

Quality Assurance Practices at the National University of Singapore

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The National University of Singapore (NUS) has transformed itself from a predominantly teaching institution to a research intensive institution over the past two decades. To align itself with leading universities globally, there has been a significant change in emphasis from quantity to quality of research. Several key initiatives have contributed to the success of this transformation.

Visiting Committees

Since 1999, NUS has mandated every academic department to form a Visiting Committee (that comprises two to four internationally renowned scholars in the field) to assess the progress made by the academic department. This exercise would be carried out every four to five years. As part of this review, the Visiting Committee can comment on the quality of publication outlets (i.e., journals and conferences) pursued by the academic department as well as draw the attention of the academic department to high-quality publication outlets if these have been omitted.

Journal Tiering Exercise

In 2002, NUS conducted an extensive journal tiering exercise, where every academic department was asked to place all journals in its field into one of four tiers (premium, leading, reputable, and others). The set of premium journals would comprise the top 5%, the set of leading journals would comprise the next 10%, the set of reputable journals would comprise the next 25%, and the set of other journals would comprise the remaining 60%. This journal tiering list would then be verified by the Visiting Committee of the academic department. Following verification by the Visiting Committee, faculty members in the academic department would be strongly encouraged to target their work at top-tier journals. For those disciplines where conference publications are important, a subsequent exercise was carried out to identify a list of top-tier conferences where faculty members can target their work.

Promotion and Tenure System

A rigorous evaluation system for promotion and tenure has been in place since 2002. To gain promotion, a faculty member has to demonstrate a peak of excellence in one area of scholarship (research or teaching) and have an acceptable performance in the other area. To emphasize quality over quantity of research, a faculty member is required to include only five of their best publications in the promotion and tenure package. In addition, a faculty member can include pertinent details such as editorial board memberships of top-tier journals, program committee memberships of top-tier conferences, patents, citations, H-index, international awards, invited talks, research grants, etc. A panel of international reviewers would then assess the faculty member. In recent years, a system of academic mentorship has been put in place where senior faculty members (mentors) guide junior faculty members (mentees) to help them advance their careers along a desired path through pursuit of quality research.

Using Technology to Reinforce Initiatives

In 2000, NUS started *ScholarBank@NUS*, a repository to consolidate the research outputs of the community of faculty members, graduate students, and other researchers. This system seeks to harness the intellectual capital of the community by making the research outputs visible globally through open access to facilitate research collaboration. To date, this repository has more than 23,000 theses (doctoral and master's), patents, and papers authored by faculty members.

NUS has developed in-house databases to capture pertinent information about faculty members such as journal publications (classified by tiers), conference publications (classified by tiers), books and book chapters, patents and commercialization outcomes, editorial board memberships of journals (classified by tiers), program committee memberships of conferences (classified by tiers), awards (international or local), invited talks (international or local), and research grants (sources and amounts).

Beyond internal resources, NUS subscribes to major publication databases such as SCOPUS and ISI Web of Knowledge. Leveraging these publication databases, the bibliometrics and other information have been elicited to generate insights into emerging research areas (e.g., Essential Science Indicators, a web-based tool available through ISI Web of Knowledge, enables faculty members to track research trends in their respective disciplines and to identify promising research topics and prospective research partners should faculty members decide to embark on these research topics).

Prior to an evaluation by the Visiting Committee, an academic department has to prepare a self-assessment report. The in-house databases and external publications databases have been useful for this purpose. These resources allow an academic department to quickly compile a list of high-impact accomplishments for the Visiting Committee. These resources also enable an academic department to justify their list of premium and leading journals (e.g., using impact factors for the journals) as well as explain why they are embarking on certain research directions (e.g., using the trends identified that match their core competencies). It is possible for an academic department to use chronological information to demonstrate their progress over time.

When preparing their promotion and tenure packages (or undergoing annual performance review exercises), the in-house databases and external publications databases have facilitated the efforts of faculty members by allowing them to quickly bring together all pertinent information. Also, faculty members can use external publications databases to help them justify the list of proposed international reviewers. These resources have helped NUS to institute a rigorous performance evaluation system without making the efforts required of faculty members onerous (so as not to unnecessarily take their time away from productive work).

The use of bibliometrics and other metrics is not without limitations. SCOPUS and ISI Web of Knowledge do not differentiate their collection of publications according to journal quality. The impact factor of journals does not necessarily indicate journal quality. To date, databases for conference publications tend to be incomplete. Yet, performance in some academic disciplines may be better assessed using conference publications, patents, creative works, etc. Because of the limitations of bibliometrics and other metrics, NUS has been using a holistic approach to evaluating academic departments and faculty members in its effort to enhance research outputs.