIIT introduced a performance-based evaluation scheme in year 2015, to recognize and reward their high performing academic staff. In this section, we are going to discuss about the SLIIT performance-based evaluation scheme.

A. Objectives of the SLIIT performance-based evaluation scheme

The performance-based evaluation system of SLIIT, is designed with four main objectives.

First, the academic staff and the management get a clear understanding about the academic staffs' goals, required outcomes, and how the success of the contributions will be assessed. Second, the performance-based evaluation system helps academic staff to accomplish both personal development and institutional goals.

Third, the performance-based evaluation system provides legal, ethical, and visible evidence that academic staff were actively involved in understanding the requirements of their jobs and their performance. If an academic staff is failing or not improving his job performance, the performance evaluation documentation can be used to develop a Performance Improvement Plan (PIP). This plan provides more detailed goals with more frequent feedback to an academic staff who is struggling to perform.

Finally, the performance-based evaluation system provides evidence of non-discriminatory promotion, pay, and recognition processes.

B. SLIIT performance-based evaluation process

Every year, SLIIT academic staff is required to participate in the SLIIT performance-based evaluation process. SLIIT is evaluating the academic staff performances in two categories: Quantified evaluation and Subjective evaluation.

I. **Quantified evaluation**: This is primarily based on the standard academic activities a faculty member should engage with (work load). For example, teaching modules, academic administrative activities (level/module coordination) etc.

The workload of a faculty member is quantified by a unit coined as "Academic Workload Index". This index will provide a balance between staff who are teaching modules with a larger number of students with staff who are engaged in teaching larger number of modules. Workload index calculation is based on three parameters as defined in Table 1.

Parameter	**Description**	**Remarks**
p	Workload adjustment based on Table 2	Work adjustment factor is based on the student numbers in the class.

h	Number of time table hours allocated for delivery	A 3-credit course will, in general, have 2 hours of teaching, one hour of tutorials and 2 hours of labs each week.
n	Contribution factor	If modules are shared between faculty members, then this factor should reflect it. For example, if the lectures are shared between two lecturers on a 50%-50% basis, one person can claim with n=0.5 only.

Table 1: Workload index calculations

The workload adjustment parameter p balances between staff who are teaching modules with a larger number of students with staff who are engaged in teaching larger number of modules.
Table 2 provides the workload adjustment factor to accommodate different class sizes.

Class size	p
<100	1.0
101-200	1.5
201-300	2.5
>300	4.0

Table 2: Workload adjustment factor

II. **Subjective evaluation:** The subjective evaluation category is a self-evaluation of the SLIIT academic staff contribution presented to the HOD/Dean for review. It focuses on two aspects: (1) research output and (2) self-improvement.

The research output tries to capture the research contribution of the staff in three categories: (1) journal publications, (2) conference publications and (3) any other research related activities. The research related activities include research workshops attended, research seminars conducted etc.

The self-improvement aspect tries to capture the staff contributions to the institute, country and self within the past year. In this category, the staff is expected to submit the data on their contributions to institutional development, teaching, national service which has brought fame to the institute etc. Also, staff must include information on any self-improvement and career development activities such as attending staff development programs etc. This self-improvement sector of the evaluation form will allow the faculty member to provide additional information to justify his/her claims of the work he/she has done during the past year.

Once the performance-based evaluation forms are duly filled and submitted by the academic staff member, it is evaluated confidentially by the Head of Department and Dean of the Faculty together with the said academic staff member. The Head of Department and Dean of the Faculty together will make their recommendations for the performances of the academic staff. The recommendations are based on a scale of 1 - 5 which will be later translated into a monetary benefit based on the institutional policy determined by the management. The scale is given in Table 3.

Scale Value	Description	Increment status
1	Poor performance	Maybe ineligible for an increment
2	Needs improvement	Conditional eligibility for an increment
3	Satisfactory performance	Eligible for an increment.
4	Good performance	
5	Exceptional performance	

Table 3: Performances recommendation scale

It is expected that the evaluators will be impartial and will not be influence by personal differences during this process. In cases where there are disagreements between the evaluation panel and the faculty member, a third-party arbitrator panel will be provided to resolve any issues.

The SLIIT annual performance-based evaluation is carried with the objectives of self-improvement and instructional improvement, which will lead to high quality higher education. However, it is advised to all management staff that the performance-based evaluation should never be used to penalize the academic staff, as it can be detrimental in achieving the institutional objectives. The evaluation should be impartial and justifiable and the reasons for management staff judgment, positive or negative, should be made known to the academic staff member being evaluated at a meeting conducted with the evaluator. Such transparency would foster better relations among staff members and will not be a source of contention.

4. Impact of the performance-based evaluations

Rewarding systems can serve the purpose of attracting, retaining and motivating the academic staff. In this section, we are going to discuss how the SLIIT performance-based evaluation scheme has helped SLIIT to attract and retain high calibrated academic staff and motivate them to perform well in their duties.

As mentioned in the previous section, once the SLIIT performance-based evaluation forms are duly filled and submitted by the academic staff member, it is evaluated by the panel and panel make their recommendation for the staff members' performances. The recommendations will be later translated into a monetary benefit. As the whole evaluation and rewarding process is systematic and transparent, the academic staff of SLIIT is highly satisfied and motivated. This has made SLIIT a reputed higher education institute in Sri Lanka as a very satisfied place to work and that have attracted numerous high calibrated academic staffs.

The Figure 1 shows the SLIIT academic staff recruitment statistics from year 2013 to 2018. It includes the recruitments of instructors, assistant lecturers, lecturers, senior lecturers and professors. As shown in the figure, SLIIT has been able to recruit new academic staff in every category, increasingly every year.

First, there is a significant improvement in the number of recruitments for instructors from year 2013 to 2018. This is a very important factor for a higher education institute. As these instructors are the academia who are just starting their careers as academic professionals and the fact, they selected SLIIT as their very first employment place, shows the reputation SLIIT has gained as a highly satisfied working place.

Next, once again there is a significant improvement in the number of recruitments for professors from year 2013 to 2018. This shows that, not only the beginners of the academic career (instructors), but also very prominent figures in academic career has selected SLIIT as their work place due to the reputation SLIIT has gained.

Finally, it's important to note that, not only instructors and professors, but also in all the other categories of the academic staff (assistant lecturers, lecturers, senior lecturers), there is an increase in the recruitment counts, which clearly shows that SLIIT is attracting academia with its satisfied and motivational working environment.

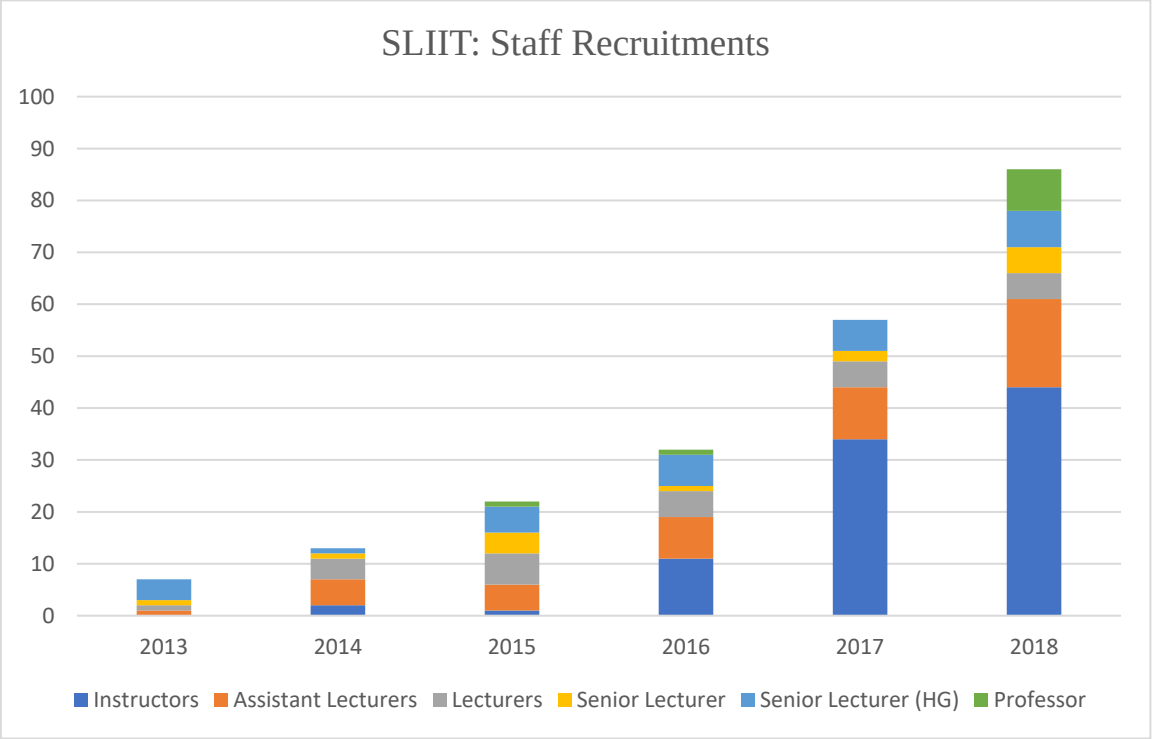

Fig 1: SLIIT Staff Recruitments

The Figure 2 shows SLIIT total academic staff count statistics from year 2013 to 2018. It includes the instructors, assistant lecturers, lecturers, senior lecturers and professors. As shown in the figure, SLIIT academic staff count has been increased every year. This is important evidence that shows two facts. First the existing academic staff is satisfied with SLIIT working environment and they are retaining in the institute. The institute does not have a risk of losing valuable academic staff and does not suffer from high turnover rates. Second, the SLIIT academic staff is growing as new academic staff is joining because of the good reputation.

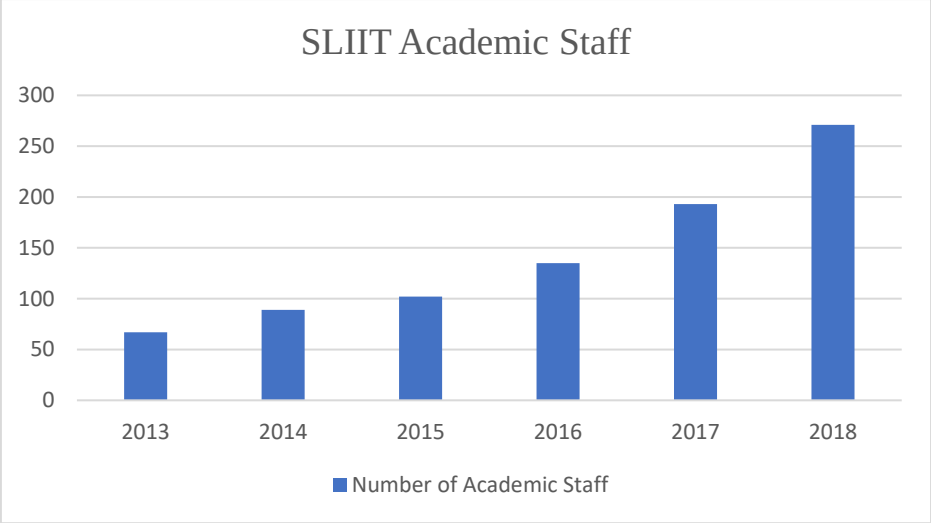

Fig 2: SLIIT Academic Staff

When the academic staff if highly satisfied and motivated, it is reflected in their teaching performances. It is a fact that, high performances teaching produces highly qualified graduates. This shows in the statistics of SLIIT about their graduates' employability. As the quality of the graduates are increasing, they are now having a high demand from Sri Lankan as well as foreign companies / organization.

5. Final Remarks

Various studies have explored the concept of staff reward and recognition schemes and the effect they have on staff motivation and performance. However, in the Sri Lankan context there are only limited attempts of establishing staff reward and recognition schemes of higher educational institutes. Therefore, this study focused on the investigating staff reward and recognition scheme (a performance-based evaluation scheme) of a non-state higher education institute: Sri Lanka Institute of Information Technology (SLIIT). SLIIT introduced a performance-based evaluation scheme in year 2015, to recognize and reward their high performing academic staff. Evaluation process focus on two categories: quantified evaluation (academic workload) and subjective evaluation (self-assessment on self-improvement).

As the whole evaluation and rewarding process is systematic and transparent, the SLIIT academic staff is highly satisfied and motivated. The statistics on academic staff recruitment shows that SLIIT has gained a good reputation as a satisfied place to work and attract lots of high calibrated academic staff. The statistics on total academic staff count shows that the existing academic staff is satisfied with SLIIT working environment and they are retaining in the institute. Also, the student's quality improvement statistics shows that, as SLIIT staff is highly satisfied and motivated, their teaching performances have increased and that reflects through producing high quality graduates increasingly every year.

6. Acknowledgement

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Standardization in quality assurance standards framework - International comparison and inspiration to China

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Abstract
The regionalization and globalization of higher education are becoming more and more significant. The quality assurance standards framework of regional and global higher education has increasingly affected the formulation of education policy of participating countries. China's latest The Belt and Road policy calls for a viable framework of high-quality assurance standards among participating countries to strengthen dialogue and mutual benefit among them. By comparing standards used in three regional and global external quality assurance associations (APQN, ENQA, and INQAAHE), the paper analyzes characteristics of each standards framework and features that are missing relative to the other two frameworks from three dimensions. Furthermore, some opinions are put forward for the high education quality assurance of China's regional integration.

Keywords: Quality assurance standards framework; Asian-Pacific region; European region; The Belt and Road

1. Introduction

Quality assurance of higher education has many purposes, a central issue tends to be accountability towards the general public – both within and across national borders (Stensaker & Harvey 2011). Thus, the issue of accountability can be seen as one of the key drivers of quality assurance, explaining why quality assurance has become one of the key topics in higher education policy-making globally (David, 1998; Billing, 2004; Dill, 2010; Martin, 2016), regional (Rhoades & Sporn, 2002; Hinaga, 2004; Thune, 2005; Kathy, 2007; Singh, et al., 2012; Hou, et al., 2015; Stella, 2004; Stumbrys, 2004; ENQA, 2006; Vidar, 2007; Stensaker, et al., 2011; Thompson & Mockler, 2016).

This global rise of quality assurance is reflected by the increasing establishment of regional and international quality assurance organizations such as the APQN (Asia Pacific Quality Network), ENQA (European Network for Quality Assurance Agencies), INQAAHE (International Network for Quality Assurance Agencies in Higher Education). This global diffusion of quality assurance is interesting in that it addresses a number of issues of importance both for the study of globalization as such, but also for the development of higher education. While higher education systems around the world historically have been built up according to national needs and characteristics, quality assurance brings in a different logic one that emphasizes comparison and thus the need for standardization also across national borders. Partly as a result of this, regional and international associations have developed their own frameworks specifying how quality assurance should be conducted, and the criteria of importance when engaging in such processes.
However, we know less about how various regional standards are adjusting to the criteria used in other regions, and we also have limited knowledge about how large higher education systems are affected

by, alternatively, influencing the development of regional standards and criteria. For example, as the accreditation system in the US is amongst the oldest in the world, one might expect that US standards and criteria could be influential for the standards and criteria developed in other regions (Rhoades & Sporn 2002; Stensaker 2011). At the same time, large higher education systems such as sin China might also be expected to develop standards and characteristics that are unique for them, which might be seen as less relevant to countries and regions elsewhere. In addition, given that China is implementing the "The Belt and Road" policy, it is impossible to predict whether it will bring about a similar effect to the higher education integration in Europe after the bologna process for the countries included in this policy. However, the establishment of a broader and more inclusive quality assurance standards framework that goes beyond Chinese characteristics has become one of the themes of "The Belt and Road" higher education. We try to provide some suggestions and/or reminders for China to establish the framework of pan-quality assurance standards.

2. Quality assurance standards framework as guideline

The key goal of quality assurance standards framework is to build the common ground for dialogue and/or understanding of quality assurance for learning and teaching across borders and among all stakeholders. Furthermore, improving quality, increasing transparency and building mutual trust are three important purposes that quality assurance systems commit to. Although the three frameworks have different titles and purposes, we can still attempt to describe what a quality assurance standards framework is. It is a guidance to standardize core elements, internal quality assurance, external quality assurance and quality assurance agencies, in the process of implementing quality assurance activities at the national, regional and international levels. By following the guidance, the quality assurance agencies and the assessed institutions will be better able to achieve the goals set by them in their activities, including improving quality, accountability, openness and transparency, and promoting mobility.

3. Empirical data

Three international organizations and their associated standards for quality assurance have been selected: APQN, ENQA and INQAAHE. The two first of these are regional associations of quality assurance agencies in Asia and Europe respectively, while the latter association is the umbrella organization for quality assurance agencies globally. All the three associations have formalized contact and established links, and could be expected to potentially mediate the establishment of global standards in quality assurance while at least two of them (APQN, ENQA) also have specific regional responsibilities.

In 2008, inspired by the INQAAHE Good Practice Guidelines, the UNESCO/OECD Guidelines for Quality Provision in Cross Border Higher Education, and the ENQA Standards and Guidelines for Quality Assurance in the European Higher Education Area, APQN proposed the Chiba Principle (for short CP), a regionalized quality assurance standards framework, at the annual conference in Japan. We use the revised ENQA standards framework, which called “Standards and Guidelines for Quality Assurance in the European Higher Education Area 2015” (for short ESG) with support of the EU-funded EQUIP project which aims at enhancing quality through innovative policy and practice in European higher education by promoting the consistent, efficient and innovative embedding of the ESG at grass-root level. At the international level, “INQAAHE Guidelines of Good Practice 2016”

(for short GGP) is the revised edition. GGP has a special emphasis on quality assurance of cross-border higher education and promotes links with the quality assurance community. Each of the three gives the goals or purposes of the framework, as shown in Table 1.

Table 1. Goals or purposes of quality assurance standards framework

CP	Public confidence; enhancement of quality; clarity and transparency; quality culture; accountability; public information; assist quality assurance agencies; cooperation of quality assurance agencies
ESG	Common framework for quality assurance system; improvement of quality; mutual trust; providing information
GGP	Good practice for internal/external quality assurance; framework for quality assurance agencies; criteria for self and external evaluation of quality assurance agencies; professional development among quality assurance agencies; public accountability of quality assurance agencies

All the three associations have many full members, intermediate members, associate members, and institutional members, and are absorbing more and more new members. For example, Higher Education Evaluation Center (for short HEEC) in China belongs to APQN and INQAACE. In addition, associations organize annual conferences to further expand its boundaries. By comparing the contents, we express the features presented by frameworks with phrases, and summarize the features of each framework to make them clear at a glance. For those whose expressions are different but whose meanings are the same, they are generalized to a single feature.

4. Results

The following results are summarized according to the three quality assurance standards frameworks. Where, marked as square root means that one framework has a certain feature, and blank means that it is not mentioned.

Table 2. Features of quality assurance standards framework

Ingredient	Standards	CP	ESG	GGP
IQA	qulity assurance culture	√		
	goal congruence	√		
	management systems, policies and procedures	√	√	
	periodic approval, monitoring and review	√	√	
	strategy for continuous enhancement	√		
	academic staff of quality assurance	√	√	
	information publication	√	√	
	mission of student training		√	
	student-centred learning, teaching and assessment		√	
	student admission, progression, recognition and certification		√	
	learning resources and student support		√	

	information management		√	
	quality assurance is primarily responsibility of the HEIs			√
EQA	cyclical basis quality assurance	√	√	√
	stakeholders develop the standards and criteria	√	√	√
	mechanism of no conflict of interest	√	√	√
	self-assessment; site visits; report; follow-up	√	√	√
	complaints and appeals mechanism	√	√	√
	the result is based on explicit and published criteria	√	√	√
	institutional diversity			√
	different modes of provision to HE			√
	external review process consistent with the characteristics of the institution/programme being reviewed		√	√
	reasonable timeframe			√
	clear guidance for self-assessment			√
	mechanisms for understanding decisions taken			√
	fair and indipendent decision-making			√
	consideration of internal quality assurance		√	√
	designing methodologies fit for purpose		√	√
	reports should be published, clear and accessible		√	√
	students included in peer-review experts		√	√
QAA	undertake research and provide information and advice	√	√	√
	clear mission statement, goals and objectives	√	√	√
	human and financial resources	√	√	√
	independence and autonomy	√	√	√
	policies, procedures, reviews and assessment reports are open	√	√	√
	internal quality assurance	√	√	√
	standards, methods, processes, criteria and appeals processes are clear	√		√
	link to the quality assurance community	√		√
	official status-agencies should have an established legal basis		√	√
	cyclical external review of agencies		√	√
	systematic opportunities for the professional development		√	√
	experts are supported by resources and training			√

From the perspective of internal quality assurance (IQA), the Asia-Pacific region association attaches great importance to the quality assurance culture and goal congruence, and the strategy for continuous enhancement is where the internal quality assurance should not be ignored. The common standards in the Asian-Pacific region and European region include: management system, policies and procedures, inquire approval, monitoring and review. Moreover, academic staff of quality assurance as well as

information publication is also one of the internal quality assurance standards. ESG is the only association that emphasizes student-centered learning and teaching. This embodies the characteristics of the mission of student training, student admission, progression, recognition and certification, learning resources and student support. Furthermore, ESG is also the only one that includes information management in internal quality assurance. As regards IQA, GGP has given few statements, but primarily recognizes the importance of IQA as quality assurance is primarily responsibility of the HEIs.

From the perspective of external quality assurance, all three mentioned the periodicity of quality assurance activities, stakeholders develop the standards and criteria, mechanism of no conflict of interest, process of assessment (self-assessment, site visits, report, and follow-up), complaints and appeals mechanism, the result is based on explicit and published criteria. The common standards in the ESG and GGP include consideration of IQA, designing methodologies fit for purpose, report of assessment should be published, clear and accessible, students included in peer-review experts. GGP also has more individual characteristics, which are institutional diversity, different modes of provision to higher education, reasonable timeframe, clear guidance for self-assessment, mechanisms for understanding decisions taken, fair and independent decision-making.

From the perspective of quality assurance agencies, all three-attach importance to meta-evaluation. CP and GGP specify that "states standards used, assessment methods, processes, decision criteria and appeals processes are clear (Chiba Principle)", and both of them stress the importance of building quality assurance community through cooperation with other associations and beyond national boundaries. ESG and GGP attach importance to the legitimacy of agencies and propose to maintain such status through cyclical external review of agencies and professional development. In general, GGP has made more demands on agencies.

5. Inspiration to China

Issues related to converge and increased standardization are currently high on the higher education research agenda, not least as a result of the attention given to global rankings and their potential impact on universities globally (Hazelkorn 2014, Kehm & Stensaker 2009). In this paper, China is selected partly because this country is a rapidly rising player in global higher education although in need for strengthening its legitimacy internationally, but also because the size of the country might imply the need to develop standards adjusted to the specific Chinese context.

It is difficult to simply construct a new standard framework that conforms to the development of higher education in a country or region with a specific background simply by comparing the standard framework at the regional and international levels. However, to some extent, it is conducive to the establishment of a new framework, both at the logical level and at the practical level. It is widely accepted that the ESG is the basis for quality assurance in the EHEA, and it is one of the main achievements of the Bologna Process. The Belt and Road policy covers over 60 countries and regions, which brings great challenges and opportunities to China's higher education. It will also set up a leading image for China to establish mutually beneficial and win-win relations with countries along the routes. In addition, in September 2018, HEEC has accepted the secretariat task of APQN, which not only related to the improvement of China's higher education quality assurance system, but also played an

important role in the development of APQN as a platform. How China's higher education quality assurance role should be positioned is crucial, or needs a new interpretation. Internationalization and Chinese characteristics have long been buzzword, but how to better adapt to regionalization?

Compared with regional and international standards framework, China's quality assurance system did not form clear standards and/or guideline, but in practice as well as the fragmentation process, activities and documents, HEEC have formed a relatively clear outline. Liu (2016) outlines how quality assurance agenda is transforming higher education in China. Since 2003, the HEEC has conducted two rounds of assessment, the first round of level assessment and the second round of audit assessment. Both of them have issued the assessment program with the indicator system as the core. The adjustment of assessment methods reflects the reform and progress in China's exploration of quality assurance. However, with the increasing importance of quality assurance, more and more stakeholders put forward the requirements of establishing and improving China's higher education quality assurance system. Although, implementation will vary depending on different contexts, it is an effective and prudent way to construct China's own system by referring to the existing international quality assurance framework.

6. Conclusion

This paper examines the quality assurance standards framework adopted by APQN, ENQA and INQAAHE. It is discovered that (1) the three frameworks show certain convergence characteristics in form and content. On the one hand, internal quality assurance, external quality assurance and quality assurance agencies are all included in the framework. On the other hand, there is consistency in standards and criteria, especially on external quality assurance and quality assurance agencies. (2) On the difference, three standards frameworks have their own outstanding characteristics. Specifically, CP puts building quality culture in the first place. ESG emphasizes the centrality of students. And, GGP leaves the interpretation space of internal quality assurance to stakeholders, and puts forward more requirements on external quality assurance and quality assurance agencies.

For China, the purpose of building a quality assurance standards framework that influences and promotes the development of "The Belt and Road" higher education is to create a consensus among all the stakeholders involved on how to take forward quality assurance in the “Belt and Road” area and, as such, provide a firm basis for successful implementation.

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The Improvement and Changes of Peer Review Mechanism in New cycle of Program Accreditation in China Taiwan

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Abstract

This article is introducing the innovative and improve ways that HEEACT implies into the peer review mechanism of new cycle program accreditation in China Taiwan. Self-evaluation combined with the external evaluation model based on peer review is an internationally recognized quality assurance method for higher education, and the performance of peer reviewers is the key factor to the success and reliability of higher education evaluation. Quality Assurance agencies all over the world utilize peer review mechanism to prove their quality assurance results are objectively and professionally, but ironically, the main arguments and complains are focusing on the peer reviewer's evaluative competencies. In order to solve this embarrass problem many QA agencies encountered, this article summarizes three viewpoints to let the peer review mechanism more effective and play its role well.

1. Introduction

In response to the trends of internationalization and diversification of higher education, higher education evaluation has played an important role for governments to improve the quality of higher education institutions and realize their performance. Self-evaluation combined with the external evaluation model based on peer review is an internationally recognized quality assurance method for higher education, and the performance of peer reviewers is the key factor to the success and reliability of higher education evaluation.

Quality assurance based on peer reviewers is no better or worse than the quality of the members of the team. Excellent written standards and processes are wasted if team members are not familiar with those standards and trained how to apply them. It is an underlying principle for external review that the team of peer reviewers should, collectively, have sufficient knowledge and understanding of the areas covered in the review in order to conduct a professional and effective external review process. In addition, the on-site visit requires a high level of knowledge and understanding of the purpose and principles of the review process and good practices for conducting on-site visits. In this regard, it is crucial that reviewers understand the sometimes-subtle differences between different QA frameworks applied in different countries or areas. To achieve these outcomes, therefore, many quality assurance agencies organize training programs for their reviewers.

The main purpose of training reviewers is to ensure that the reviewers have an understanding of the quality assurance approach to be used, including the requirements and rationale for the program's self-evaluative processes. The reviewers need to understand their roles and responsibilities, the phases of QA and the outcomes of the review process. Training program, therefore, typically provide an overview and discussion of the overall QA framework and where the reviewer fits into process. Many training programs also have a practical section and provide the reviewers with an opportunity to test their skills through analysis of a vivid example of program they are going to evaluate. Training

programs can also include case study and role plays simulating the on-site visit interviews and thus anticipating the possible situations that reviewers are likely to face when conducting the on-site visit.

2. What is peer and peer review?

According to Harry (2004), Peer, in the context of quality in higher education, is a person who understands the context in which a quality review is being undertaken and is able to contribute to the process. Peer review is the process of evaluating the provision, work process, or output of an individual or collective operating in the same milieu as the reviewer(s).

3. How does peer review mechanism imply to quality assurance of higher education?

Before we discuss this issue, we should ask why we need peer review mechanism in higher education quality assurance. From the literature review, document analysis, peer review is first used as an expert advice system to help editors of scientific journals in judging the scientific value and plausibility of research papers they receive, and deciding which should be published. This helps to make journals a reliable source of new information and discoveries for other scientists to investigate or build on We can think of peer review as "a form of scientific quality control" or "an error detection system". But it is a much more critical and dynamic process than many other forms of quality regulation. It is based on using the scientific judgment of other experts who are also trying to advance knowledge in the area as to whether work is competent, significant and original (Brown,2004). Quality control, error detection system and advancing quality in this field are quality assurance agencies need peer reviewers to do in a objective manner. Besides, the main model of higher education quality assurance nowadays implies peer review mechanism to play a very important role to validate and be a quality gatekeeper.

From the definition and practical implementation of accreditation and audit these two models, we can see the process generally involves three specific steps: 1. a self-evaluation process conducted by the faculty, the administrators, and the staff of the institution or academic programme, resulting in a report that takes as its reference the set of standards and criteria of the accrediting body; 2. On-site visit procedure, conducted by a team of peers, selected by the accrediting organization, which reviews the evidence, visits the premises, and interviews the academic and administrative staff, resulting in an draft report, including a recommendation to the commission of the accrediting body; 3.an examination by the commission of the evidence and recommendation on the basis of the given set of criteria concerning quality and resulting in a final judgment and the communication of the formal decision to the institution and other constituencies, if appropriate(UNESCO,2007).

Accreditation in higher education is a collegial process of self-review and peer review for improvement of academic quality and public accountability of institutions and programs. Typically, it involves three major activities:

1. a self-study by an institution or program using the standards or criteria of an accrediting organization.
2. a peer review of an institution or program to gather evidence of quality
3. a decision or judgment by an accrediting organization to accredit, accredit with conditions or not accredit an institution or program (CHEA,2018).

From the above discussion, peer review in accreditation is based on the fundamental assumption that quality in higher education is best served through a process that enables peers of the institution, informed by standards created and applied by professionals in higher education, to make the judgments essential to assuring and advancing the quality of higher learning. Take Higher Learning Commission (HLC), Regional accreditor in US, for example, HLC peer reviewers have two primary responsibilities:

1. Public certification of institutional quality. Within the context and mission of the institution, peer reviewers affirm its fulfillment of the Criteria for Accreditation.
2. Institutional improvement. Within the context and mission of the institution, peer reviewers offer consultative information intended to contribute to the quality of its academic offerings and to its improvement (HLC,2018).

In conclusion, the modern evaluation takes peer review mechanism to verify the quality of the evaluated program and/or institution, and from the professional perspectives to give them impartial opinions and advices.

4. Improvement and Changes of peer review mechanism in Taiwan

Just as we mention before, quality assurance based on peer reviewers is no better or worse than the quality of the members of the team. Excellent written standards and processes are wasted if team members are not familiar with those standards and trained how to apply them. Peer reviewers' quality which depends on their evaluative professional competencies (knowledge, skills, and attitude) is always the issue need to be solved worldwide. The main complains are as below:

1. The reviewers are unfair and objective
2. The reviewers don't do their job well, especially unread the self-evaluation report.
3. The violation of the evaluation ethics
4. Lack of experienced and trained reviewers and the reviewer training needs to be indeed implemented.

Besides, our government changed the program evaluation policy from compulsory to voluntary in 2017. It's time for the QA agencies to think about their evaluation mechanisms. In the first and second cycle program evaluation, HEEACT is facing a very difficult situation to select proper and sufficient peer reviewers because of the compulsory time schedule of program accreditation arrangement. Number of reviewers we need to recruit is about one thousand each year, and the qualified peer reviewers after the procedures we set for the evaluation impartiality and professionalism such as avoidance rights from program & reviewers, receiving training programs, the balance of public and private, and the reviewer's time pair to on-site visit are just make.

Because of this policy, HEEACT can make suitable changes to recruit peer reviewers, to regulate more about the quality of reviewer's work, to help programs more before they apply our QA plans. The comparison of peer review mechanism in two cycle of program accreditation is as the table 1 below.

Table 1 comparison of peer review mechanism in two cycle of program accreditation

	Second cycle (2012-2016)	Third cycle (2018-2022)

1.Implement the program accreditation	Compulsory	Voluntary
2.Number of Standards and Indicators	4 Standards,14 Core Indicators	3 Standards,12Core Indicators
3.Number of Peer Reviewers	5	3 (one can be the recommender from evaluated program)
4.Recommend reviewer mechanism	No	Yes, each program can recommend 10 reviewer candidates
5.Avoid reviewer mechanism	Yes, but only can avoid the HEEACT reviewer list, and must have a specific reason.	Yes, each program can list 5 avoid reviewers
6.Document Review	Reviewer discuss the self- evaluation reports, and send the questions to the evaluated Programs	Reviewers should discuss the self-evaluation reports, and write the draft reports before the on-site visit.
7.Self-evaluation report questions	Send to university one week before onsite visit Then verify the reply in the on-site day.	Send to university and verify the reply, if the reviewers are satisfied with the answers, then proceed onsite visit. If not, do the procedure again, to make sure the problem is out.
8.Online review mechanism	No	1.Program and Peer reviewers should upload and download documents related to reviews
9.On-site days	2	1
10. Comprehensive discussions with faculty procedure before writing the report	No	Yes

Peer review mechanism is a professional-based way to verify and improve the quality of program to be evaluated. Almost all the professional QA agencies worldwide imply this mechanism to improve and prove the quality of institutions and programs. HEEACT's innovation and improvement of peer review mechanism in new cycle of program accreditation can summarize into three viewpoints:

1. Program has the rights to decide and conform the peer reviewers.
   Partnership is very important in today's accreditation/audit. Effective peer review mechanism should be built on trust, so HEEACT let the program staff to recommend 10 qualified

reviewers, and will select one into the review team if he or she accomplished the required training.

2. The QA agencies must regulate and help peer reviewers responsible for their duties and roles.
   In order to regulate peer reviewers to do their job well, and solve the arguments from the stakeholders, we change the peer review procedure, emphasize the self-evaluation report review, every peer reviewer should review the self-evaluation report and file the questions and verify the reply from program before on-site visit. Through this procedure, the peer review team will get ready to on-site review.
   Besides, we establish a online review system to let the review team can discuss the report online, no need to get together in-person. Not only reduce the time and cost of transportation, but also improve the communication of the review team.
3. The QA agencies must reduce the evaluation administrative loadings and strive for evidence-based quality of program.

Program staff can register the online review system to submit the self-evaluation report, get the question from review team, reply the questions, and get the draft evaluation report. Because of this innovation, the program will save time, money and paper consuming.

5. Conclusion

Peer review mechanism has become the key success factor of higher education quality assurance nowadays. Professionalism and impartiality are the main reasons quality assurance agencies imply peer review mechanism. How to make this mechanism work and success is the quality assurance agencies' responsibilities and professionalism. HEEACT, as a national QA agency, has the duties to led and practice the innovative and effective ways to other QA agencies in Taiwan and share these experiences with our international QA networks to make a sustainable development of higher education quality assurance.

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Updating Our Conceptions of 'Quality' In Higher Education: The Case of The SDGs

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Abstract
The paper uses the case of the Sustainable Development Goals (SGDs) to open a conversation on how external quality assurance agencies take account of changes in societal context when updating their standards for institutional registration or program accreditation. Arguments for and against including requirements relating to the SDGs in standards for the registration or accreditation of higher education institutions are explored. These arguments raise further questions on the role of EQAA standards in shaping the social responsibilities of higher education institutions, on the use of rankings as de facto indicators of quality, on the interplay between global and national concerns for quality, and on the parallels between universities' social engagement and corporate social responsibility in the private sector. The importance is highlighted of considering 'who decides?' when conceptions of quality in higher education are adjusted to meet the needs of contemporary societies.

1. Introduction

One of the matters that external quality assurance agencies (EQAAs) do not always address transparently is the updating of their conception of 'quality' in higher education, which underpins the standards and criteria used in their assessments. Often, the revision of standards is presented as primarily a technical exercise, even after a period of extensive consultation (see for example HESF ex mem). Important questions, such as the function of regulatory standards in promoting social justice or national transformation, are seldom debated. There are of course some notable exceptions, for example, South Africa (Badat, 2010).

In this paper, I consider the arguments for and against including requirements relating to the Sustainable Development Goals (SGDs) in standards for the registration or accreditation of higher education institutions by EQAAs. The aims of the paper are threefold. Firstly, the paper aims to set out key arguments for and against the inclusion of SDG requirements in EQAA standards. Secondly, it aims to encourage a conversation on the role of EQAA standards in shaping the social responsibilities of higher education institutions. Thirdly, the paper highlights the importance of 'who decides?' when conceptions of quality in higher education are adjusted to meet the needs of contemporary societies.

2. Why we need to update our conceptions of quality in higher education

The concept of 'quality' is not immutable or unchanging but rather changes over time, as the values, preferences and desires of those who define it change – and as the authority to define quality changes. This concept is essentially subjective and complex: when we talk of the 'quality' of something, we usually are thinking of a basket of valued attributes. Hence the identification of 'quality' as a 'subjective term for which each person or sector has its own definition' (ASQ, 2018).
Moreover, 'quality' is usually specific to the nature of the product, service or attribute under examination: an individual's account of the features of a quality car is quite different to their account of the features of a quality higher education institution. In higher education, we mostly are concerned

with the quality of institutions, programs, research and graduates, each of which will have its own set of desirable features.

The emergence of new features desired by stakeholders and changing preferences – together with a changing balance of which groups are authorised to define 'quality' – mean that we need periodically to revise our ideas about what constitutes quality for a higher education institution, a program, of research and of graduates.

3. The SDGs and Higher Education

In 2015, 193 countries at the UN General Assembly adopted the United Nations documents 'Transforming Our World: The 2030 Agenda for Sustainable Development', which sets out 17 global sustainable development goals (and 169 targets) for 2030 as 'a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity' (UNDP, 2016). The list of 17 goals is:

GOAL 1: No Poverty
GOAL 2: Zero Hunger
GOAL 3: Good Health and Well-being
GOAL 4: Quality Education
GOAL 5: Gender Equality
GOAL 6: Clean Water and Sanitation
GOAL 7: Affordable and Clean Energy
GOAL 8: Decent Work and Economic Growth
GOAL 9: Industry, Innovation and Infrastructure
GOAL 10: Reduced Inequality
GOAL 11: Sustainable Cities and Communities
GOAL 12: Responsible Consumption and Production
GOAL 13: Climate Action
GOAL 14: Life Below Water
GOAL 15: Life on Land
GOAL 16: Peace and Justice Strong Institutions
GOAL 17: Partnerships for the Goals. (UN, 2016)

There are a series of targets and indicators for higher education under Goal 4, including targets for scholarships for developing countries and international cooperation for teacher training.

There is no doubt that many higher education institutions, and associated peak bodies, desire to contribute to the achievement of the SDGs, not only for Goal 4 but more broadly. Existing networks that promote sustainability in higher education, such as GUNI, HESI and the International Association of Universities, have aligned agendas (GUNI, 2018; HESI, 2018; IAU, 2017). In the Pacific region, a guide for universities on getting started with the SDGs recently has been published (SDSN, 2018).
Moreover, Times Higher Education is preparing a new world university ranking based on the SDGs. Plans for this ranking are well-advanced: we know initially it will 'include metrics based on 11 SDGs, but the long-term goal is to measure performance against all 17 goals… based on the best four or five SDGs per university' (Bothwell, 2018).

Given this widespread involvement and interest, it is therefore timely to ask whether our EQAA definitions of quality (institution, program, graduate), often found in standards, should include non-trivial requirements for institutions to demonstrate action, or programs to demonstrate education, to achieve the SDGs. The implications for EQAAs are that they would need to use additional expertise and be very careful to design criteria that were not susceptible to 'gaming'.

4. The Case for Inclusion of SDG Requirements In EQA Standards

As noted, our ideas of 'quality' in higher education, comprising a basket of desirable features, need periodically to be updated. For the SDGs, we can ask a series of questions about contemporary higher education:

- Nowadays, do we expect all higher education graduates to have considered the SDGs in some way as part of their formal education, rather than only their general knowledge?
- Would we regard a university as a quality institution if it showed no overt concern for or interest in the SDGs?
- Do societal institutions in the private and civil society spheres, such as universities, have roles to play in achieving the SDGs, independent of the actions of governments through direct legislation, regulation or incentives?

If the answer to one or more of these questions is 'yes', then there is at least the start of a case for an EQAA agency to include a criterion relating to the SDGs into their standards for standards, which could be minimum requirements or excellence goals.

In fact, one EQAA recently has made such a proposal, for introducing sustainability into quality assessment in the Principality of Andorra (Junyent, Mulà & Fonolleda, 2018). Other EQAAs may be considering similar activities (Galkute, 2014).

Of course, a concern with sustainability, social justice or the SDGs is not enough, of itself, to make a quality higher education institution or program or graduate. Such a concern, however, could be part of the mix or basket of attributes that constitute 'quality' for any of these subjects, just as an ability to self-manage is a standard requirement for institutional registration. At the least, a mandated concern would suggest a willingness by EQAAs to ensure that students are educated as potential global citizens.

In the private sector, there are indirect but increasingly more direct or legislated requirements for incorporated entities to demonstrate a serious commitment to corporate social responsibility or CSR (see for example Chhabra, 2014). Historically, universities have been regarded as playing a significant role in making better societies but concerns are expressed over a retreat from practical commitments to community engagement and social justice (Brown, 2015). Given the many criticisms of the roles played by higher education institutions as 'gatekeepers of social inequality' (Hall, 2012, p. 16) – in effect, acting as brakes on the achievement of the SDGs' prime purpose of reducing global inequality – a requirement for higher education institutions to do more for global equality and social justice (check def) would seem consistent with CSR in a market context and likely to be restorative of a treasured

role of universities in civil society, that of promoting the global common good, not least by creating global public goods (Marginson, 2016).

It seems unrealistic to expect politicians to achieve the SDGs on their own but many EQAA agencies are established by government. Setting requirements for higher education to at least engage with the SDGs is a form of indirect regulation that may better express public expectations of 'quality' – including relevance – in higher education than not doing so. While universities would prefer to self-regulate in this space, a consensus conceivably could emerge on the desirability of showing a systematic contribution to achieving the SDGs through a national higher education sector.

5. The case against and counter-arguments

Most higher education institutions react with horror to the prospect of another 'imposed burden of regulation', so any proposal for including SDG requirements in EQAA standards, unless developed by institutions themselves, is likely to face immediate resistance.

There are several arguments of merit than could be advanced against such a proposal. The first of these is familiar and generic: additional requirements for higher education institutions to act in particular ways, especially on matters about which there is not an overwhelming social consensus, represent an encroachment on institutional autonomy.

Then there is an argument about the direct relevance of the SDGs to the assessment of educational quality and consumer protection, the core mission of most EQAAs. Related outcries against 'social engineering' for (usually progressive) political correctness can also be expected. Historically, many higher education institutions tend to reflect a mainstream rather than a radical position. If an action encroaching on higher education is acceptable for one wing of politics to implement, it is acceptable for another to implement a different agenda, for example, a conservative agenda that might impose restrictions on freedom of inquiry. Current controversies over freedom of speech on campus in the US and some other countries are testing the boundaries of an acceptable mainstream (Stone, 2018). For the SDGs, however, there is a clear mandate for action in most countries, as 193 national governments signed up to their implementation. From this perspective, the question for government might be whether it is better to leave higher education institutions to self-regulate or to use their leverage to show that action is being taken.

It is worth noting also that a range of EQAA standards across different countries mandate requirements or at least a concern with elements of a socially progressive agenda, such as equity, diversity, social justice and even with sustainability, interpreted broadly. Many other EQAA standards of course do not but the principle is established.

A subtler concern is whether quality standards should be socially, or indeed academically, progressive. If standards are minimum requirements, then a relevant test might be of whether a reasonable person would expect a reputable higher education institution to meet them. For this reason, the standards that are developed often are 'lagged', reflecting widely accepted or proven good practice rather than 'leading edge' innovations. It might be argued that a commitment to the SDGs fails this test.

Perhaps the most challenging argument is that of measurability, given a need to decide how great a contribution is 'enough', especially if a standard is intended to explore actions that go further than 'business as usual'. Critics of the inclusion of SDGs can be expected to argue that meaningful contributions will be impossible to measure or assess and are subject to manipulation by institutions. Most universities that conduct research would claim that their research is addressing problems that are designed to make the world a 'better place'. One can ask whether educating international students from developing countries count as an institutional contribution to achieving the SDGs?

The use of 'greenwashing' to demonstrate environmental sustainability provides a salutary caution (Delmas & Cuerel Burbano, 2011), although there are well-established and reliable metrics to assess the contribution of higher education institutions to environmental sustainability (Wang & Ching, 2015). EQAAs would need to be careful to ensure that their data or indicators do not actually perpetuate global inequalities in higher education: there are already claims that the Goal 4 targets for scholarships themselves add to rather than reduce global inequalities in higher education (Bengtsson & Barakat, 2016; Heleta & Moodien, 2017).

Finally, there will be a raft of arguments for exemptions or special cases. Should EQAAs in poor, developing countries not be encouraged to include the SDGs into their standards – or should they be encouraged to, as their higher education system is contributing by its very nature? Should EQAA requirements apply only to universities or institutions of a certain size and scale? Should EQAA requirements for SDG contributions be for programs and curricula only? Should they be for all programs, including degrees in music, literature, or nursing? The conversations are at an early stage but it seems plausible that inclusion of education about the SDGs and action to address the goals could most readily be implemented at program level and so program accreditation standards might be a starting point. And, in a range of disciplines, a concern for societal or environmental sustainability is already evident in subject benchmark statements or similar.

Another way forward might be for an EQAA to offer a broad menu of 'global common good' activities against which an institution could choose to be assessed, referencing a wide range of SDG goals and targets. At is weakest, EQAAs might require institutions to demonstrate intentionality in their actions to promote the global common good or contribute to any SDGs.

6. Conclusions

The discussion above has highlighted likely arguments for and against the inclusion of a contribution to achieving the SGDs in EQAA standards and criteria. Certainly, none of us would wish an outcome where higher education quality regulation could become a hindrance rather than a support in achieving the SDGs. It is an open question whether explicit SDG requirements in EQAA standards are a good use of regulatory authority for bringing about global change.

The discussion has also thrown up some more general questions that EQAA agencies should ponder when next they revise their standards for institutional registration or program accreditation.

The development of a ranking of institutions on their SDG contributions asks EQAAs to consider whether rankings – or at least some of them – now reflect a general normative consensus on the

meaning of quality in higher education, as de facto measures of quality. If so, rankings be included in EQAAs' considerations of institutional outcomes. A further issue is whether EQAA should take account of other quality 'badges', such as ISO certification, or certification of environmental sustainability, or of a commitment to CSR, when assessing institutions?

This paper raises other questions over the role of EQAA standards in shaping or re-shaping the social responsibilities of higher education institutions, and specifically whether publicly-funded institutions need to demonstrate more clearly their societal benefits and engagement.

The third aim of this paper was to consider 'who decides?' what constitutes quality in higher education. The extent to which the views of governments and the public on what constitutes 'quality' in higher education should be taken into account when standards are revised can be contested. Some would claim, or imply, that it is adequate for academic experts alone to determine the markers of adequate institutional and program quality. Of course, a degree of separation is required between the desires of interest groups and politicians of the day, to protect academic freedom and independence of intellectual inquiry across a higher education system. On the other hand, in internationally-marketised higher education, maybe the public should have greater influence in determining how minimum 'quality' is measured.

A case in point is the question of value for money as a definition of quality. Historically, EQAAs and accreditors have shied away from addressing this particular criterion directly; also, there is an argument to state that 'value for money' represents a trade-off between quality and efficiency, so is not a 'pure' measure of quality (Musselin & Paradeise, 2005). Consequently, fee regulation (for equity and cost control) and market mechanisms are frequently used as the preferred methods of assuring value for money, coupled with assurances of quality. Yet community concern over the cost of higher education has now reached such a level in many countries that there are strong calls for institutions to innovate to reduce costs, perhaps indicating that affordability is gaining strength as a 'fitness for purpose' measure of the quality of a higher education system, if not of individual institutions. Ignoring these wider views may risk relevance and credibility in the external assurance of higher education quality.

A more general question is whether EQAA standards for higher education institutions and programs need to be consistent with national policy priorities in a globalised world. The answer might be 'broadly or more specifically consistent with national aims', depending on a negotiated position with the national government, while giving respect to internationally-accepted academic norms and protections.

If EQAAs do not engage with these questions, their responsibilities may gradually be limited to the decontextualised assurance of 'academic quality' and some protection against outright fraud, rather than to helping to make meaning for the future of higher education.

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World-Class Disciplines Evaluation in Mainland China - Case Study of Chinese Postgraduate Education and Discipline Evaluation

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Abstract
Building world-class disciplines has been the top priority of Chinese universities to compete for world-class universities especially since Chinese government issued "World-class Universities and World-class Disciplines' Building Initiative" in 2017. Postgraduate disciplines are the advantageous subjects of a university. To know the quality of postgraduate discipline is an alternative approach to evaluative the overall strengthen of the discipline. Therefore, Chinese Academy of Science and Education Evaluation has done the Chinese Postgraduate Education and Discipline Evaluation (2018-2019) in order to know the competitiveness of a discipline in mainland China. The evaluation employs unique index system, and collects data in an authoritative and credible way. The evaluation results indicate that the postgraduate discipline quality's gap among different areas is narrowing. The ranking of top universities is quite steady. The postgraduate disciplines in mainland China is imbalance, a university is more competitive when the university has more disciplines.

Keywords: world-class discipline, higher education evaluation, postgraduate program evaluation, Chinese Academy of Science and Education

1. Introduction

Establishing world-class universities is one of most effective capacity building approaches for a developing country. A world-class university produces fundamental knowledge, which is then developed as subject knowledge by a national-class university (Shin J.C.,2013). Establishing world-class disciplines is the engine of world-class universities' building. In the innovating era, with the fierce competition for talents all around the world, Chinese government issued the "World-class Universities and World-class Disciplines Building Initiative" ("Double-class Initiative" in short) in 2017. The Double-class Initiative supported 137 universities to build world-class universities, among them, there are 42 world-class universities and 95 universities who have world-class disciplines, there are 465 world-class disciplines in total in this initiative (MOE, 2017). The universities and disciplines in mainland China have race for "world-class" since the "Double-class Initiative".

To build world-class disciplines is the foundation of building world-class university. The world-class universities usually are composed by several world-class disciplines. World-class disciplines are the subjects or programs which have supreme teaching and research quality, and strong competitiveness of the same discipline or program around the world. With a major concentration of teaching and research is possible for a specialized discipline to become a world-class discipline (Liu, Zhimin, et.al.,2016). Rather than self-declaration, the status of world-class disciplines relies on international recognition (Altbach & Salmi, 2011). As the main way of higher education academic performance evaluation, the continued importance of university rankings has served to fuel the growth of the world-class university movement. The ranks of the Times Higher Education (THEs), US News & World Report (USNWR), Quacquarelli Symonds World University Ranking (QS), Academic Ranking of World Universities (ARWU) have done the world universities and disciplines rankings by employing different index systems. Nowadays, the higher education stakeholders commonly use those four major global university ranking systems. The relationship, functions and effects of universities rankings and world-class universities building are examined by numerous studies (Lu Liu, Zhimin Liu, 2016; Hazelkorn, 2007; Rauhvargers, 2013).

However, according to the dependency theory in higher education, although the universities and disciplines rankings employ different index systems, they are English-dominated and western-oriented, which make non-western countries' universities and disciplines in a disadvantage situation. Non-English speaking countries emphasize the necessity of developing the countries' national methodology for auditing science, which will take its native language segment into account where the world's recognized methodologies are not always adequately applicable (V.I. Starodubov, etc., 2012). In view of the significance of disciplines evaluation, the Chinese Academy of Science and Education Evaluation has conducted Chinese postgraduate education and disciplines' evaluation since 2005 annually. This evaluation aims to providing references for education authorities, universities, students and their parents, and other stakeholders to have a comprehensive understanding of the panorama and details of the disciplines. This paper tends to analyze the results of the Chinese Academy of Science and Education Evaluation's 2018-2019 postgraduate education and disciplines evaluation, the evaluation ideas and methodology will be discussed systematically and thoroughly.

2. The Characteristics of the Evaluation

Given the considerable differences of the disciplines' ranking ideas and goals, different evaluations have different characteristics. The leading idea of the Chinese Academy of Science and Education Evaluation is serving for the "Double-class Initiative". Based on years evaluation experience, the evaluation makes every effort to guarantee to get the "scientific, reasonable, objective, justice" results. Chinese postgraduate education and discipline evaluation by Chinese Academy of Science and Education Evaluation have the following seven characteristics.

First of all, in order to meet the needs of Chinese government's "Double-class Initiative", international and national standards are combined in this evaluation. All the subjects who are in the top 1% of ESI database and the top 5% of the former evaluation in Chinese Academy of Science and Education Evaluation' s ranking (marked as 5★+ and 5★) are the world-class disciplines in this evaluation.

In the second place, the structure of the evaluation results is scientific and reasonable, and it is convenient to look up. The 2018 Chinese postgraduate education competitiveness ranking in the first part is based on the national postgraduate degrees' subjects and disciplines index (revised in 2008), every discipline and program have their corresponding code for indexing. All the Chinese postgraduate disciplines are divided as 12 categories; therefore, this evaluation has the 12 categories' ranking.

Thirdly, the evaluation is the most detailed and comprehensive Chinese postgraduate disciplines evaluation report at home and abroad. This evaluation includes 31 provinces (autonomous regions, direct-controlled municipalities) in mainland China, 29 first-class graduate schools, 62 graduate schools and 573 universities 'postgraduate programs. There are 557 Chinese postgraduate disciplines' ranking in different levels and from different perspectives.

Fourthly, in order to make the evaluation results more reasonable and sufficient, this evaluation combines score and ranking together. We divide the universities or the institutions who provide postgraduate education into 5 levels according to the postgraduate programs' distribution characteristics and the distribution law in the first-level discipline evaluation.

Fifthly, paying more attention to preponderant and key disciplines, and taking account of the scale of the discipline simultaneously. The top 20% postgraduate disciplines between the 110 first-grade discipline ranking and 392 academic discipline ranking are highlighted. We marked the percentage of the top 20% disciplines of the universities or the institutions who provide postgraduate programs.

Sixthly, we adhere to the idea of "evaluate by categories and compare among the same category", putting all the universities who provide postgraduate programs in to 10 categories according to Ministry of Education's higher education running index. The 10 categories are comprehensive, science and engineering, agriculture and forestry, medicine, finance and economics, language· politics and law, normal, national, art and physical education.

Seventhly, the evaluation contains huge information. It is innovative and practicable. The basic information including the address, code, telephone, e-mail, website and various ranking results of the universities and institutions who provide postgraduate programs.

3. Research Methods

3.1 The evaluation objects and scopes

The 2018-2019 Chinese postgraduate education and discipline evaluation of Chinese Academy of Science and Education Evaluation includes 579 universities and institutions who provide postgraduate program in mainland China (military universities and institutions are excluded). There are altogether 62 postgraduate schools, 573 universities (56 national postgraduate schools are included). This evaluation have a comprehensive, systematic and depth evaluation of those universities and institution form eight perspectives. The eight perspectives are 31 provinces, 29 first-class Chinese postgraduate schools, 62 postgraduate schools, 573 universities, 12 subjects and disciplines, 110 first-grade disciplines, 392 academic disciplines and 38 vocational subjects.

3.2 Data collection

Every data must have its source, and every source must correct to make the data accurate (Qiu etc., 2018). We collected data from April to June in 2018. All the data are collected from the following five channels. Firstly, Statistic data from relevant government department, including corpus, almanac, and report forms. Secondly, relevant database at home and abroad. Thirdly, relevant government departments, universities and institutions' websites. Fourthly, Journals, books, newspaper and internal data. Fifthly, Chinese Academy of Science and Education Evaluation's own database based on years' evaluation. We double-checked all the original data, and dealt with the abnormal data by manual handing to make sure all the data are effective and accurate.

3.3 The Establishment of Evaluation Index System

The 2018-2019 Chinese postgraduate education and discipline evaluation of Chinese Academy of Science and Education Evaluation' evaluation index is composed by universities' resources, teaching and research production, quality and influence and academic reputation those four first-grade indexes. We distribute the weight of the first-grade indexes according to the importance of every first-grade indexes. The weight of universities' resources is 0.25, teaching and research production is 0.30, quality and influence is 0.30, and the academic reputation is 0.15. Among them, there are 15 second-grade indexes and 56 observation points. The 4 first-grade indexes and their weight and the 15 second-grade indexes can be seen in Figure 1.

Figure 1. Chinese Postgraduate Education and Discipline Evaluation Index System

First grade indexes	Weight	Second grade indexes
Universities' Resources	0.25	research base; world-class university; degree program; elitist; research project; funding
Teaching and Research Production	0.30	talent cultivation; scientific payoffs; inventive patent
Quality and Influence	0.30	students' awards; quality of paper; scientific research awards
Academic Reputation	0.15	Chinese world-class discipline; top 1% of ESI databases; excellence discipline in last year

4. The definition of competitive disciplines

We divide the all the postgraduate discipline in mainland China into five levels after taking the distribution law of concentration and dispersion into consideration. The top 10% universities and institutions who provide postgraduate education are the key and advantageous universities and institutions. We mark five stars (5★) to those universities. We mark the top 1% discipline as 5★+, the top 1%-5% (5% included) as 5★, the top 5%-10% (10% included) as 5★-. The top 10%-20% (20% included) universities and institutions who provide postgraduate education are the advantageous universities and institutions. We mark four stars (4★) to those universities and institutions. The proportion of the four stars (4★) universities and institutions is 10% of all the universities and universitions. The top 20%-50% (50% included) universities and institutions who provide postgraduate education are the universities and institutions who have competitiveness. We mark three stars (3★) to those universities and institutions.

Chinese first-class postgraduate school should have first-class postgraduate's advisors, first-class teaching, first-class research production and first-class international influence. We choose the top 5% of the total 579 universities and institutions who provide postgraduate education as "Chinese first-class postgraduate school", and there are 29 "Chinese first-class postgraduate school".

5. Results and Analysis

We get 557 Chinese postgraduate education and discipline evaluation ranking lists form eight perspectives. The eight perspectives are 31 provinces, 29 first-class Chinese postgraduate schools, 62 postgraduate schools, 573 universities, 12 subjects and disciplines, 110 first-grade disciplines, 392 academic disciplines and 38 vocational subjects. This paper lists part of the evaluation results in figure 2 to figure 4.

5.1 Chinese Postgraduate Education Competitiveness Ranking

Figure 2. Chinese postgraduate education competitiveness
Learn to pronounce ranking by province (31 in total)

Ranking	Province	Number of Universities and institutions	Score	Universities ' Resources	Teaching and Research Production	Quality and Influence	Academic Reputation
1	Beijing	56	100.00	1	1	1	1
2	Jiangsu	33	91.83	2	2	2	2
3	Shanghai	27	84.99	4	5	3	3
4	Shandong	30	84.56	3	3	6	4
5	Hubei	28	83.41	5	4	5	6
6	Liaoning	37	82.59	6	6	4	8
7	Shan'xi	27	81.14	7	7	9	7
8	Guangdong	25	80.19	8	8	7	5
9	Zhejiang	21	78.25	10	10	8	9
10	Sichuan	24	76.63	9	9	10	10
11	Anhui	20	74.09	13	12	11	14
12	Hunan	17	73.35	14	15	12	13
13	Hebei	23	72.90	17	17	17	16
14	Heilongjiang	19	72.73	11	11	13	11
15	Henan	19	72.53	15	14	15	15
16	Tianjin	18	72.43	12	13	14	12
17	Jilin	19	69.42	16	16	16	19
18	Fujian	13	69.27	20	20	19	17
19	Jiangxi	16	68.53	18	18	20	24
20	Chongqing	13	67.56	19	19	18	18
21	Guangxi	13	63.05	22	21	23	23
22	Shanxi	11	62.93	23	22	21	21
23	Yunnan	12	62.26	21	23	22	20

24	Gansu	10	61.34	24	24	24	22
25	Xinjiang	11	59.28	25	25	26	25
26	Inner Mongolia	9	57.25	26	26	25	26
27	Guizhou	8	55.41	27	27	27	27
28	Ningxia	4	48.25	28	29	29	29
29	Hainan	4	47.61	29	28	28	28
30	Qinghai	3	41.88	30	30	30	31
31	Tibet	3	39.42	31	31	31	30

5.2 Chinese First-class Postgraduate School Competitiveness Ranking

Figure 3. World-class universities comprehensive competitiveness ranking

Ranking	University	Score	Ranking	University	Score
1	University of Chinese Academy of Science	100.00	16	Renmin University of China	86.28
2	Tsinghua University	98.96	17	Zhongnan University	85.69
3	Peking University	97.46	18	Shandong University	85.43
4	Zhejiang University	96.56	19	Tongji University	83.47
5	Shanghai Jiaotong University	95.08	20	Beijing Normal University	82.43
6	Sun Yat-Sen University	93.18	21	Beihang University	81.90
7	Fudan University	90.64	22	Tianjin University	81.63
8	Wuhan University	90.38	23	Southeast University	81.56
9	Sichuan University	89.88	24	Xiamen University	81.42
10	Harbin Institute of Technology	88.83	25	Beijing Institute of Technology	81.18
11	Nanjing University	88.46	26	Nankai University	81.03
12	Huazhong University of Science and Technology	88.31	27	South China University of Technology	80.95
13	Jilin University	87.53	28	Northwestern Polytechnical University	80.08
14	University of Science and Technology of China	87.31	29	Dalian University of Technology	77.97
15	Xian Jiaotong University	86.63			

5.3 Chinese First-class Postgraduate Education Ranking by Disciplines (12 disciplines in total)

Figure 4. Chinese first-class postgraduate education ranking by disciplines (12 disciplines in total)

Discipline Code	Discipline	Universities	Ranking in the total universities
01	Philosophy	Renmin University of China	15
02	Economics	Renmin University of China	15
03	Law	Renmin University of China	15
04	Education	Beijing Normal University	19
05	Literature	Peking University	2
06	History	Peking University	2
07	Natural Science	Peking University	2
08	Engineering	Tsinghua University	1
09	Agriculture	China Agricultural University	29
10	Medicine	Shanghai Jiaotong University	4
12	Management	Tsinghua University	1
13	Art	China Central Academy of Fine Arts	257

Moreover, the results of Chinese first-class postgraduate disciplines' evaluation by first-grade discipline, by category and vocational postgraduate disciplines' evaluation are included in this evaluation. The Chinese first-class postgraduate disciplines' evaluation are the substantial components in the world universities and disciplines ranking system. The Chinese Academy of Science and Education Evaluation's Chinese first-class postgraduate education and disciplines evaluation (2018-2019) did a lot Chinese first-class disciplines ranking at the same time in order to know the difference and common point among Chinese postgraduate education. All the results can be found in Chinese first-class postgraduate education and disciplines evaluation (2018-2019). It is helpful for Chinese universities, especially the postgraduate school to know the education quality in a national context. The evaluation results can serve as the pushing hands for Chinese universities to promote the world-class universities and disciplines' construction agenda.

6. Discussion

It is obvious that the gap between the overall qualities of Chinese postgraduate education by area is narrowing, and the ranking is rather steady from this evaluation. Although most of the advantageous postgraduate discipline are in Beijing, Shanghai and Jiangsu, the ranking of the postgraduate disciplines in Jiangxi and Guangxi is rising. The postgraduate education in west part of China is still lagging behind. The science and engineering universities have absolute competitive advantage in the Chinese postgraduate discipline evaluation. There are 44 universities among the top 100 universities are science and engineering universities. The ranking of top university is rather steady, it shows an obvious fluctuate of common universities. Beijing University, Tsinghua University, Zhejing University, Shanghai Jiaotong University and several Chinese top universities rank high in the postgraduate education evaluation, but the common university's quality of postgraduate program fluctuate slightly. Chinese universities' discipline distribution is unbalances and leads to the

unbalanced comprehensive postgraduate education competitiveness. The university who has more disciplines and who is more competitive.

7. Conclusion

The Chinese Academy of Science and Education Evaluation's Chinese first-class postgraduate education and disciplines evaluation (2018-2019) insists its own evaluation principles, and have its own characteristic. In accordance with the idea of based in China with global visions, the ranking results will help China have an overall understanding of the national universities' postgraduate discipline's developing status and trends. More importantly, the results will help the universities fully realize their status in a broad context, thus to know the gap between the individual discipline and the world-class discipline. The ranking results would act as the guide for individual universities or postgraduate school, even the educational authorities to carry forward the world-class universities and disciplines' building initiatives.

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