

**The Vietnam Education Foundation Initiative  
on the Status of Undergraduate Education in Vietnam:  
The Role of Quality Assurance  
in Educational Transformation and National Development**

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**Abstract:** This paper discusses the conceptual foundation, methodologies, and initial outcomes of the Vietnam Education Foundation (VEF) Initiative on the Status of Undergraduate Education in Vietnam. This Initiative, although focusing on the areas of computer science, electrical engineering, and physics, is intended: (a) to help higher education leaders and managers in their efforts to advance curriculum, pedagogy and evaluation in the sciences and engineering in Vietnam; and (b) to provide models for improving the status of science and technology as well as other areas of Vietnamese higher education. Quality assurance along with the evaluation of teaching and learning can provide the information needed to stimulate and sustain the improvement of higher education in Vietnam. This paper will describe the results to date of the VEF Initiative in: (a) appraising the current conditions of higher education in Vietnam; (b) providing recommendations for leadership, for professional development of higher education university teaching staff and administrators, and for the modernization of curricula, pedagogy and evaluation methodologies; and (c) suggesting potential pilot projects focusing on quality assurance. Visits in May 2006 by two teams of U.S.

experts organized by the National Academies in the United States and VEF led to the conclusion that five areas are in need of attention: (a) undergraduate teaching and learning; (b) undergraduate courses and curricula; (c) instructors; (d) graduate education and research; and (e) assessment of student learning outcomes and institutional effectiveness. As a result, pilot projects are recommended that focus on leadership and professional development of Vietnamese teaching staff and administrators. These projects address the issues related to the five areas in ways appropriate to specific academic programs and institutions in Vietnam, including the Vietnam National University and the Ministry of Education and Training.

**Keywords:** Quality Assurance, Evaluation, Undergraduate Education, Vietnam, Vietnam Education Foundation (VEF).

### **Overview**

This paper discusses the conceptual foundation, methodologies, and initial outcomes of the Initiative on the Status of Undergraduate Education of the Vietnam Education Foundation (VEF), an independent U.S. Federal entity under the executive branch. Through its Fellowship program, VEF provides financial support for Vietnamese nationals to receive graduate training in the U.S. in science, engineering, technology, and public health. With the Fellowship program and its Seminars and Projects program, VEF helps to build capacity in science and technology in Vietnam. As of Fall 2006, a total of 175 Fellows are attending 52 U.S. universities and studying in over 50 subject fields.

The VEF Initiative, entitled “Observations on Undergraduate Education in Computer Science, Electrical Engineering, and Physics at Select Universities in Vietnam” (Director, Doughty, Gray, Hopcroft, & Silvera, 2006) was begun at the request of Prof. Dr. Nguyen Thien Nhan, presently Minister of Education and Training and, at the time of the request, the Vice Chairman of the People’s Committee of Ho Chi Minh City. It was conducted with the cooperation and support of the Ministry of Education and Training (MOET) and the co-sponsorship of the University of Social Sciences and Humanities (USSH) of the Vietnam National University in Ho Chi Minh City (VNU-HCM), the Southeast Asian Ministers of Education Organization Regional Training Center (SEAMEO RETRAC) in Vietnam, and the Institute for Educational Research in Ho Chi Minh City (IER-HCMC). This Initiative is intended: (a) to help higher education leaders and managers in their efforts to advance curriculum, pedagogy, and evaluation in the sciences and engineering in Vietnam; and (b) to provide models for improving the status of science and technology as well as other areas of Vietnamese higher education.

### **Conceptual Foundation**

The Ministry of Education and Training (MOET) was established in 1990 and given responsibility of all education and training at the national level in Vietnam, including higher education. It is noted in the Higher Education in Vietnam Update (Institute of International

Education, 2004, p. 5) “that MOET does not yet have a formal system of evaluating each institution for quality purposes.” The Update concludes with the following (p. 16):

Vietnam faces a number of challenges... There has been widespread criticism of a system that is still too Soviet in approach and unwilling to loosen centralized control to allow for competition between private and state sectors. In particular many commentators have expressed the concern that outdated knowledge and “ivory tower” curricula repeatedly stifle creative thinking and fail to produce students who can apply academic knowledge to real life situations. None of these challenges present easy solutions. Nonetheless, the acknowledgement and focus on these issues suggests that MOET is positioning itself to analyze the situation and move toward workable solutions.

One of the ways to “analyze the situation and move toward workable solutions” to these challenges is to apply the principles of quality assurance, accreditation, and the assessment of student learning to bring about educational transformation and national development.

Nguyen and McDonald (2001) describe the work of the Centre for Education Quality Assurance and Research Development (CEQARD), a research institute at the Vietnam National University (VNU)–Hanoi, that has engaged in an extensive government-sponsored quality assurance project over the last several years. The project has resulted in an agreement among Vietnam’s leading universities to engage in evaluation based on nine subject categories that include a total of 43 evaluative criteria. The authors indicated that the process for implementing these categories and criteria that the Center is considering is similar to the “self-regulation” models embodied in U.S. and other national, regional, and disciplinary accreditation practices.

A critical element of those accreditation practices is the self-study. A thorough review of current facilities, resources, practices, and outcomes, for example, based on the nine subject categories and 43 evaluative criteria, would be conducted by the institution and then affirmed by a team of peer examiners during an on-site visit. When this practice is repeated systematically over time and coupled with explicit accountability to the public, it can provide the stimulus for a process of continuous improvement. And if quality assurance and accreditation include the expectation for the assessment of student learning outcomes along with the expectation for continuous improvement, then the foundation will be set not only for stimulating and sustaining higher education innovation, but also for educational transformation and nation development.

Nguyen (2005) states that the concept of institutional effectiveness based on assessment is new and foreign to Vietnamese higher education and, therefore, not much literature on it exists.

Nor is there much training on, or practice of, institutional effectiveness based on planning, assessment, documentation, and improvement. However, recent events suggest that there is a great commitment to upgrading higher education in Vietnam. First, as noted above, the Initiative was begun at the request of Prof. Dr. Nguyen Thien Nhan, presently Minister of Education and Training and was undertaken with the cooperation and support of MOET and other local co-sponsors. Second, the recent remarks, which were made by Deputy Prime Minister to the Rectors of the Vietnamese universities regarding the urgent need for the leading Party, the State, the leadership of MOET, and Rectors of all Vietnamese universities and colleges “to change [their] thinking in order to find out directions for creativity,” (Thu Hong, 2006, p. 1) provide a blueprint for improving higher education in Vietnam. Third, MOET identified ten Advanced Programs at nine select Vietnamese universities and has an accreditation process underway. Finally, in a recent visit to Vietnam, Microsoft founder, Bill Gates, called for investing in higher education as a way to transform the Vietnamese economy, saying, “Opportunity is determined not by region, but by the educational investment that you make” (Thien Y, 2006, p. 1).

### **Methodologies**

The Initiative is a multiple case study, qualitative research project with the following phases: (1) Phase 1 from January to August 2006, to evaluate the current conditions of teaching and learning in computer science, electrical engineering, and physics at four select universities in Vietnam and to identify opportunities for change; (2) Phase 2 from September 2006 to August 2009, to assist in implementing changes; and (3) at the end of Phase 2, to produce models that can be adopted across academic fields and institutions. Four Vietnamese universities were selected to participate in this project because of the following characteristics: (a) their exemplary undergraduate programs in computer science, electrical engineering, and/or physics; and (b) the high number of VEF Fellows from these universities’ programs.

The following three research questions guided the data collection for Phase 1:

1. What is the current status of teaching and learning in Vietnamese universities in the selected disciplines, namely, computer science, electrical engineering, and physics?
2. What are the opportunities for improvement?
3. What are the potential changes that can bring about the improvements?

For the purpose of triangulation, various data collection techniques (reviewing documents, interviewing, and observing) were used. The weaknesses of one data collection technique were counterbalanced by the strengths of the others (Newman and Bentz, 1998). Data were collected by reviewing online and other archival documents from the four universities, as well as from the Web site of MOET. Interviews were conducted with various stakeholders, including senior administrators (at both the university and the department level), faculty members, staff members, students (undergraduate and graduate), alumni, employers, and MOET officials.

Observations included touring campus facilities (e.g., labs, libraries, student and faculty areas) and visiting classrooms (e.g., to see the classroom set up, availability of teaching aids, and potential for student-teacher interactions).

Two multidisciplinary teams of U.S. experts visited the four participating Vietnamese universities in May 2006 where data from interviews, observations, documents, and archival materials were gathered. Before the May visits, the U.S. team members had many questions about Vietnamese higher education in general and about the specific fields of study to be evaluated in particular. Therefore, prior to the visits, extensive information was gathered by the VEF consultant to prepare the U.S. team members for their visits. The pre-site visit data were confirmed by and large through the observations and interviews by the visiting U.S. expert teams.

The purpose of the on-site interviews in May 2006 by the visiting expert teams was multifold: to meet and interact directly with Vietnamese administrators, faculty, staff, students, alumni, and employers; to learn about current conditions and opportunities for enhancing teaching and learning in computer science, electrical engineering, and physics at the four select Vietnamese universities; and to identify what might be required in order to take advantage of these opportunities.

The constant comparative method was used to analyze the data. Interviews, observations, field notes, and documents during the data collection phase were analyzed continually. This approach helped to identify gaps in the data and to make adjustments as necessary. Merriam (1998) states that “the development of categories, properties, and tentative hypotheses through the constant comparative method is a process whereby the data gradually evolve into a core of emerging theory” (p. 191). During the visits, the team members met and discussed their observations and findings on a daily basis.

### **Initial Outcomes**

Site visits in May 2006 by the two U.S. multidisciplinary expert teams led to the conclusion that there are five critical areas of Vietnamese higher education in need of change: (a) undergraduate teaching and learning; (b) undergraduate curriculum and courses; (c) instructors; (d) graduate education and research; and (e) assessment of student learning outcomes and institutional effectiveness. Not all of the issues identified are present in all of the programs, departments, and institutions that were visited. In fact, the teams identified many good examples of solutions to the problems and issues that can provide models for other institutions to adopt. Furthermore, the teams found very good students; dedicated, hard working, and competent junior and senior faculty members; and enthusiastic and forward looking administrators at all levels. The teams also found exciting research currently underway and the use of advanced technologies and equipment.

The teams recognize that many of the issues or problems identified under the five topic areas are highly interconnected. For example, a major problem regarding undergraduate teaching and learning is that the primary teaching method consists of lectures that are two to four 45-minute periods long, typically focusing only on the presentation of factual knowledge while students passively take notes. The learning that is generally expected of students is rote memorization of the factual knowledge, which is tested through a final exam. Typically, there is little use of homework to reinforce the lecture material or to practice the application of the information provided. Thus, the long factual lectures with little, if any, required homework, intertwine to affect the level of student interest and learning outcomes.

The factors that cause these problems are many, including the following: cultural expectations regarding the relationship between teachers and students; traditional definitions of teaching methods; traditional curricula, courses, and content; the large number of courses/credits that students take each semester and that are part of the undergraduate curriculum (approximately 200 credits); the way that faculty income is determined (fixed low salary plus additional income based on the number of credits of instruction, which reportedly motivates teachers to teach 20 hours or more per week at one or more institutions); and the way that university and department<sup>1</sup> budgets are set. In addition, curriculum and course development as well as program review and methods of evaluation do not emphasize institutional effectiveness in terms of student learning outcomes and in terms of continuous improvement of teaching and learning. Therefore, for the teaching faculty, there is little motivation and there are few incentives or rewards for change. If real and lasting changes are to be made in Vietnamese higher education, then all of these factors must eventually be taken into account in order to address the issues and take advantage of the opportunities.

Besides issues and opportunities for change in relationship to the five critical areas, the visiting expert teams also offered general recommendations for consideration at the national level. The following list highlights the primary issues and opportunities. The bulleted items under each area briefly describe the major issues that were identified and the potential solutions suggested by the site visit teams related to these issues. Please note that the conclusions reached by the U.S. expert teams are specific to the situations that they evaluated and may not apply to all cases. Also, please note that the issues are purposefully not listed in any order of priority, and thus are not enumerated.

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<sup>1</sup> The term “Faculty” is used in Vietnamese universities to refer to the equivalent of a “Department” in U.S. higher education. The term “Department” is used in Vietnamese universities to mean the equivalent of a “Major” in U.S. higher education. The Vietnamese do not use the term “faculty” to refer to their teaching staff. For the purpose of this paper, the generally accepted terms used by U.S. universities will be used.

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***Undergraduate Teaching and Learning***

- Ineffective teaching methods: lectures, presentation of factual knowledge, rote memorization, little use of homework, not much faculty-student interaction.

Potential solutions include incorporating active learning strategies, requiring graded homework, emphasizing conceptual learning or higher order learning, and establishing Centers of Teaching and Learning Excellence.

- Inadequate facilities and resources.

Potential solutions include modernizing classrooms, libraries, and laboratory facilities; and providing resources (people and equipment) to support teaching and learning.

***Undergraduate Curriculum and Courses***

- Too many courses (over 200 credits to graduate).

Potential solutions include giving more autonomy to institutions in terms of curriculum content and sequencing so that departments can consolidate courses in order to decrease the overall number of credits to graduate.

- A large number of required courses and few elective course choices.

Potential solutions include increasing flexibility and providing more elective courses.

- Out-of-date content of individual courses and the overall curriculum, which are not at the same level of top universities worldwide. In particular, not enough concepts and principles are taught and too much emphasis is placed on factual knowledge and skills.

Potential solutions include emphasizing higher order thinking skills (application, analysis, synthesis, and evaluation) in instruction and then testing for higher order thinking skills.

- An imbalance between theoretical courses (concepts and principles with too much emphasis on factual knowledge) and applied/practical courses (laboratory or practicum experiences).

Potential solutions include developing more applied hands-on experience, practical applications, exercises, and projects.

- Lack of common or professional skills (team work, oral and written communication in English, project management, problem solving methods, pro-active initiative-taking, life-long learning).

Potential solutions include providing English language instruction and providing opportunities to develop skills through course activities and in real-life settings (work-study, internships, and practicum experiences).

- Lack of flexibility to transfer between majors.

Potential solutions include developing articulation agreements between majors within the same institution and between institutions.

- Courses and curricula are not guided by explicit statements of expected student learning outcomes.

Potential solutions include providing expectations for, and assistance in, developing student learning outcomes as the basis for program curricula and course syllabi.

### ***Instructors***

- Lack of qualified teachers.  
Potential solutions include increasing the number of research-oriented universities and having top universities produce undergraduate instructors for other Vietnamese universities.
- Low level of academic preparation of teaching faculty.  
Potential solutions include providing advanced degree opportunities in Vietnam and abroad.
- Lack of skills of faculty in modern teaching practices and research.  
Potential solutions include conducting professional development programs in pedagogy and research skills.
- Lack of up-to-date knowledge by faculty in their fields with regard to curriculum and course content.  
Potential solutions include providing access to recent scholarly resources, up-to-date curricula, syllabi, and related learning materials on the Web.
- Faculty overworked and underpaid for an acceptable teaching load and, therefore, lack the time necessary for teaching preparation, availability to students, and research.  
Potential solutions include reducing teaching load; hiring and paying instructors “full-time” with understanding that they will work 40 hours per week at their home institution with a balance of teaching, research, and service; and increasing time for research by providing support and assistance in the form of teaching assistants as graders, research assistants, and clerical assistants.
- No incentives for faculty to upgrade teaching skills, courses and curricula, and research ability since promotion and salary increases seem to be based on teaching load and seniority, not on merit, performance, or conducting research.  
Potential solutions include establishing merit-based reward system; rewarding and recognizing teachers who make improvements in teaching, learning, and research.

### ***Graduate Education and Research***

- Little opportunity for Ph.D.s, who have studied abroad, to pursue their research or apply the teaching methods learned abroad when they return to Vietnam.  
Potential solutions include hiring Ph.D.s, who have studied abroad, when they return to Vietnam to provide leadership in disseminating the use of the discipline knowledge, teaching methods, and research skills; providing adequate graduate library resources and access to recent scholarly resources on the Web; upgrading laboratories; and offering support for international conference attendance.
- Academic inbreeding, thus inhibiting a dynamic research environment.

Potential solutions include employing graduates from other universities.

- Separation of research institutes and laboratories from teaching departments, thus limiting the opportunities for many faculty members to engage in research activities.

Potential solutions include reorganizing the structure and relationships of the universities, research institutes, and laboratories so that more research is conducted in universities by teaching faculty and graduate students.

### ***Assessment of Student Learning Outcomes and Institutional Effectiveness***

- Lack of clearly articulated and coordinated student learning outcomes at the institutional, departmental, program, and course levels.

Potential solutions include setting expectations for the creation and use of student learning outcomes at the institutional level, basing program curricula on general student learning outcomes, including specific student learning outcomes in course syllabi, and providing support for development and implementation of student learning outcomes through Centers of Teaching and Learning Excellence and University Assessment Centers.

- Institutional effectiveness not evaluated in terms of student learning. As a result, faculty have little motivation since few incentives or rewards are given for change.

Potential solutions include holding institutions accountable for improving student achievement as part of institutional accreditation; and basing resource allocation for institutions, departments, and programs, at least in part, on student learning outcomes.

- Program and course quality not based on evaluation of student learning.

Potential solutions include developing and implementing a system of program review based in part on the achievement of student learning outcomes in individual courses and in the program as a whole, as well as developing and implementing a system for course evaluation and annual review of faculty to provide feedback on teaching and learning for the purpose of improvement.

- Lack of institutional research infrastructure at university level.

Potential solutions include creating offices of institutional research, providing training for academic administrators responsible for research functions, and providing electronic resources for tracking, analyzing, and reporting student data including enrollment, progress toward degree, graduation, and learning outcomes.

### ***Recommendations for Consideration at National Level***

Recognizing that MOET has a significant role in relationship to Vietnamese universities, the U.S. expert teams also identified broader, more general recommendations, suggesting that MOET might want to consider the following:

- ❖ How to expand the university education system throughout Vietnam, with appropriate distribution across the country, so as to increase accessibility to more high school

students to obtain a university education. The current 255 universities do not meet the demand.

- ❖ Ways to prepare highly trained future faculty by empowering the current major universities to produce excellent teachers in sciences and technology for the other Vietnamese universities.
- ❖ Options for making a strategic decision to fund fundamental and basic research in universities to ensure future generation of scientists.
- ❖ Possibilities for providing more local institutional autonomy and flexibility to enhance quality and to keep curricula up-to-date.
- ❖ How to develop the accreditation process to include assessment of student learning outcomes and to work with local institutions to develop or enhance the program review process for academic departments.
- ❖ Ways to develop a mechanism to ensure that resources distributed are based on merit and quality.
- ❖ How to evaluate the level of quality of universities across Vietnam, based on student learning and research, and to establish a mechanism to assist those institutions at a lower level of quality to rise to the highest possible level.
- ❖ How to enable access to the latest public information for all universities via high speed Internet connections to electronic journals and data bases.
- ❖ Ways to build instructor capacity in content, teaching methods, interaction with students, and research through systematic professional development efforts.
- ❖ How to reorganize the faculty workload to give instructors more time for preparation, interaction with students, and research.
- ❖ Ways to revise and reorganize the MOET mandated curriculum so that students spend more time on learning relevant content and on integrating course information.
- ❖ How to improve teaching methods in high school to better prepare students for a new, more demanding, post-secondary education.
- ❖ Ways to help high school students to be prepared to choose a major while still in high school.

### **Potential Pilot Projects Focusing on Quality Assurance**

The basic premise of the Government Resolution No. 14/2005/NQ-CP dated November 2, 2005, on the Fundamental and Comprehensive Reform of Higher Education in Vietnam 2006-2020, is that improvement in both the process and results of Vietnamese higher education is desired and, in fact, necessary. This mandate is consistent with the charge to the U.S. expert teams, invited by VEF through the National Academies, namely to evaluate the status of undergraduate education in specific fields and provide observations and recommendations with the intent to help improve Vietnamese higher education. However, it is a tremendous challenge to consider changing all components of a country's higher education system including organizational structure, policies, teaching and learning methods, and administrative and fiscal

procedures. Such extensive modifications require careful, thoughtful, and systematic planning and management of the change process.

In this section scenarios are presented of programmatic solutions to the various problems and issues, based on the opportunities for improvement. These scenarios are informed by eight general conditions that facilitate change. These conditions are critical to creating sound plans and ensuring that changes are eventually institutionalized. In many cases, the programmatic solutions build on current efforts by Vietnamese educators. These scenarios integrate recommendations presented in the previous section and provide guidance for the development and implementation of potential pilot projects involving U.S. and Vietnamese institutions and organizations. It is hoped that these pilot projects might provide models for advancing Vietnamese higher education in all academic disciplines and at all levels.

### ***General Conditions that Facilitate Change***

The following eight general conditions represent a synthesis of various studies of organizational change (Ely, 1990). These conditions are critical to creating sound plans and ensuring that changes are eventually institutionalized. They are used as an organizing structure for the recommendations included in the final report of the U.S. expert teams. The topic is followed by a quote, which typically might be used by individuals involved in change and which is intended to embody the essence of the idea. All of these conditions exist with regard to the intent and outcome of this Initiative.

1. Dissatisfaction with the Status Quo: “Things can be better.”  
Some level of dissatisfaction appears to exist throughout the Vietnamese higher education community, including MOET, university administrators, teaching faculty, and students. Government Resolution 14 on the Fundamental and Comprehensive Reform of Higher Education in Vietnam 2006-2020 reflects this condition as well.
2. Knowledge and Skills Exist: “Implementers are up to the task.”  
The basic level of knowledge and skills exists in Vietnam, but is low, in comparison to U.S. models of higher education, including methods of teaching and learning, academic program structure, institutional financing, and assessment and accreditation. Addressing this condition may require considerable faculty, administrative, and organizational development. Training workshops, on-site support by experts in the field, case studies and practical examples, and new models of higher education may all be required.
3. Resources are Available: “Inadequate or insufficient resources can torpedo a change.”  
The scope and nature of the changes required for the transformation of Vietnamese higher education imply the addition of extensive and varied amounts of resources. Important resources to consider are the following: qualified faculty, sufficient numbers of instructors, up-to-date laboratory equipment, current learning materials, quality learning facilities, and funds to pay for these resources.

4. Time is Available: “Individual time and organizational timelines exist.”  
Time is a special resource that is relevant to many components in the change process and includes the following: (a) for faculty—time on a day-to-day basis (e.g., time to provide substantive feedback) and professional development time on a long-term basis (e.g., time to develop new knowledge and skills); (b) for institutions and departments—organizational and instructional development time (e.g., time to change structures and approaches); and (c) for country-wide decision-makers—capacity building time (e.g., time to enhance MOET resources for the assessment and accreditation process, time to provide professional and instructional development support services, and time to enhance project and change management capabilities).
5. Rewards and Incentives Exist for Participants: “What’s in it for me?”  
All participants, including administrators, teaching faculty, support personnel, and students want to know the external benefits to change, including incentives for being involved in the change process and rewards for successful change implementation. Comprehensive and consistent attention to these external inducements to change is an essential part of the planned change process.
6. Participation is Expected and Encouraged: “Why should I change?”  
Important inducements to change are the expectations set by those with formal administrative authority and by informal opinion leaders. Such encouragement will facilitate the involvement by more than a select few, who are invited to participate, or who volunteer to participate, in the change process. Thus, encouraging a broad range of people to embrace change will help to move the innovation from the early adopters to the willing majority of those in any community.
7. Commitment: “Long-term institutionalization of change is essential.”  
Advocacy by Government officials or Rectors alone will not suffice to establish a major change, such as the reform of higher education in Vietnam. Deans, chairs, teaching faculty, and students must all make a commitment to comprehensive change. How to demonstrate commitment will vary by situation and role, but consistent messages and actions suggesting commitment will be required of all.
8. Leadership: “It is essential to identify and develop formal and informal leaders.”  
In the relatively early stages of the change process, top-level formal leadership from all sectors is required to set expectations, incentives, and rewards for participating in change. As changes are spread, many other leaders, including informal leaders among groups such as new instructors and students, should play leadership roles.

The issues identified through the visits of the U.S. expert teams include information related to these conditions. The recommendations include strategies and interventions that will address these conditions and thus facilitate the overall management of change regarding the improvement of higher education in Vietnam. The following are scenarios and potential pilot projects that integrate the information produced by the visiting teams.

### *Scenarios and Potential Pilot Projects*

The following scenarios sketch out the context of potential pilot projects for future efforts at various levels, which include MOET and the Vietnam National Universities at the national level, regional universities, universities at the local level, and departmental programs at the institutional level. The scenarios provide general descriptions of actions that might be taken at each level. The opportunities for improvement described in the previous sections provide detailed suggestions that can be used to implement the scenarios.

#### *National Level*

As noted above, Government Resolution 14 on the Fundamental and Comprehensive Reform of Higher Education Vietnam 2006-2020 mandates improvement in both the process and results of Vietnamese higher education. MOET is the primary agency responsible for ensuring such improvements. Therefore, a scenario for change that could be led by MOET might include the following activities:

1. A national effort to enable access to the latest scholarly information for all universities via high speed Internet connections to electronic journals and data bases. By contracting with major service providers and suppliers of such journals and data bases, MOET could create a nation-wide network of scholarly information related to both specific disciplines and pedagogy. This, in turn, would potentially provide the foundation for efforts to build instructor capacity in subject matter knowledge, teaching methods, interaction with students, and research.
2. Leadership efforts to continue to foster local autonomy and flexibility so that programs can keep curricula up-to-date. One step that MOET might take is to revise and reorganize the state mandated curriculum, allowing for curricular decisions at the institutional level.
3. Institutional evaluation that emphasizes continuous improvement. MOET might consider holding institutions accountable for taking advantage of MOET's efforts to foster local autonomy and flexibility.
4. A program review process that incorporates feedback from national and international scholars with expertise in both disciplinary content and pedagogy. The development and implementation of local program review processes also could be considered a "criterion" of institutional accreditation.
5. Ways to evaluate the quality of universities across Vietnam on their continuous improvement of student learning and research productivity. MOET might consider establishing mechanisms to assist those institutions judged to be of lower quality to rise to the highest possible levels.
6. Ways to ensure change by requiring systematic professional development efforts at all levels of Vietnam's higher education system, including MOET.

*Vietnam National University*

VNU provides a potential organizational structure for facilitating systematic professional and organizational development efforts. Among the universities that constitute the VNU, there are experts in disciplinary specialties and pedagogy as well as numerous administrators and instructors with experience and advanced degrees from internationally recognized institutions. In addition, there are units specifically dedicated to assessment and improvement. A scenario for change led by VNU might include the following activities:

1. Experts at VNU could provide leadership in the establishment of Centers for Excellence in Teaching and Learning in each university.
2. VNU and local Centers for Excellence in Teaching and Learning might help to organize professional development workshop series that build capacity among the teaching staff and academic administrators with the goal of improving curricula, course content, and instructional methods.
3. Long-term development efforts might be guided by national and international consultants, who potentially build relationships with university teams. It is essential that individual workshops and long-term development activities be guided by specific goals and measurable objectives related to immediate capacity building, instructional improvement, and the improvement of student learning.

*University Level*

At each university, the academic administrators have the responsibility to take advantage of the autonomy and flexibility offered by MOET. A scenario for change led by individual universities includes the following activities to be considered:

1. Revising curricula, consolidating courses, and reducing the number of courses in order to conform with top level universities, typically requiring a credit system of 120 to 130 credits for an undergraduate education.
2. Reducing the number of courses that instructors teach each semester. However, it is important that reducing the teaching workload does not create financial disadvantages for teachers. This change might be accomplished by paying teachers a total combined salary/income that adequately supports them for working a full work week of approximately 40 hours that includes professional responsibilities of required teaching, research, and service to one's home institution. With a revised compensation system, teachers would not need to take on outside jobs. It is crucial that the number of courses taught be independent of salary/income.
3. Changing the reward system so that a teacher's merit-based pay and other financial rewards are based on conducting professional service (advising students, instructional development, and faculty governance) and doing research, in addition to teaching, at one's home institution.
4. Instituting instructor development and evaluation programs as the basis for promotion beyond the position of lecturer. The department chairperson might consider conducting

an annual evaluation that focuses on performance and is related to increases for merit that is reflected in one's base pay. The promotion program might take into consideration criteria related to evidence of student learning outcomes, course evaluations by students, quality of publications, conference presentations, course development, research funding, effective links with industry, and service to the department and institution.

5. Creating faculty handbooks that clearly define procedures and steps for the reward system (e.g., promotion, recognition, merit-based pay, and tenure).
6. Establishing Centers for Teaching and Learning Excellence at each university (with the support of VNU and MOET resources). It is important that these Centers have experienced staff and both written and electronic resources to provide pedagogical, instructional, and professional development support. These Centers could potentially offer targeted workshops and other training activities by international professionals, who have general skills in pedagogy and instructional design and development as well as specific expertise related to teaching particular content areas such as computer science, electrical engineering, and physics.
7. Offering opportunities for administrators and faculty to go abroad for study or professional programs to observe first hand the use of active learning and other effective pedagogical practices.
8. Providing up-to-date printed and electronic resources (books, journals, etc.) for faculty and students to facilitate teaching, learning, and research. This might be accomplished by working cooperatively with MOET and VNU.
9. Providing teachers with adequate access to high speed/bandwidth Internet and an adequate number of up-to-date computers for instruction.
10. Modernizing laboratory facilities and equipment so that it is possible to develop experiments, exercises, and projects that promote higher order thinking and problem solving skills.
11. Creating an Institutional Effectiveness Plan (IEP) that provides strategies, tactics, timelines, and criteria for making the improvements that are deemed of the highest priority.

Taken together, these activities potentially would not only create favorable working conditions to attract and retain new ambitious, well-trained faculty coming back to Vietnam from abroad, but would also better prepare Vietnamese university students to compete at the same level of students from top universities worldwide.

### *Program Level*

The main purpose of the Initiative was to assess the current conditions of teaching and learning in computer science, electrical engineering, and physics at four select Vietnamese universities and, as a result, to produce models for the improvement of higher education in Vietnam that might be adopted across academic fields and institutions. Pilot projects at the

program level would provide potential models for improvement in undergraduate teaching and learning, undergraduate curriculum and courses, instructors, graduate education and research, and assessment of student learning outcomes. A scenario for change led by the departments at the program level might include the following activities.

1. Undergraduate teaching and learning projects that focus on: (a) raising the level of learning from rote memorization of factual information to higher order thinking abilities; (b) incorporating active learning strategies into class discussions; (c) requiring graded homework that is used to provide feedback on student learning; and (d) incorporating homework grades, attendance, and class participation into the final grade.
2. Undergraduate curriculum and course projects that focus on the consolidation of courses in order to conform with typical credit systems at top level universities worldwide, consisting of 120 to 130 credits for an undergraduate education. Such a consolidation would reduce the number of courses students take and that instructors teach each semester.
3. Curricula and courses that include educational activities that give students applied hands-on experience and practice in the form of integrated laboratory exercises, design-and-build projects, and problem-based learning.
4. Development of courses that include only those topics relevant to a given area, based on a review of course syllabi from leading, internationally recognized programs of study.
5. Courses that include opportunities for the development of oral and written communication and presentation skills, team work, problem solving, project management, critical thinking, and building self-confidence.
6. Professional development opportunities for junior and senior instructors to improve their discipline specific knowledge and skills. Both Vietnamese and international experts can provide in-service education of current instructors, including targeted workshops and other training activities in discipline topics and pedagogy related to teaching particular content areas in computer science, electrical engineering, and physics.
7. Ways to provide teachers first hand experience with courses taught by leading foreign professors. This might be accomplished by providing opportunities for faculty to engage in short-term development activities and long-term study abroad opportunities to obtain advanced degrees, such as VEF Fellowships.
8. Short- and long-term professional development opportunities for instructors in order to provide them with the foundation to enhance the delivery of graduate education and the development of research. As a result, graduate curricula and courses will be brought up to the same level of top universities worldwide in both content and teaching and learning methods by emulating the best programs worldwide.
9. Means to help instructors develop and implement measures to evaluate student learning (e.g., homework assignments, quizzes, projects, group work, port folios, and capstone

exams and projects). This is vital to the improvement of higher education since the evaluation of student learning outcomes starts at the program and course level.

10. Ways to require programs to revise their curricula and to require instructors to revise their course syllabi based on intended student learning outcomes. It is essential that course evaluations and program reviews be based on the accomplishment of student learning outcomes, which would then guide the continuous improvement of courses and programs.

## **Conclusions**

This paper presents the results of Phase 1 of the Initiative (January – August 2006). This Phase has accomplished the first two objectives of the Initiative: (a) to assess the current conditions of teaching and learning in computer science, electrical engineering, and physics at four select Vietnamese universities; and (b) to identify opportunities for improvement and models for change. In accomplishing these two objectives, this project provides the basis for improving higher education practice in Vietnam.

The contributions of this phase include, first, helping to meet the critical needs expressed by the government, MOET, and the higher education community to improve the quality of teaching and learning in sciences and technology in particular, and in higher education in general.

Second, the findings might be used to inform efforts at all levels of higher education to reform curriculum, pedagogy, and evaluation in the sciences and engineering in Vietnam based on the insights from experienced U.S. experts in the disciplines and in assessment and instructional design.

Third, this phase of the Initiative provided the four participating universities with an opportunity to consider reflection upon their current practices and, together with the U.S. expert teams, to examine some aspects of where they are in terms of undergraduate education. Such a self-evaluation might help them to formulate pilot projects that best fit their own contexts and needs and that facilitate achieving their visions, missions, and goals.

Fourth, not only the four participating universities and the areas of computer science, electrical engineering, and physics, but also other universities and disciplines may benefit from the recommendations offered in the report resulting from the U.S. experts site visits.

Fifth, the Initiative's results potentially have implications for higher education institutions in Vietnam in that the results might be used to develop favorable working environments (salary and research facilities) that could potentially attract those who receive graduate degrees from overseas programs (including VEF Fellows) to come back to teach and do research in Vietnam.

Sixth, the Initiative's findings are intended to fill the current perceived void in research-based documentation concerning educational quality in the three targeted disciplines and, more generally, in higher education institutions in Vietnam and, as such, might serve as a point of reference for educators, researchers, and policymakers in the future.

And finally, Vietnamese researchers and educators may gain valuable skills and capacities through the detailed descriptions of the research methodology used in this multiple case study qualitative research project, through discussions with Vietnamese professionals involved in assessment and accreditation, and through the participation of the Vietnamese universities and MOET representatives in the Initiative's activities. It is hoped that the Initiative's methods of conducting the observations and study of the four select institutions and three targeted programs in Vietnam may be applicable to other higher education institutions and fields of study besides computer science, electrical engineering, and physics.

Furthermore, the results of this project may help U.S. educators and researchers to better understand the circumstances in higher education in Vietnam when they are considering cooperative activities with Vietnamese institutions.

The Initiative is expected to embark on Phase 2 (September 2006 – August 2009) in which the nine departments of the four select universities will have the opportunity to develop improvement plans and initiate pilot projects that meet their own needs and contexts. Upon completing Phase 2, it is hoped that the two last objectives of the project will be accomplished: (a) to assist in implementing change through successful pilot projects; and (b) to produce models that can be adopted across academic fields and institutions.

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