

New Challenge for Quality Assurance Framework in Japanese Graduate Education

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Abstract (within 150 words)

The Quality Assurance (QA) System in Japanese higher education has continued its transition, driven by internationalization of higher education. Examples include establishment of national universities incorporation and the introduction of certified evaluation and accreditation system [1].

As drastic improvement in quality of Japanese higher education became a top pressing concern, Japanese universities have been encouraged by the Ministry of Education to draw up three educational policies; admission, curriculum and diploma policies in order to enforce QA framework [2] . In addition, institutions have been required to establish and pass an evaluation and accreditation process, ensuring attainment of a minimal requirement [3].

Here-in we will discuss the cultural changes needed to attain an internationally-compatible Japanese graduate education. We will focus on activities at the Center for Graduate Education Initiative, Japan Advanced Institute of Science and Technology which include establishment of an organizational model for promoting QA framework and strategic practices. (150 words)

Outline (within 1,000 words)

Japan Advanced Institute of Science and Technology (JAIST) was founded just over 20 years ago with an aim to pursue advanced graduate education and research in science and technology in Japan. The Center for Graduate Education Initiative (CGEI) was founded in 2010. One of the missions of CGEI is to help promote a high quality-assured graduate education system, cultivating graduates at master's and doctoral level with leadership and innovative qualities in tune with globalization of education and economy. CGEI was originally composed of three units: FD (Faculty Development) Unit, IR (Institutional Research) Unit, and Research Unit. An additional unit, ICT (Information and Communication Technology) was added in 2012. The CGEI organizational structure which has enabled a close association between FD and IR is an advanced and totally unique model in Japan.

These units focus on (i) the development of faculty in terms of changes in the educational environment including student diversity, and instructional techniques, (ii) undertaking research and surveys of other graduate institutions in order to understand the current trends and adapt them to JAIST, accordingly, (iii) developing and implementation of various systems for Distance Learning. These activities have already made substantial impact in JAIST, and we aim to disseminate our work to other institutions, both domestic and abroad.

In terms of QA, CGEI has set two key targets. In the past, students were evaluated subjectively, so, first, we want to change this to a scientific-based objective assessment. The second is somehow related to the first. We are establishing learning goals and learning objectives, providing transparent methodologies for both classroom-based and laboratory-based (research) teaching. This also ensures that the quality of completing students is based on objective assessment of goal attainment, and enables student self-reflection.

In order to realize the key QA targets, CGEI has studied the QA framework in graduate education and made a roadmap for drawing up four educational policies; admission, curriculum, diploma and lab-based (supervision) education policies. In particular, the idea of lab-based education policy is new in Japan, and is NOT among of the three policies enforced/introduced by the Japanese government. It is unique to JAIST. We believe that lab-based policy is just as important as the other policies because it forms a substantial part of graduate education. As a preparation, we have collected web-based data of accountable information at each laboratory in JAIST.

Although the Japanese traditional graduate education follows the apprentice model based on Humboldt philosophy [4-7], such traditional system has often been criticized to be unsociable. Between 2010 and 2012 CGEI undertook a lab-based education questionnaire survey in JAIST and other domestic institutes. In total, 137 questionnaires from JAIST with students comprising 89% of respondents and 758 questionnaires from 20 other domestic institutions with students comprising 89% of respondents, were collected. The target subjects were both students and members of faculty. The aim was to establish which educational activities (e.g., coursework, group seminars or individual supervision) subjects thought provided the best forum for students to acquire knowledge, motivation, sense of responsibility and dedication to studies.

From the results of the survey, we found that both of supervisors and graduate students regarded lab-based education as the most effective activity/program. In particular, approximately 50% of the respondents answered that lab-based education was very vital in attaining skills for logical thinking, time management, presentation and problem solving in both of master's and doctoral programs. This survey also clarified the effort of lab-based education for supervisors and graduate students. In free writing questionnaire, many respondents expected to have a chance to make communication with other laboratories and to take supervision from several professors [8,9]. These findings are likely to become significant in the way Japanese graduate education will be visualized by the graduate systems in the various institutions. More so because there are few similarity-oriented research studies in Japan that clarify the role of lab-based education, both from the students' and faculties' views.

Although the supervision policy for graduate program exists in some countries including the United Kingdom and Australia, the policy mainly describes the responsibility of supervisors and procedures for supervision. Our approach is very unique. It describes a policy following lab-based education with a student-centered approach. Towards implementation of the policy, CGEI has drafted and proposed a lab-based education syllabus template to the three schools in JAIST. The concept of lab-based education syllabus is to express the learning goals at lab level similar to education such as the coursework syllabus. We will be able to introduce a summary of campus-wide workshop making lab-based education syllabus to get feedback and feed-forward prior to implementation this year.

To summarise, the challenges in changing a traditional education system are immense. The Japanese government has embraced the inevitable cultural changes in

graduate education, as driven by globalization and internationalization of education. JAIST, a relatively new graduate only institute is one of the few institutions pioneering such changes in Japan. Through the challenges of CGEI, it is now developing QA framework for classroom-based and laboratory-based education. CGEI is rigorously attempting to capture the relationship between coursework and lab-based education, and to visualize which knowledge, skills and attitude students acquire at each learning activity. Last, through its experiences, in particular, challenges encountered a long the way, CGEI hopes to contribute to the advancement of QA programs in Japanese graduate education. (912 words)

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