



University of Washington  
Office of Educational Assessment

Gerald M. Gillmore, Ph.D., Director  
Nana Lowell, Ph.D., Assistant Director

94-5

**End-of-Program Assessment Progress Report 1994:  
Findings and Changes**

Lauren Basson

July 26, 1994

The Office of Educational Assessment is an agency of the University of Washington which provides a variety of services related to educational research and assessment. The following are programs within which these services are provided:

- Institutional Research
- Student Outcomes Assessment
- Instructional Evaluation
- Test Scoring and Analysis
- Standardized Testing

# End-of-Program Assessment Progress Report 1994:

## Findings and Changes

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### INTRODUCTION

End-of-program assessment, formally initiated in 1989 in response to the Higher Education Coordinating Board Master Plan, is now entering its fifth year of activity at the University of Washington. From the implementation of the first pilot projects in 1989/90 to the development of assessment plans by nearly all academic departments offering baccalaureate degrees, end-of-program assessment is being rapidly integrated into undergraduate education programs at the UW.

This report provides a summary of assessment activities that took place during the 1993/94 school year, with a particular focus on the findings that academic departments obtained through end-of-program assessment and changes they have made as a result. Data used in this report are drawn from departmental responses to a letter from Dean Frederick Campbell requesting progress reports on end-of-program assessment (see appendix). Dean Campbell specifically asked the departments to indicate their major findings and subsequent changes they had made. All but eight academic units responded to this request.

Since more than 60 departments currently participate in end-of-program assessment, it has not been possible to include every finding by every department in this report. When reading the following summary, therefore, one should keep in mind that it includes only a sampling of the many changes inspired by assessment that are taking place on campus.

### METHOD

Academic departments have used a variety of methods to assess their undergraduate major programs. These include:

- Surveys/Interviews
- Examinations/Entrance and Exit Tests
- Capstone courses
- Evaluation of senior essays, projects or theses
- Evaluation of student performances, presentations or exhibits
- Evaluation of portfolios of student work
- Group discussions between faculty and students
- Feedback from employers, internship programs
- Professional accreditation
- Curriculum and course review

These methods and their implementation have been more fully described in Gillmore<sup>1</sup> and Basson.<sup>2</sup>

Although many departments have long had some form of assessment in place, most have adjusted and formalized their assessment processes in response to the Higher Education Coordinating Board's mandate. Assessment programs are tailored to meet the specific needs of each department and frequently involve a combination of several of the methods listed above.

Student responses to surveys and feedback from employers were among the most frequently mentioned sources of assessment information that led departments to make changes in 1993/94. Although many departments are using other methods such as the evaluation of capstone courses, senior projects, or student portfolios as their primary assessment tools, implementing these forms of assessment tends to be more involved and time-consuming. In many cases, therefore, findings from these latter assessment methods will not be available until subsequent years.

## FINDINGS AND CHANGES

### AREAS OF SUCCESS

The purpose of end-of-program assessment is to determine which aspects of a major program are working well and which could benefit from improvement. Due to the wording of Dean Campbell's request, most departments tended to emphasize those areas needing improvement and to demonstrate how the improvements have been made. A number of departments, however, also reported very positive findings that did not indicate the need for any changes. The following examples provide a small sample of the many ways in which academic departments at the UW are successfully meeting their goals for educating undergraduate majors.

#### *Improvement in Student Skills and Knowledge*

Many departments reported that their majors were successfully mastering important skills within their respective fields. By comparing the performance of sophomores and seniors in field study courses, for example, the Oceanography department concluded that their seniors were more skilled at defining soluble scientific problems, detecting significant generalization among masses of detail, and expressing themselves clearly using scientific vocabulary. Geography majors develop proficiency in theoretical approaches toward understanding social phenomena; thinking at several levels (local, regional, national, and international) and articulating how these levels interact; understanding and synthesizing socio-economic patterns in order to solve problems; constructing and using maps; social statistical analysis; and research design and presentation skills.

Other departments noted that their majors had acquired significant knowledge within their field of study. For instance, the American Ethnic Studies program found that their majors

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<sup>1</sup> Gillmore, G.M., *End-of-Program Assessment: A Progress Report*. Office of Educational Assessment, University of Washington, 1993.

<sup>2</sup> Basson, Lauren. *End-of-Program Assessment: Progress, Findings, and Effects*. Office of Educational Assessment, University of Washington, 1993.

had developed a comprehensive knowledge of their ethnic-specific concentrations while psychology majors improved their knowledge of human and animal behavior and the scientific method. International Studies, Speech Communication and Philosophy were among the many other departments that emphasized how well their majors were meeting departmental goals.

### ***Readiness for Job Market or Graduate School***

Graduating majors from many departments are very well prepared to meet the challenges of the job market and/or graduate study. The Mechanical Engineering department discovered that their majors graduate with analytic proficiency that is more than sufficient for entry into the job market. Technical Communication majors have demonstrated that they are better prepared for the job market than their counterparts in the field and all Prosthetics/Orthotics graduates find immediate employment in their area of choice.

The Slavic languages department reaffirmed that their majors are well-positioned to gain entry into international programs in Eastern Europe as well as graduate programs nationwide. Economics majors reported that they felt well prepared to pursue their career and educational objectives and many of them intended to go on to graduate school.

### ***Student Satisfaction with Major Program***

Finally, student satisfaction is an important dimension of any major program and one that seems to be successfully achieved in most cases. Comparative Literature majors praised the high quality of their program and the expertise and accessibility of their instructors. Majors in the History department rated its professors "the best in the university" in terms of knowledge, teaching ability, enthusiasm for their subject, accessibility and interest in their students. In Assessment Interviews, senior psychology majors also expressed a high level of satisfaction with the quality of instruction and advising in the department as well as with the quality and content of the overall psychology program.

## **AREAS FOR IMPROVEMENT**

In addition to providing information about the many positive aspects of their major programs, assessment activities in most departments also revealed areas in which improvements could be made. In some cases, slight adjustments were all that were needed while in others, the findings called for more significant changes, sometimes involving revisions of an entire curriculum. The following section provides a summary of the most common areas departments found in need of improvement and the different ways in which they chose to address them. For the sake of clarity, I have broken the areas for improvement into four major categories: skills development, course changes, curricular changes and extracurricular changes. Again, it is important to remember that this is by no means a comprehensive list of all changes taking place in every department but rather a summary of the major findings and changes with a few examples of each.

### ***Skills Development***

A number of departments discovered that their majors lacked proficiency in skills deemed important for success in their fields. In some cases, these were basic skills such as writing and critical thinking which are necessary prerequisites for the development of competence

in virtually all academic disciplines. Many departments also realized that their majors were not developing sufficient skill in the use of new technology, particularly computers. Majors in some academic programs were not mastering specific skills related to their chosen fields. Finally, many departments discovered that while their majors may have received instruction in certain skills, they had been granted few opportunities in which to practice applying those skills.

**Writing / critical thinking skills.** Competence in writing and critical thinking are essential for strong performance in almost every field. Several departments discovered that their majors were deficient in these areas and have taken a variety of steps to correct this gap.

The School of Nursing has incorporated a focus on writing and critical thinking skills into its new undergraduate curriculum so that students will develop these skills within the context of their discipline. The School of Business Administration also intends to incorporate writing instruction directly into its curriculum, beginning by requiring all of its majors to take an additional "W" or writing course.

International Studies majors will begin to encounter more instruction in writing and critical thinking skills earlier in their academic careers according to the Jackson School's plan. The Japan Studies program has already upgraded one of the prerequisites to its capstone course to make sure that at least one previous course provides majors with a rigorous critical reading and writing experience.

The Psychology department has proposed a variety of approaches to help its majors improve their scientific writing skills. These include providing more small classes at the 300 and 400 levels which would offer a wide variety of writing opportunities. The department would also like to expand the number of graders available to provide feedback on written assignments and expand its Writing Center to serve more students and support more direct instruction on writing in psychology classes.

Finally, the Scandinavian Languages and Literature department has restructured its curriculum so that all of its courses are now 5 credits with the expectation that this will provide majors with more writing opportunities. It also expects to offer more designated "W" courses.

**Technology skills.** Several departments expressed concern that their majors were not receiving adequate training in the use of new technology. In some cases, this involved basic computer skills applicable to many fields while in others, the focus was on specific technology used within a particular discipline.

The Women Studies program discovered that many of their majors felt they needed to improve their computer skills. The program responded by conducting a Task Force on computer literacy which surveyed students regarding their computer skills, needs and anxieties. Based on these data, the program is restructuring its Computer Lab, including computer instruction in all Women Studies courses with special emphasis on the core courses for the major, and considering the requirement of a 2-credit computer course for all majors.

The Aeronautics and Astronautics department incorporated software instruction into one of its introductory courses to provide majors with needed training in the use of modern

computational tools. Chemical Engineering majors indicated that they wanted to engage in less process analysis using spreadsheets and more using simulators. The department complied, making a significant investment in new equipment with the help of industrial gifts. The Oceanography department has added a course for its senior majors which encourages them to use the newest apparatus in the field and the Communications department is attempting to hire faculty with new skills and adjust its curriculum to accommodate the rapid technological changes taking place in that discipline.

**Disciplinary skills.** Majors in a number of departments reported or demonstrated that they did not have an adequate grasp of knowledge or skills pertaining to their particular disciplines. The departments have responded by expanding and strengthening instruction in these areas.

English majors indicated that they felt the need for a better grounding in literary history early in their major program. As a result, students will now be required to complete 10 credits in one of two course sequences in literary history prior to entry into the major. American Ethnic Studies intends to increase the amount of attention paid to comparative study in its core courses and ethnic specific courses in order to improve majors' understanding of comparative scholarship. The program will also focus on increasing students' awareness of the conflicting and complementary relationship between the content of American Studies and American Ethnic Studies.

The Computer Science department has determined that its students need to be exposed to programming languages used in job settings earlier in their education and has, therefore, begun using the C and C++ languages to illustrate concepts presented in CSE/ENGR 142 and CSE 143. A capstone senior design course has also been instituted for majors in response to employers' interest in the ability of graduates to work in groups on design-intensive projects.

Teamwork, self management and problem solving are all skills that the School of Business is now addressing more thoroughly in its basic human relations course (HRMOB 400) based on the student results from a video performance test measuring core skills. In addition, the School of Business has appointed a task force to begin building a new core curriculum that emphasizes these types of basic skills. The Geography department is also in the process of redesigning its curriculum to incorporate instruction in key skills (see Curriculum Revision section).

**Application of skills.** A common complaint among majors in many programs was the lack of sufficient opportunities to practice the skills they had learned. Employers also frequently recommended that students receive more practical experience in the course of their academic careers. Although these comments were particularly prevalent in professional programs, majors in liberal arts programs such as Comparative History of Ideas also recognized the importance of incorporating "real world" experiences into their education.

The three divisions of Rehabilitation Medicine have taken a variety of steps to increase their majors' practical application of skills and exposure to clinical settings. The Prosthetics and Orthotics program has increased the amount of instruction it devotes to computer aided design and manufacture of mobility aids in order to provide students with more practical experience in working with materials and components. At the request of

employers, outside lecturers have also been invited in to address topics related to business and management. The division of Physical Therapy intends to incorporate additional clinical application and problem-solving experiences into its didactic program in order to increase students' ability to apply theoretical information to a number of common clinical problems. Finally, the division of Occupational Therapy is adjusting its fieldwork program to include more attention to psychosocial objectives and to provide its students with a more "real world" experience of clinical practice. Fieldwork I is now an intensive one-week experience rather than the traditional three hours per week and the "Student Professional Behavior" form has been revised to give students more relevant information about the skills they will need to practice in the field that go beyond academic knowledge.

Based on the recommendation of their Industrial Advisory Committee, the department of Materials Science and Engineering has introduced an optional team-design problem into its required senior problem course that involves working in cooperation with a faculty supervisor and industry representatives. The department has also begun a senior course on quality systems, ethics and safety and is investigating additional opportunities for summer internships and employment in order to increase student knowledge of and involvement in the field. In response to an alumni survey, Mechanical Engineering has begun to offer its majors the opportunity to address "real existing" problems through projects conducted with local industry representatives. Homework and project assignments are also being related more concretely to professional expectations.

The School of Social Work adjusted its capstone course to devote more attention to instruction in community practice and administrative structures and to develop student skills in working with clients from diverse backgrounds. These were areas in which students indicated they felt inadequately prepared on self-assessment surveys during their junior year but felt more confident about after participating in the revised senior seminar. Social Work faculty are also considering expanding the two quarter junior year practice sequence to a three quarter sequence so that more attention can be paid to community and administrative practice.

In order to relate the highly abstract, theoretical content of the Comparative History of Ideas curriculum to life outside the classroom, the program has developed a Bridging Seminar in which CHID majors meet with high school students. It has also created focus groups in which students with common interests meet to discuss readings and exchange information on a relatively informal basis, sometimes under the supervision of a faculty member.

Other efforts to increase majors' practical application of skills include the new focus of the Nursing School curriculum on clinical experiences in a variety of hospital and community settings, serving diverse populations, with an emphasis on role development and decision making. The Business School plans to increase emphasis on field projects and real world assignments and the Zoology program has made a variety of efforts to increase research and laboratory experiences for its majors.

### ***Course Changes***

As a result of their end-of-program assessment efforts, a number of academic departments discovered a need to address issues pertaining to individual courses. Two of the most widespread issues were a need for smaller courses and a need for additional

courses to round out the curriculum. Some departments also found that they needed to address a lack of student preparation for courses in their majors.

**Class size.** Large class size was found to be detrimental to the education of majors in many fields. Departments have tried to tackle this problem in a number of ways but several emphasized that budget constraints prevented them from reducing class sizes as much as they would like.

On a graduating senior survey, English majors expressed their desire to work more closely with professors in small class settings. As a result, in autumn quarter 1994, the English department will begin requiring its majors to participate in a small senior seminar taught by a professorial faculty member.

In order to reduce the problems caused by large class size in language courses, the Italian wing of the Romance Languages department has reduced class limits in its 200 series, typically taught by faculty members, from 24 to 18. The Comparative History of Ideas Program has divided its CHID Colloquium into smaller groups that meet once a week with Peer Facilitators in order to provide students with the opportunity to discuss the texts in a more interactive environment. This arrangement also allows undergraduate Peer Facilitators who have taken the course before and have an interest in teaching to gain substantive teaching experience.

The Psychology department would like to offer its majors more small courses, especially at the 300 and 400 levels in order to provide them with needed opportunities to develop writing, quantitative and computer skills. History majors also expressed a strong desire for smaller classes at the upper division level but this goal can only be achieved with additional funding.

**Additional courses.** The need for additional courses in certain departments stems from several factors. In some cases, it is related to attempts to reduce class size by adding more courses. In other cases, it is based on a department's recognition of a gap in their major curriculum.

Several of the languages and literature departments have become aware of the need to supplement their language courses with more culturally-oriented course offerings. Asian Languages and Literature, for example, will introduce a new series of courses on Asian culture in autumn quarter 1994. The seven new 200-level courses will focus on the literatures of various Asian regions including China, Japan and India, using sources in English translation. In a similar vein, Romance Languages and Literature has recently instituted Italian 401-402-403, a new major sequence that integrates the Italian literary tradition with cultural history and the history of ideas.

The Philosophy department has implemented a one-credit freshman seminar designed to introduce entering students to philosophical ideas and current issues in philosophical research. The department also plans to conduct an experimental graduate seminar in the teaching of philosophy in order to improve the teaching techniques of T.A.s.

Physics majors must now complete a "capstone requirement" in the form of at least 3 credits in either the new Independent Study course (Physics 491-2-3) or the new



Research Seminar (Physics 494-5-6). These courses provide valuable opportunities for majors to improve their writing skills.

Comparative Literature majors indicated in individual interviews that not enough upper-level courses were offered each quarter. The department hopes that the arrival of a new faculty member in autumn 1994 will help alleviate this situation. It is also reconsidering whether its "Themes in World Literature" series should be offered to majors again.

The Botany department is considering the development of seminars on current topics and capstone courses in plant biology for its majors. It would also like to increase undergraduate research opportunities but has very limited resources available to do so. Likewise, the History department would like to add entry-level courses on non-Western areas and increase the requirement for its majors from one seminar to two but is hampered by a lack of funds.

**Lack of student preparation for major courses.** Several departments have discovered that their majors are inadequately prepared for certain required courses and have adopted a variety of tactics to remedy this problem. Sociology majors, for example, often seemed unprepared for upper division courses. As a result, the department strengthened instruction in Sociology 110, a gateway course to upper level courses, and instituted more formal prerequisites for majors.

Based on difficulties their majors had in making the transition from 300-level to 400-level courses, the Mathematics department has revised its 325/326 sequence to serve as a preparatory course in which students develop the theorem-proving skills they need to succeed in 400-level courses. The Spanish wing of the Romance Languages and Literature department is considering requiring a course on grammar fundamentals for its majors in response to the department's finding that many of their students lack a basic knowledge of English grammar. Finally, due to the low skills and superficial backgrounds in important subjects displayed by some of their majors, the School of Communications may move the entry level for its major program from junior to sophomore year.

### ***Curricular Changes***

End-of-program assessment efforts in some departments have demonstrated a need for changes at the curricular level. These range from relatively minor structural or technical adjustments to revisions of honors programs and, in some cases, revisions of the entire curriculum.

**Structural changes.** Several departments have revised the requirements for their majors in order to insure that they are better able to meet the goals of the programs. For example, Drama majors are now required to complete Drama 302 (Introduction to Theory) and Drama 371 (Theatre and Society) prior to enrolling in upper division courses. This new requirement is intended to make sure that students take courses in their proper sequence and develop the necessary skills for engaging in advanced coursework.

Chemical Engineering has eliminated the Specialty area requirement for its undergraduate degree based on surveys of current students, and has formulated a new policy on part-time status. In order to solve the problems involved in teaching courses attended by both

graduates and undergraduates, the Linguistics department has divided its syntax sequence into separate undergraduate and graduate series.

The English department has expanded its field requirement to allow majors to apply courses offered jointly by English and other departments such as American Ethnic Studies and Women Studies. It has also lifted the cap of 5 credits of writing instruction that can be applied toward majors. Statistics has added Math/Stat 394 as a prerequisite for Stat 341 in order to make the sequence, Math/Stat 394 - Stat 341 - Stat 342, an integrated one year course in probability and statistics. Finally, the Department of Laboratory Medicine has changed the grading scheme for its senior clinical elective from CR/NC to numerical grades in order to better reflect the strong performance of students in the course.

**Revisions of honors programs.** A few departments have decided on the basis of their assessment activities that their honors programs require revision. Chemistry has restructured its honors program with the aim of integrating lecture and laboratory learning experiences and making fuller use of modern technology. Toward these ends, the department has made its principal honors courses, 145 and 155, combined lecture and lab courses. It has also begun to incorporate extensive use of computers and spreadsheets into lectures and sections to make possible abstract problem-solving and the coupling of workstations with ongoing experiments for control and data analysis.

On the basis of their survey of graduating seniors, the English department found that its majors often felt disappointed by the honors program because it lacked coherence, allowed too little time for completion of their thesis, and required no coursework in literary theory. Consequently, the department has revised the program to include an honors seminar, two senior seminars, a thesis based on work in one of the seminars, and a course in literary theory.

Sociology has also restructured its honors program with the result that students are now completing the program at a higher rate. Political science intends to conduct a detailed assessment of its honors program in the coming year.

### ***Curriculum Revisions***

While some departments focused specifically on revising their honors programs, others conducted revisions of parts or all of their general curricula. In response to its assessment results, for example, the School of Art has made enormous changes in its curriculum including a thorough revision of its Foundation curriculum, the coursework required of all majors prior to them entering specialty studio programs. The new curriculum, to be implemented in autumn quarter 1994, will introduce students to a broader range of artistic media and creative approaches before they select a specific media-based major. It will involve greater interaction among the various disciplines taught in the School of Art and will introduce students to non-traditional approaches to the arts at an earlier stage of their education. Majors will be given elective options in the Foundation program, from a pool of four newly designed courses, and will also be required to fulfill prerequisites designed to guide them logically through this program. Finally, the Art History component of the major program has been redesigned to include non-Western cultures and a Foundation program coordinator has been established to insure the smooth functioning of the new curriculum.

The School of Nursing has also engaged in a substantial revision of its undergraduate curriculum on the basis of four years of assessment. It has eliminated the typical medical specialty content and traditional clinical rotations in favor of an upper division program that exposes students to theory related to the entire health/illness spectrum and to risk factors across the lifespan.

Geography is reorganizing its major to include more integrative course experiences; more active student involvement in articulating learning goals and outcomes; and more flexible requirements emphasizing complementary and sequenced development of analytical skills across the curriculum. The department is moving away from static, generic concentrations toward more specific, dynamic sets of skills and areas of expertise. It is hoped that this will enable majors to analyze what they have learned and what they can take with them after they graduate as well as to identify more specifically the skills that make them "geographers." These revisions should also help the faculty plan the curriculum more sequentially and coherently; encourage flexibility in course offerings and the development of more interdisciplinary courses; lead to more exciting capstone experiences; and foster greater links between end-of-program assessment and the curricular design.

The Dance Program has reorganized its major curriculum by combining areas of complementary knowledge into single team-taught courses and including a new senior seminar. The School of Music has also thoroughly revised its curriculum to include an accelerated program of theory and history and to allow more flexibility for majors to pursue their individual interests.

### ***Extracurricular changes***

A variety of changes that go beyond the strictly academic experiences of majors have been implemented as a result of end-of-program assessment. These include the provision of more information regarding employment and graduate school opportunities, furthering informal contacts between students and professors, and expanding facilities and equipment available for student use.

Several departments have devised ways for their majors to learn more about how the skills and material they gain through their major programs can be applied in careers in the field. The Mathematics department, for instance, runs an undergraduate colloquium in the mathematical sciences in which faculty from a number of departments speak to undergraduates about their latest research. The Society of Physics Students has organized a meeting between faculty and undergraduate majors so that students can learn more about what it means to pursue a career in Physics and have an opportunity to voice their concerns about the major program. The Economics Department has developed a brochure entitled "Preparation for Graduate Studies in Economics and Related Fields" which provides information on graduate programs in economics and related fields, course preparation that should be followed, and other practical advice.

In order to foster more opportunities for student-faculty interaction outside of class, the Business School has constructed an "Undergraduate Promenade" on the sky bridge connecting Balmer and MacKenzie Halls. The Promenade has seating at tables for 36 and allows informal contact between students and faculty as they go to and from Balmer Hall. The School of Nursing is considering increasing its counseling and advising services

for students in order to help majors cope with the competing pressures in their lives that are exacerbated by the academic demands of the nursing program.

On a different note, the Department of Technical Communication has requested a larger, more attractive space for its offices and laboratories from the College of Engineering. It has also begun to purchase new equipment to be used for interactive teaching such as a color scanner and hopes to have the funds available to buy a high-power computer within the next six months.

## **CONCLUSIONS**

This summary indicates the broad range of changes that have taken place primarily as a result of end-of-program assessment. It seems clear that there are few limits to what assessment can teach us about our major programs. Indeed, it has been shown to increase our awareness of the effectiveness of many, diverse aspects of these programs as well as to suggest specific areas that could benefit from improvement. The key to achieving meaningful assessment results seems to lie in the development of an assessment plan that is at once comprehensive in scope and, at the same time, able to pinpoint specific problems. It is also important to have mechanisms in place that allow departments to use assessment results as a basis for making necessary adjustments.

The findings and changes reported above suggest that much progress has already been made in these areas. Given the relative youth of the assessment mandate, we can look forward to many more findings and improvements in coming years as departments fully implement their assessment plans, collect data, and act on the results.