A Comparison of the Registrar’s Role and Function in The Republic of China and the United States

Also:

How to be Better Partners with Information Technology Specialists
Minimum Competency Tests as Predictors of College Grades
Transformation: The Student Services Domain
Index for Volume LXXI
Book Reviews
Don't let your students get caught off guard.

TOEFL Preparation Materials: The best way of all to prepare your students for the actual test. Before they take the test, prepare them with the official TOEFL study materials — the only materials from the developers of TOEFL. Now you have three choices to meet every need and budget:

- Sample Test for the economical Sample Test, our all-new Practice Tests, and our comprehensive
- Practice Tests
- Kit

No matter which you choose, you'll be giving your students the most up-to-date preparation possible. For more information or to order, call or write today.

609-771-7100 • TOEFL@ets.org • TOEFL Program Office, P.O. Box 6115, Princeton, NJ 08541-6115, USA

ETS, Educational Testing Service

www.toefl.org • toefl@ets.org • TOEFL Program Office, P.O. Box 6115, Princeton, NJ 08541-6115, USA

ETS, Educational Testing Service. The ETS logo, TOEFL, and the TOEFL logo are registered trademarks of Educational Testing Service. ©1995 ETS.
A Comparison of the Registrar's Role and Function
in the Republic of China and the United States... 2

To test the theory that the role and function of registrars in other
countries is similar to those in the US, C. James Quann conducts a
field study of four flagship universities in Taiwan.

How to Be Better Partners with
Information Technology Professionals............... 10

Sandra M. Stewart discusses the need for customers to lead
and document the stages of any computer project to ensure the
desired results.

Minimum Competency Tests as Predictors of College Grades... 16

The Texas Academic Skills Program (TASP) requires students enter-
ing Texas public colleges and universities to be tested for minimum
competency in reading, mathematics, and writing. Mary L. May's
study investigates the TASP Test as a predictor of grades in 18
freshman and sophomore courses.

Transformation: The Student Services Domain........... 25

Louise Lonabocker reports on IBM's August forum on Innovation
in Student Services and discusses the role of student services in
AACRAO's current transformation process.

Index for Volume LXXI................................ 31

BOOK REVIEWS

Impostors in the Temple.............................. 29

Medical School Admissions............................ 30
The C&U Advisory Committee welcomes manuscripts for publication in *College & University*, AACRAO's scholarly research journal. AACRAO members are especially encouraged to submit articles pertaining to their own experiences with emerging issues or innovative practices within the profession.

**Manuscript Preparation**

Manuscripts should be no longer than 4,500 words for features and 2,000 words for book reviews and commentary. Since the committee has a blind review policy, the author's name should not appear on any page of the text. A cover sheet should include the title of the manuscript, author's name, address, phone, fax, and e-mail.

Minimally, submissions must include a hard copy (print) original printed on 8.5" x 11" white paper and an accompanying MS-DOS or Macintosh disk.

Authors whose manuscripts are selected for publication will be asked to submit a short biographical statement and an abstract of their article, both no more than 35 words.

References should follow guidelines provided in *The Chicago Manual of Style*, 14th edition, published by The University of Chicago Press. A list of references should appear at the end of the article.

Essential tables and charts should be included on separate pages at the end of the manuscript. All graphics should be submitted on clean, reproducible, or camera-ready paper.

Articles are accepted for publication with the understanding that the *College & University* editor reserves the right to edit for clarity and style. Do not submit articles that are under consideration for publication by another periodical. Submit articles and direct inquiries to:

Georgeanne B. Porter, Editor  
_College & University_  
Office of Admissions  
230 Jesse Hall  
University of Missouri-Columbia  
Columbia, MO 65211  
phone: (573) 882-0110  
fax: (573) 882-7887  
e-mail: cranial@mizzou1.missouri.edu

**Editorial Procedure**

The editor will acknowledge receipt of manuscripts and forward them to members of the C&U Advisory Committee for review. The committee will consider the appropriateness of the article for AACRAO's membership, the current needs of the profession, the usefulness of the information, the nature of any research method used, the logical organization of the presentation, and the manuscript's style and clarity. This review may take as long as three months, after which the editor will inform the author of the acceptance or rejection of the manuscript.
The Domains of AACRAO

Recent discussions in the AACRAO leadership have focused on the six domains of activity, four of which directly define the essence of our work. The four are enrollment management, instructional management, student services, and information technology. Our fall issue's articles reflect three of those four domains.

Louise Lonabocker provides us with a discussion of the student services domain and innovative structures at several colleges and universities. The discussion concludes "that student service and activities cannot exist in isolation from the core academic missions." Overlap of the domains is inevitable, necessary, and desirable.

Mary May addresses the instructional management domain in her discussion of minimum competency testing as predictors of performance in freshman and sophomores who reside in Texas.

And Sandra Stewart's article allows those of us who reside predominantly in one of the other domains to cross over and be better partners in the information technology domain. Such crossovers and overlapping define the profession as we will know it in the next century.

Finally, veteran AACRAOan Jim Quann takes us to another dimension of the domains, the international dimension which permeates all four. His feature article compares the role and function of registrars in China and the US—a reflection of the worldwide perspective that also marks AACRAO's transformation.

"Transformation" and "domains" will be prominent terms in describing AACRAO's focus and future direction, a direction marked by change and expanding of our professional boundaries.

Georgeanne B. Porter, editor
A Comparison of the Registrar's Role and Function in the Republic of China and the United States

By C. James Quann

As a principal academic officer in the US system of higher education, the registrar has many duties involving curriculum and student registration and records. The registrar also advises the president, academic vice president, or dean and other officers of the institution, and assists with policy formulation by providing analysis, reports, and recommendations. The registrar also serves as an extremely important link between the faculty governing unit and the central administration in developing academic policies. Such policies are normally promulgated by the faculty, and the registrar's role is to facilitate their creation and then implement and administer these policies.

Universities in the United States are patterned on the model established in western Europe and Great Britain, starting with the three great medieval universities, Bologna in Italy, Paris in France, and Oxford in England. In fact, the registrar's role and function can be traced into educational antiquity to the end of the twelfth century (Rashdall 1895). Given the historical genesis of the position, one might assume that the role and function of registrars in other countries would be similar. To test this theory with respect to the Republic of China (ROC or Taiwan), this researcher conducted a field study involving four flagship universities in Taiwan. The project was funded by the Pacific Cultural Foundation.

Field Study

On-site visitations took place with the academic dean and registrar colleagues at the National Taiwan University, National Taiwan Institute of Technology, National Taiwan Normal University, and Tamkang University. The roles and functions of registrars were reviewed, as were their facilities and the extent of computer automation in the various offices. The field portion of the study was augmented through consultation with educational officials in the ROC and library research. A secondary but important facet of the study was the opportunity to promote academic and cultural exchange and to further mutual understanding and cooperation between educators in the two countries.

Research Results

The responsibilities and functions of registrars in the Republic of China and the United States were grouped for comparison into five functional tiers based on the template provided in Admissions, Academic Records, and Registrar Services (Quann 1987).

The tiers are:

TIER ONE—Class scheduling, ID systems, registration, grade reporting and recording, degree certification, classroom scheduling, provision of advisory information for faculty, transcript services, budgeting.

TIER TWO—Computing, research and reporting, preparation and distribution of enrollment-related data, certification of scholastic honor rolls and eligibility information, liaison with institutional research.

TIER THREE—Publication of the course catalog, schedules of classes, and related academic publications, academic calendar administration.

TIER FOUR—Systems analysis, programming, user training.

TIER FIVE—Veterans affairs and services.

Although recently retired, Dr. Quann holds an indefinite appointment as Coordinator of Veteran’s Research at Washington State University. He served as University Registrar and later Interim Vice Chancellor for Student Affairs at the University of California, Santa Cruz, from 1990-1995. Prior to that he served for many years as the Registrar at Washington State. He holds a doctorate in higher education administration.
National Taiwan University

National Taiwan University (NTU) is a public coeducational university founded in 1928 as the Taihoku (Taipei) Imperial University and reorganized in 1945. The main campus in Taipei enrolls approximately 18,500 students in the Colleges of Liberal Arts, Science, Engineering, Agriculture, and the Evening Division. There are 47 academic departments and 59 graduate institutes. The University operates on the semester system and uses a numerical grading system (National Taiwan University 1991).

The National Taiwan University registrar has responsibility for most of the TIER ONE responsibilities and activities expected of university registrars in the United States. The registrar reports to the dean of academic affairs. The grading program administered by the registrar is a numerical system, and tables converting numerical scores to letter-grade equivalents are provided. Grades of A, B, or C are awarded for physical education courses, and A, B, or C grades are also awarded for each student's conduct (grades or scores for student conduct were awarded in many US colleges and universities in the earlier years, but the practice tended to disappear following the first world war).

The office prepares and issues photo student identification cards complete with bar codes for computer identification. Administration of the system of fees and charges (often referred to as tuition and fees in the United States) is the responsibility of the cashier's office, with most fees established by the Ministry of Education. Transcript services are available to all students, former students, and alumni, in both Chinese and English. Records prior to 1991 are photocopied and those from 1991 are computer printed from online files. The current registrar has a graduate degree, conducts research, as appropriate, and teaches on a regular basis.

To be admitted to National Taiwan University, prospective students must take the Joint College Entrance Examination (JCEE). Those who pass the examination with very high scores are admitted to NTU. To be qualified to take the exam, students must have completed six years of a high school education within the country or abroad, or have completed the junior-year courses of a senior high school and have suspended attendance for two years or more. Although the joint examination is developed and controlled by the Ministry of Education, registrar staff are extensively involved in the administration of the exam.

The NTU registrar does not have responsibility for the scheduling and assignment of classrooms, nor the preparation of final examination schedules. Moreover, there is apparently no mandated policy on the maintenance or release of confidential information from students' records. The final examination schedule is prepared and circulated by the curriculum office, and that office also schedules and assigns all classrooms. A new computerized online student record system was implemented in 1991, and since that time all records are backed up or duplicated on computer tape or disk. However, student records from 1928-1990 are not backed up in any way.

TIER TWO responsibilities and functions are similar for the NTU and US registrars although report titles and configurations may differ. TIER THREE activities differ markedly. Preparation and publication of the course catalog (University Bulletin) and related academic publications are the responsibility of the university secretariat. The semester schedule of classes is prepared, printed, and circulated by the curriculum office. Similarly, catalog policies and procedures are also the responsibility of the secretariat. The registrar does, however, publish the institution's academic calendar following approval by central authorities. The registrar's involvement in TIER FOUR duties and activities are also similar in both countries, although names and titles may differ substantially. TIER FIVE responsibilities are apparently unique to registrars in the United States, although in the United States veteran activities and services may reside in the registrar's office, the dean of students' office, or the office of financial aid.

National Taiwan Normal University

National Taiwan Normal University (NTNU) is a public coeducational university founded in 1946 as Taiwan Provincial Teachers College, specializing in the education and training of secondary school teachers, scholars, and researchers. NTNU earned university status in 1955. In 1967 the institution was officially named National Taiwan Normal University. The University offers 22 undergraduate programs, 23 master's programs, and 12 doctoral programs distributed among the Colleges of Education, Arts, Sciences, and Fine and Applied Arts. Approximately 12,000 students are enrolled on two campuses. Both campuses operate on the semester calendar (National Taiwan

Like their counterparts in the United States, the NTNU registrar is responsible for most of the TIER ONE functions and duties, with at least one significant difference. Fee-related responsibilities are quite different because all undergraduate students are awarded governmental scholarships covering tuition and fees, room and board, and a book allowance. Students are also guaranteed a teaching appointment following graduation. To warrant these scholarships, students must serve as high school teachers for a minimum of four years after graduation. To be admitted students must be high school graduates and receive an acceptable score on the nationwide Joint College Entrance Examination (JCEE) administered annually by the Ministry of Education. The bachelor’s degree program requires four years of academic study (128 semester credits) and one year of teaching practice at a secondary school. Graduate students do not have their fees waived and are not guaranteed employment.

The grading system administered by the registrar is essentially the same as those in most US institutions with grades of A, B, C, D, and E awarded. The registrar’s office publishes the final examination schedule and the academic calendar, and certifies degrees and certificates. An online Student Information System was implemented in 1985, and all official student records have been maintained and backed up on computer files since that time. Similar records from 1946 to 1985 exist in hard copy form only, and have not been microfilmed or archived as a safety precaution. Transcript services are available to all current and former students, and transcripts may be ordered in Chinese or English. The registrar also provides bar-coded student photo identification cards, and the office validates the cards each semester. The current registrar also teaches on a regular basis.

TIER TWO duties and responsibilities are essentially the same for the NTNU and US registrars, but the organizational structures and responsibilities for TIER THREE activities are quite different. The NTNU catalog and related publications are the responsibility of the publications and printing division, and the Schedule of Classes is prepared by the curriculum division. Similarly, classrooms are scheduled by the curriculum division, while the office of student affairs certifies enrollment and eligibility for honors and awards. The curriculum division, publications and printing division, and the registrar all report to the dean of academic affairs. The registrar’s responsibility for TIER FOUR duties and activities is similar to those of a US registrar in a public university.

National Taiwan Institute of Technology

Opened in 1975, the National Taiwan Institute of Technology (NTIT) is a public coeducational institution established to meet the needs of domestic industry to train personnel in the fields of engineering and management and to upgrade Taiwan technological and vocational education programs. The University accepts two-year upper-division and the four-year institute admits graduates of junior technical colleges and those from the vocational high schools. Undergraduate and graduate (master’s and doctoral) degrees are offered in in-
dustrial management, and in electronic, mechanical, textile, construction, electrical, and chemical engineering. NTIT operates on the semester calendar with about 4,000 undergraduates and 1,000 graduate students enrolled (National Taiwan Institute of Technology 1991).

The NTIT registrar reports to the dean of academic affairs, as do the directors of the offices of editorial and press, curriculum development, and the audiovisual center. The registrar is accountable for most of the TIER ONE functions and duties mentioned earlier. Registration and enrollment-related activities are automated. An online Student Information System was implemented in 1988. Three days before the start of each semester are set aside for registration and payment of fees. Students enroll for courses through the academic departments; the departments submit enrollment data cards to the registrar’s office and that office produces and circulates class lists prior to the start of classes. Course drops and adds and end-of-term grades are keyed into the system. Since 1988, online transcript service has been provided to all students and alumni, and key academic records and transcripts are backed up on tape or disk. Also, for security, transcripts from 1975 (prior to the online system) to 1988 are photocopied and stored in a fireproof vault in the library.

To be admitted to the undergraduate programs, students must have passed the Joint College Entrance Examination, and, for full-time status, be a graduate of a junior technical college for the two-year program, or a graduate of a vocational school for the four-year program. For the part-time program, students must be graduates of a junior technical college and have the consent of employers.

Fee-related responsibilities are administered by the accounting section of the comptroller’s office, and, as with the other public universities, tuition fees, incidental fees, and other expenses are regulated by the Ministry of Education.

The NTIT registrar administers the grading system using a numerical percentage based on 100 points maximum. As with the other public universities, the registrar administers the academic calendar, but all essential calendar dates are established system-wide by the Ministry of Education. The registrar’s office is responsible for certifying undergraduate and graduate degrees as well as enrollment and eligibility for honors and other academic awards. The current registrar holds graduate degrees in electrical engineering, conducts research as needed, and teaches two courses per semester. TIER TWO responsibilities of the NTIT registrar correspond with US counterparts.

TIER THREE activities differ significantly. The NTIT catalog and other academic publications are the responsibility of the editorial and press section of the office of academic affairs. The Schedule of Classes and final exam schedule are produced by the curriculum development section. Similarly, the curriculum and development section schedules all classroom facilities. TIER FOUR duties and activities are generally similar in both countries.

Tamkang University

Tamkang University (TU) is a private coeducational university founded in 1950 as a junior college of English offering three-year and five-year nondegree undergraduate programs. In 1958 Tamkang was reorganized as a college of arts and sciences offering bachelor’s degrees. In 1980 TU was elevated to university status. In 1992 it was the largest public or private university with an enrollment of nearly 25,000.

The University is comprised of six colleges and 48 departments. The colleges are liberal arts, science, engineering, business, management, and the Evening College. Eighteen graduate institutes offer master’s degrees in eighteen fields and Ph.D. degrees in chemistry, American studies, management science, information engineering, water resources and environmental engineering, and mathematics (Tamkang University 1992).

Reporting to the dean of academic affairs, the Tamkang registrar’s duties and responsibilities include most of the items listed under TIER ONE activities. Other units reporting to the dean of academic affairs include the graduate school, publications office, and the curriculum director. The grading scheme administered by the registrar is a numerical system. For graduate students who wish to study abroad, the registrar’s office will convert the numerical scores into letter grades. Admission to TU is based on a successful test score on the Joint College Entrance Examination. Tamkang University, a private institution, gives veterans of the ROC armed forces a 10 percent break on test scores, while aborigines (native people of Taiwan) get a 25 percent reduction, as do ethnic minority groups such as students from Mongolia and Tibet. Chinese applicants from other countries are also given a 20 percent break.

Tamkang University first installed computers in 1967 and by 1969 had developed an academic computing sys-
tem. Since 1976 TU has operated five databases including a student database. Registration is a three-step process. Students are billed prior to the start of classes and pay fees in person at the cashier's office. They then go to the various academic departments to select their courses and enroll using the TU touchtone telephone and voice response system. The registrar's office supplies each student with a nine-digit student identification number, and a bar-coded identification card for use for all academic transactions and in the library. Key source documents such as transcript information are backed up on computer files with complete sets always residing separately in the registrar's office and the computing center. As is the case with the other three ROC universities in this study, the academic calendar is developed by the Ministry of Education and administered by the registrar. Transcript service is available to all students and alumni in both Chinese and English.

The registrar's office is divided into two major sections, enrollment and grading/transcripts. Hiring is the responsibility of the dean of academic affairs, but the registrar, with help from section heads, is in charge of training and supervision. A proposal to initiate an optical disk archiving system was under consideration at the time of this researcher's visit. The current registrar is a teaching member of the faculty and holds an MA degree in business. The registrar certifies all baccalaureate degree and the dean of the graduate school is responsible for advanced degree completion.

TIER TWO responsibilities of the registrar generally correspond with those of registrars in the United States. Under TIER THREE activities, the university catalog is produced by the publications division, and the Schedule of Classes is prepared and distributed by the curriculum division. The final examination schedule is also prepared and published by the curriculum division, and all classrooms are scheduled by that office. The office of student affairs publishes the Student Handbook and certifies eligibility for honors and awards. The catalog is circulated to all departments, but, to save cost, students only receive the page or pages relating to their academic major or schedule of studies. TIER FOUR duties are similar in both countries.

Catalog and Other Academic Publications. Unlike most of their US counterparts, ROC registrars have little or no responsibilities for academic publications including the institution's general catalog, schedules of classes, and other related publications. In all cases these publications are the responsibility of the university secretariat and the curriculum office (NTU), or the publications and printing division (NTNU), the editorial and press section (NTIT), or the publications division (TU). Similarly, the schedules of classes are produced and circulated by the same agencies, as are final exam schedules.

Classroom Scheduling. With rare exceptions, classrooms and classroom scheduling are primary responsibilities of registrars in the United States. If conclusions can be drawn from the duties of the four ROC registrars included in this study, classroom and classroom scheduling in the ROC are the exclusive province of the various curriculum offices.

Organizational Structure. The ROC registrars covered in this study all report directly to their respective deans of academic affairs. Also reporting to the same dean are (titles may differ somewhat but functions are the same) the editorial and press section, the curriculum development section, and sometimes the audiovisual center as well as the graduate school. Although the units reporting to the dean differ significantly from organizational patterns in US institutions, the fact that the registrar reports to the academic dean is not unlike the arrangement found in many US institutions of higher education.

Summary

The registrar serves as a principal academic officer in all colleges and universities in the United States and the Republic of China. Although many of the responsibilities and functions are quite similar for US registrars and their ROC counterparts, there are important and significant differences.

Security Procedures for Student Record Maintenance. Standard operating procedures in the United States call for all registrars to maintain, for security reasons, a duplicate set of student academic records. This precaution is necessary because it is quite possible that fire or some natural disaster can occur that will destroy some or all records stored in conventional offices. Until the somewhat recent development of digitized records that could be converted into an optical image and stored on compact disks, the standard procedure in the United States was for key academic records to be photographed and stored on microfilm or microfiche. Also, it is common practice in the United States to duplicate or back up all computer files on magnetic tape or disk on a weekly if not daily basis. Moreover,
prudent registrars also see that such duplicate records are stored off-site in the event that a main building is damaged or destroyed. Such procedures are not standard with the ROC universities covered in this report. With the exception of Tamkang University files, student academic records are maintained in hard copy (and on computerized databases since such files were created), but duplicate copies are not made or stored off-site.

Teaching Responsibilities of the Registrar. Although many US registrars have faculty status, they usually do not teach academic courses on a regular basis. Conversely, the four ROC registrars included in this study all carry faculty status and teach on a regular basis.

Responsibility for the Admission of Undergraduates. In the United States, the registrar’s responsibility for the admission of undergraduates is minimal unless the admissions office and office of the registrar are combined into a single unit. To be admitted in the ROC, students must earn a passing score (the minimal score may differ by institutional mission and level) on the Joint College Entrance Examination (JCEE), governed by the Ministry of Education. Students are also admitted (or denied) by the Ministry and assigned to the various colleges and universities. Although ROC registrars are not directly involved in the formal admission process, their offices do perform many of the administrative duties that facilitate a student’s entrance to, and enrollment in, the university. The formal admission process in ROC institutions is listed in detail in Taiwan (Kennedy 1977).

Administration of the Joint College Entrance Exam. As noted above, the Joint College Entrance Examination is the province of the Ministry of Education. Although this is true, the Ministry has neither the staff nor space to conduct this nationwide examination. Thus, it falls to seasoned and experienced personnel within the university system to schedule, proctor, supervise, and score the thousands of examinations given each year. In late June and early July, the registrars and selected staff members of the four institutions included in this study devote hundreds of hours to the administration of this examination. In the United States, national standardized tests of this type are usually handled by private agencies.

Computer Automation. The degree of automation in the four ROC registrar’s offices was a secondary interest of this researcher. Due to the language barrier and shortage of time available for the field study portion of this project, it is not possible to provide extensive details of the various degrees of automation extant in the various offices. Suffice it to say, however, that all of the offices utilized computers extensively, with various portions of the registration process automated. None of the four institutions preregistered students in the typical US fashion (i.e., midway through the previous term, allowing registrars and deans and directors to analyze and evaluate enrollment trends, and make changes to better accommodate students). However, Tamkung University allows students to enroll by telephone a few days prior to the start of classes. Particularly notable was the registration and grade-reporting system of the National Taiwan University, which allowed students to come to the registrar’s office and personally access registration and grading files by inserting the student’s ID card into a personal computer available at 15-foot intervals atop a long desk in the front section of the registrar’s office.

Veteran Benefits. Extensive benefits are available in the United States for qualified veterans of the armed services, their dependents, and survivors. Such benefits are awarded by the federal government based on extensive certifications and reports supplied by US registrars or other student services. Similar benefits are available in the ROC but are administered by the Ministry of Education.

Authority for Academic Calendars and Grading Systems. Unique to the Republic of China, the academic calendars for all colleges and universities are promulgated through the Ministry of Education. Thus, all institutions operate on the semester calendar, have similar starting and ending dates as well as holidays and term breaks. Similarly, the grading system is set by the Ministry, and administered by the registrars. The grading systems of three of the four universities under study are based on the 1-100 numerical system, with grades readily convertible to letter grades, based on published conversion tables. In 1992 the Minister of Education was considering converting the entire grading system to the A-F system with pluses and minuses.

High Points of the Study

The Republic of China, generally referred to as Taiwan or Free China, is a modern society and economic dynamo that treasures its history and cultural heritage. Taipei, in the northwest corner of the island, is Taiwan’s capital city and its economic and cultural center.
This study underscores the role and function of registrars in four universities in the Republic of China. The four institutions were selected because of their importance in the higher educational system in Taiwan and their location in Taipei and the immediate surrounding area.

The roles and functions of ROC and US registrars are analyzed and compared above. Several of the differences are worthy of additional note.

The Fee Waiver Plan for Secondary School Teachers. One of the most notable programs in higher education in the ROC is the NTNU fee waiver program for prospective high school teachers. Governmental scholarships, administered by NTNU, are granted to cover tuition and fees as well as room and board, provided the graduate serves as a high school teacher in the ROC for a minimum of four years after graduation.

Although the success of the program may be hard to gauge, one index of success must be the relatively low illiteracy rate in the ROC. For example, according to a governmental publication titled Republic of China, the illiteracy rate in the ROC in 1987 was a mere 9 percent (Republic of China 1987). Conversely, a United Nations Educational, Scientific and Cultural Organization (UNESCO) publication on world population statistics lists comparable figures for Hong Kong at nearly 23 percent, India at almost 60 percent, Indonesia at 33 percent, and the People’s Republic of China at more than 34 percent (UNESCO 1988). The ROC concept of providing educational benefits financed by the federal government as a reward for teaching is somewhat reminiscent of the post-Sputnik US National Defense Education Act of 1958 that provided fellowships and traineeships with a “forgiveness” clause for students who became teachers in selected fields (Riesman 1981).

[Author’s note: The UNESCO figures are based on national census figures; the time frames for such figures vary by country, and the latest statistics are always at least ten years old when published. Also, for some reason the UNESCO surveys do not include the Republic of China (Taiwan).]

Common Calendars and Grading Systems. The Ministry of Education is authorized to create uniform policies governing public higher education in

---

BECAUSE YOU HAVE MORE IMPORTANT THINGS TO DO THAN FILL OUT DEFERMENTS.

“The automation simplifies our lives enormously.”

The favorable reactions we’re hearing to the National Student Loan Clearinghouse come as no surprise. Its sole purpose is to automate, standardize and simplify student status verification and deferment reporting for the entire higher education community.

You report the status of all enrolled students — via Internet or tape — two or three times a term, and we automatically notify participating lenders and guarantors. Confidentiality is strictly maintained. And if your primary guarantor participates, you will no longer have to complete SSCRs or deferments.

Even without the participation of your primary guarantor, we can still handle about 50% of your deferment and SSCR paperwork.

“We're expecting a real decline in our default rate.”

Now lenders and guarantors are quickly informed when students return to college, so technical defaults can be avoided. The Clearinghouse maintains a complete audit trail of what was reported — and when.

“Best of all, it doesn’t cost us a dime.”

The Clearinghouse is a nonprofit corporation. There is no charge for these services to schools or students. Expenses are paid by guarantors, lenders and servicers.

We urge you to take this no-cost opportunity to simplify your procedures. Because you have more important things to do.

For more information, please call (703) 742-7791, or write the National Student Loan Clearinghouse, 13100 Worldgate Drive, Suite 245, Herndon, VA 22070.
the ROC, including academic calendars and grading systems. Thus, all institutions operate on the semester system with common starting and ending dates. Moreover, the grading system is nearly universal. This researcher can only view the ROC system with envy, visualizing how easy it would be for students to transfer from one institution to another if calendars and grading systems were alike.

Transcripts and Diplomas Available in Chinese and English. This researcher was pleasantly surprised to learn that all four ROC institutions who are covered in this study provide their students with transcripts and diplomas in English as well as Chinese.

This is an exceptional service available to ROC students wishing to transfer to or do graduate work at a college or university in an English-speaking country or for students from English-speaking countries who wish to study in Taiwan.

References


$500 AWARD FOR ORIGINAL ART

The American Association of Collegiate Registrars and Admissions Officers is seeking original art for the cover of C&U (College & University), a 4-color, international, scholarly research journal dealing with higher education policy and issues.

Submissions may be black & white or color, in a 2-dimensional format, and must be a representation of your institution—college or university. Please refrain from including text with the image. Selected works will be featured on the cover of C&U in a 4-color, 8½" x 11", semi-gloss format. Winning artists will receive a biographical mention, complimentary copies, and a $500 award. Four winners will be selected throughout the year. Students and employees of member institutions are encouraged to participate.

Submit artwork to: AACRAO Cover Art, One Dupont Circle, NW, Suite 330, Washington, DC 20036-1171. For more information, contact Elizabeth Lodish, phone: (202) 293-9161 or e-mail: lodishl@aacrao.nche.edu. All submissions become the property of AACRAO and cannot be returned unless a request is made in writing by the artist.
How to Be Better Partners with Information Technology Professionals

By Sandra M. Stewart

The most common requests received by information technology staff are requests to add new functionality to an existing large-scale information management system. It is typical for most information technology departments to stockpile modification requests—a programming backlog. Why? Is programming that difficult?

On college and university campuses, the largest portion of this programming backlog is usually owned by the registrar's office. The backlogs are the direct result of the customer's need to automate additional business processes, reflections of changes in the way they do business. Yet these changes are often difficult to add to the computerized information management system.

To some extent, the existence of customer backlogs will not likely disappear soon, given the current limitations of computer tools. However, this article will discuss how the college or university customer, or in many cases, the registrar, can help the campus information technology (IT) professionals perform the most difficult aspect of computer programming, i.e., correctly identifying what the customer wants.

Define the Business Process. Prior to the arrival of the IT analyst, construct a list of steps which operationalizes the entire business process within which the new task will function. This first effort presents a global or high-level customer perspective of the business process in question. Is this a student advising process? Does the student advisor need to see the student's transcript during this process? What is the outcome of this advising process? Course selection? An assessment of academic standing? Perhaps degree auditing?

Once you construct a complete list of activities for this business process, break down the new process into discernible action steps. For example, the business process for advising a student on next term's course selection may include the following actions. First, the advisor needs to look at the student's academic history. She or he needs to see all the courses the student has taken and how well the student is doing. The advisor needs to check the catalog to make sure the student is taking the necessary courses for graduation in the selected degree. Then the advisor needs to help the student select next term's courses. In order to do this the advisor and the student need to view the course offerings for the upcoming term. The advisor and student need to agree which courses and professors are right for this student. Finally, the two of them need to record their selections.

Fact 1. The largest portion of the work required to create any new computerized task should be spent documenting every required piece of information and all the actions necessary to complete the business process. Take the time to write down this description prior to calling in the computer professionals.

Fact 2. The best candidates for computer automation are those business processes which are repeatable. In the above advising example, the advisor (1) views the student's academic history, (2) checks the catalog of courses, and (3) assesses the student's progress (a degree audit, perhaps)—all of which require the collection of information for each student to be counseled. A student advisor will repeat this process of data collection countless times a day during the year. These are excellent candidates for computer automation.

Table 1 demonstrates one way to operationalize a business process. In this example, the business process is advising new first-term undergraduate students on creating their first class schedule.

Note that the status column of each step indicates which activities in Table 1 may be already automated with or
Table 1. Documentation of the High-Level Business Process

<table>
<thead>
<tr>
<th>Activity</th>
<th>Subject</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>View</td>
<td>Each subject’s high school transcript</td>
<td>Currently exists online</td>
</tr>
<tr>
<td>View</td>
<td>Each student’s high school GPA</td>
<td>Currently exists online</td>
</tr>
<tr>
<td>View</td>
<td>Each student’s College Board test scores</td>
<td>Currently exists online</td>
</tr>
<tr>
<td>View</td>
<td>The course catalog for the student’s academic year</td>
<td>Hard copy only</td>
</tr>
<tr>
<td>View</td>
<td>The current course and section offerings including faculty assignments</td>
<td>Hard copy only</td>
</tr>
<tr>
<td>Calculate</td>
<td>Total listing of classes and credit hours required to complete the student’s declared degree</td>
<td>Manual effort</td>
</tr>
<tr>
<td>Calculate</td>
<td>Total number of courses and credit hours the student will be required to take if s/he changes her/his major</td>
<td>Manual effort</td>
</tr>
<tr>
<td>Create</td>
<td>The student’s first schedule of courses</td>
<td>Proposed new task</td>
</tr>
</tbody>
</table>

Without online access (not just a printed output). By listing the entire process, the customer—in this case, the advising staff—can share with the IT professional how the proposed new task fits into a complete process, portions of which may already be automated. This is important to IT inasmuch as a large part of the IT analyst’s solution will depend on when and where data are created and stored, and how these data can become a part of new program construction. In this example, if the first three activities are already automated and these data are already being collected and stored in a database, the IT analyst can decide how many of the manual tasks must be computerized prior to the completion of the proposed new task.

Write the Desired Environment for the Proposed New Task. Determine ahead of time the interaction requirements for the new task, and again document with as much specificity as possible. To construct the list in Table 2, pay attention to how you conduct business. Does your advisor have time to collect the required data prior to the student’s arrival? Is the student sitting and waiting for the advisor to collect these data and, therefore, adding to the long lines outside the office door? Are several advisors performing the same activities at the same time? The details of this list may represent the first beginnings of the technical requirements for the IT analyst.

In Table 2, the IT analyst is instructed that the new task requires an interactive screen (not a printed report) and that the data to populate the screen should include (1) data stored in the student database and (2) data to be calculated during the process. The screen is for mass data entry (many classes entered on one screen rather than one class per screen) and several people in various locations must update this screen at the same time. The proposed task requires a graphic user interface (GUI) presentation (Windows or Macintosh), and the security requirements are stringent (value-based means that the program must look at the value to be updated or viewed and compared to a user ID to determine if the user has authority to view and/or update each value). Finally, the IT analyst is presented with a best effort drawing representing the layout of the desired screen (see Figure 1).

Understand the Details of the Business Process. Prior to the first interview with the IT analyst, make a list of the details of the business process you want automated, delineating the lowest level of activities. For example, perhaps the registrar proposed a new task to automate the process of reporting graduating students to the college board of regents.

In the past, perhaps the board of regents required each department to send it a report listing the students who successfully completed all the requirements for graduation. But once the new student information system was up and running, the registrar could request that the IT staff construct a new task to read
### Class Schedule 1995-1996

<table>
<thead>
<tr>
<th>Student ID</th>
<th>College/Major</th>
<th>Academic Standing</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Course Selection

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Bldg</th>
<th>Room #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Proposed layout of new screen for on-line registration of new students.
Table 2. Documentation of the Desired Environment Within Which the New Task Will Be Used

<table>
<thead>
<tr>
<th>Interaction Requirements</th>
<th>What We Want</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen/report/disk file</td>
<td>Screen</td>
</tr>
<tr>
<td>Speed of presentation</td>
<td>Immediate</td>
</tr>
<tr>
<td>Source of data if known</td>
<td>Student database plus calculations</td>
</tr>
<tr>
<td>Frequency of run (if printed output)</td>
<td>N/A</td>
</tr>
<tr>
<td>Mass data entry requirements (if screen)</td>
<td>Yes, we want to enter all the desired classes at once for each student</td>
</tr>
<tr>
<td>Concurrent users</td>
<td>Yes, as many as 20</td>
</tr>
<tr>
<td>Presentation requirements</td>
<td>GUI. We have IBM clones and Macintosbes</td>
</tr>
<tr>
<td>Security requirements</td>
<td>Value-based security required</td>
</tr>
<tr>
<td>Layout</td>
<td>Done. See attached</td>
</tr>
</tbody>
</table>

issues regarding the customer’s business process. A useful strategy for capturing details about the business process is for the customer (in this case, the registrar’s office) to interview the current owner of this task (in this case, the department offices) until the process can be described, in writing, in its correct sequence of events. Consider creating a series of lists, detailing the process to its lowest level of activities. The list in Table 3 represents the start of this effort.

Customer Questions. How many credit hours are required to graduate? Does this number vary across departments or colleges? Does this evaluation include workload hours along with credit hours? Are workload hours stored in a database or will the automated process calculate these values? If the latter, what is the formula for this calculation? Does the registrar’s representative know at what point during the term graduation can be determined?

For example, if departments have in the past waited until they post the last set of grades for the academic year, the automated process may be required to operate under the same restrictions. Can the IT programmer assume the customer will want the automated process to check the database to make sure the final grades have been posted before constructing the graduating students list? While IT professionals can make assumptions about each of these questions, these are fundamentally customer issues.

Schedule Testing According to Your Production Due Dates. Let the IT professionals know the best time to begin testing the new program. Make sure they know your scheduling deadlines. To schedule a production deadline, make a distinction between hours- or days-to-completion and calendar due dates. If your deadline is at the end of six weeks (of duration, not effort), make sure you tell your programmer you want to begin testing output in four weeks and identify this calendar date. Keep in mind that even after the programmer has completed the program to everyone’s satis-
Table 3. Documentation of the Events Supporting the Business of Creating the Official List of Graduating Students

<table>
<thead>
<tr>
<th>Event</th>
<th>Action Taken</th>
<th>Actor</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student petitions to graduate</td>
<td>Completes a &quot;petition to graduate&quot; form</td>
<td>Student</td>
<td>Update the student’s official file</td>
</tr>
<tr>
<td>Perform degree audit on petitioning student</td>
<td>Review student’s complete academic history. Calculate successes and failures. Determine readiness to graduate</td>
<td>Student’s home department</td>
<td>Update the student’s official file</td>
</tr>
<tr>
<td>Post final grades</td>
<td>Turn in end-of-term grades to the registrar’s office</td>
<td>Faculty</td>
<td>Update the student’s official file</td>
</tr>
<tr>
<td>Perform final degree audit on petitioning students</td>
<td>Review petitioning students again to determine readiness to graduate. Identify successful students</td>
<td>Student’s home department</td>
<td>Update the student’s official file</td>
</tr>
<tr>
<td>Create final list of graduating students</td>
<td>Read each petitioning student’s official file. Add student to the graduating list if identified to graduate</td>
<td>New computer-ized task</td>
<td></td>
</tr>
<tr>
<td>Send final list of graduating students to the college board of regents</td>
<td>File transfer via the Internet the final list of students who graduated</td>
<td>Computer Center</td>
<td></td>
</tr>
</tbody>
</table>

Note: The events should be based on current practice but should include the effects of the proposed automation.

faction, he or she will still need perhaps as much as two days to have the program installed into production. The installation process is very formalized in most computer shops.

IT shops usually require paperwork to be completed for each programming task. IT project managers require quality reviews for each task and usually require an inspection of the code by resident system architects. A completely different group of people (usually not programmers) moves the code into production. All of this is very time consuming.

Construct a Concrete Test Plan for Your Program. If you have requested a program (an online screen) that displays all the students enrolled in each class for the current term, and also allows the entry of a final grade for each student, you have many opportunities for error. Each opportunity must be tested. One method for imposing effective testing requirements is to construct a spreadsheet for testing. The complexity of the format should be in keeping with the nature of the computer program (see Table 4).

Write the test plan prior to the delivery of the computer program(s) since items to be tested depend directly on the functional description of the task.
Become an Expert Tester. During testing, once the program has been delivered, employ a scenario like the following:

- Bring up the screen.
- Inspect the screen's appearance. Is the layout acceptable? If so, make the appropriate entry on the testing spreadsheet.
- Next item. Does the layout include all the fields requested? If so, make the appropriate entry on the spreadsheet.
- Next item.

Continue in this fashion until you encounter an error. Thus, for example, when you focus on the accuracy of the data retrieved and notice that, instead of displaying all the students currently enrolled in Engineering 101 when requested, the screen also displays students from the Archived Student Database (inactive students who have either graduated or not enrolled in classes for six consecutive terms), you recognize this is clearly an error. You should enter this error on the testing spreadsheet and stop testing at this point. Reject the program and inform the IT professionals (preferably the programmer's project manager) that the screen did not pass testing.

Use a test plan to record the test results and more accurately direct the programmer to faulty logic in the program. If you note to the programmer that all the queries to the program work but the update does not, the programmer can hunt for bugs in the update logic of the program, not the query logic. Further, once the programmer debugs the program and it is ready for testing again, you have a record of where the earlier testing stopped. In theory, you need not retest portions of the program which worked earlier. However, most people are prudent enough to retest everything.

This essay argues strongly for the customer to lead and document the early definition stages of any computer project. The result of this customer leadership can be a document or series of documents which better speak to the customer's functional requirements. The large programming backlog, consisting of requests for changes to an existing system, will not disappear overnight and, indeed, is likely to continue to grow. However, for any new task development, the more time spent writing down an analysis of the targeted business process and the proposed technical solution prior to coding, the more likely the coding stage will yield an acceptable product the first time. In fact, this customer-lead approach is more likely to ensure that information technology's end product—the automated business process—will be what the customer wants.
Minimum Competency Tests as Predictors of College Grades

By Mary L. May

A survey of all colleges and universities in the United States revealed that 97 percent of the responding institutions assess skill levels of entering students, and the majority offer remediation in reading, math, and writing (City University of New York 1983).

Texas met the challenge of educating underprepared students by initiating a system of assessment and prescribed remediation known as the Texas Academic Skills Program (TASP). The impetus for TASP came from the Coordinating Board of the Texas College and University System (later renamed the Texas Higher Education Coordinating Board). High failure rates on the Pre-Professional Skills Test, which was required for entrance into teacher education programs, caused members of the Coordinating Board to call for an investigation.

In August 1985 Board Chairman Larry Temple appointed a group of prominent educators to the Committee on Testing. Their charge was to consider whether a state testing program that would measure basic skills could improve the quality of higher education in Texas. The full text of the Committee’s report, A Generation of Failure: The Case for Testing and Remediation in Texas Higher Education, included seven recommendations: testing of all entering freshmen in reading, writing, and mathematics; advising and appropriate placement; offering nondegree remedial courses; limiting students to lower division courses until all components are passed; annual reporting by colleges to the Coordinating Board; active participation of faculty members in test development; and legislative funding. The Committee on Testing also disclosed a startling national statistic: 40 percent of entering college students are in need of remedial education (Texas College and University System 1986). In 1987 most of the committee’s recommendations were incorporated into House Bill 2182, which constituted the legislative mandate to develop and administer a statewide testing program in Texas public colleges and universities.

Purpose of the Study

The purpose of this study was to investigate the relationship of TASP Test scores and performance in freshman and sophomore college courses and to use that information to develop a model for setting course prerequisites. The TASP Test is the most recent evaluative measure required of entering students in Texas public colleges and universities. Although the TASP Test cannot be used to deny entrance, it is used to restrict access to certain courses until students have demonstrated a defined level of proficiency. Minimum competency testing became a mandate in most states during the 1970s. Britell explained:

The explicit imposition of the standard of minimum competence represents a new state in American education. First, it substitutes a more egalitarian standard for the standard of excellence. It is an effort to reconcile proved individual differences with the political demands for equality of achievement in a society that espouses equality of opportunity.

Second, it recognizes that minimum competence may be the most realistic educational goal, given the variability among individuals and the limitations of our current educational programs.

Third, it provides a universal guarantee. It places an unprecedented obligation on the schools to serve everyone (1980, p. 27).

While minimum competency testing is not without its detractors, it is prevalent in the public schools, and it has become an impetus for the development and implementation of basic skills...
Table 1. Courses Included in the Study

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 2301</td>
<td>Accounting Principles I</td>
</tr>
<tr>
<td>ACCT 2303</td>
<td>Accounting Principles II</td>
</tr>
<tr>
<td>BIOL 1411</td>
<td>Botany</td>
</tr>
<tr>
<td>BIOL 1413</td>
<td>Zoology</td>
</tr>
<tr>
<td>CHEM 1411</td>
<td>General Inorganic Chemistry I</td>
</tr>
<tr>
<td>CHEM 1412</td>
<td>General Inorganic Chemistry II</td>
</tr>
<tr>
<td>ECON 2301</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>ECON 2302</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>ENGL 1301</td>
<td>Composition I</td>
</tr>
<tr>
<td>GEOG 1303</td>
<td>World Geography</td>
</tr>
<tr>
<td>GOVT 2301</td>
<td>United States and Texas Politics and Constitutions</td>
</tr>
<tr>
<td>GOVT 2302</td>
<td>Legislative, Executive and Judicial Branches</td>
</tr>
<tr>
<td>HIST 1301</td>
<td>American History Before 1877</td>
</tr>
<tr>
<td>HIST 1302</td>
<td>American History Since 1877</td>
</tr>
<tr>
<td>MATH 1314</td>
<td>College Algebra</td>
</tr>
<tr>
<td>PSYC 2301</td>
<td>General Psychology</td>
</tr>
<tr>
<td>SOCI 1301</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SPCH 1315</td>
<td>Public Speaking</td>
</tr>
</tbody>
</table>

assessment in higher education. Feldmesser advocated that minimum competency is a right and explained the inevitable path by which community colleges would become the vehicle for implementing that right:

The open-access tradition is a source of great pride in the community colleges, and few of those involved with them would want to do anything to weaken it, even though it might mean that academic standards are thereby lower than might otherwise be possible....But if the community colleges were to become the agencies for carrying out the minimum-competency entitlement program, they might then be justified in making possession of the CMC [Certificate of Minimum Competency] a condition of admission into their degree-credit programs. This would allow them to make greater demands on their students, and thus raise standards, without attenuating the open-admissions policy (1980, pp. 432-33).

The difficulty of providing access without lowering performance standards has created an image problem for community colleges. One solution for this problem is to insist upon "college-ready" students, permitting only those who are ready for college-level instruction to take college-level classes and restricting those who do not demonstrate readiness to remedial coursework. Essential to this approach is mandatory placement testing to ensure proper placement (Fonte 1990), and the TASP was created to this end. Wilhelmina Delco, a member of the Texas House of Representatives, who was one of the key authors of the legislation that established the TASP, said her committee was determined to combine access and quality. She referred to access without quality as "fraud" and quality without access as "the worst kind of elitism" (1989, p. 91).

The Texas Academic Skills Program Policy Manual, published by the Coordinating Board (1991) advises, but does not require, institutions to identify courses for which students must demonstrate prior successful performance on one or more parts of the TASP examination. The policy manual neither identifies those courses nor recommends
appropriate cutoff scores. To increase the likelihood of student success, faculty and administrators at many colleges across the state have added skill-level prerequisites to some of their courses. These skill levels represent arbitrarily assigned cutoff scores on the reading, mathematics, or writing subtests of the TASP.

The subsequent assignment of skill-level prerequisites was based on professional judgment rather than empirical research, with the predictable results being a lack of consensus among institutions and ensuing confusion for students. The underlying problem is that there is no body of research from which to construct a model for identifying appropriate prerequisite skill levels.

There has been some preliminary research related to TASP requirements and procedures, but most of it has been directed toward satisfying the immediate mandate to provide evidence that remediation activities are accomplishing their desired outcomes. Such research has generally been limited to the three competencies tested by the TASP and identified for remediation: reading, writing, and computation. Since remedial activities are not uniform among institutions, the results of local research on such activities do not have universal applications.

There is, however, much more uniformity across campuses in the traditional undergraduate curriculum. While there are certainly variations in teaching methods and materials, courses which are accepted for transfer may be presumed to have met minimum standards for content and difficulty. The conclusions drawn from this study provide the framework for a model which may be used to determine skill-level prerequisites in any college.

Description of the Sample

The study was conducted in a community college district which enrolls approximately 20,000 students on three campuses. The majority (78 percent) of the students are white, 12 percent are Hispanic, and 4 percent are African American. The average age is 27, with slightly more females than males, and twice as many part-time as full-time students. Participants in this study were students enrolled in 18 designated courses. The community college is an institution which, since its inception, has been open door.

According to the Texas Higher Education Coordinating Board's 1990 publication, Facts on Texas Higher Education, enrollment at Texas institutions of higher education reached an all-time high of 887,001 in fall 1990. Sixty-three percent of all those students who were enrolling in public institutions for the first time attended community colleges.

In a later study paper, the Coordinating Board projected that community college enrollments would continue to increase at higher rates than those of public universities through the year 2005 (Texas Higher Education Coordinating Board 1992). It is the community colleges, then, that must bear the brunt of compliance with TASP requirements for testing and remediation, and it is appropriate that the community colleges assume a leadership role in conducting related research.
Selection Procedure

Selection of Courses

Twenty-seven courses were identified in the institution's schedule for spring 1993 as those most often transferred to eight four-year institutions. Of these 27 courses, three were not offered on all campuses, and six had course prerequisites rather than skill-level prerequisites. The remaining 18 courses, which all had at least one TASP subscore as a prerequisite, are those which were included in the study (see Table 1).

Selection of Students

All students in all sections of the 18 identified courses comprised the pool of 12,763 students who were the subjects for the statistical analyses. Table 2 lists some of their characteristics.

Instrumentation

Students in Texas public colleges and universities must pass all three sections of the TASP Test (reading, mathematics, and writing) before they receive an associate's degree or take upper division courses. Teacher education programs also use it as an entrance requirement. Examinees may take all sections at once or any combination they choose, and there is no limit on the number of times they test. The TASP Test is generally given five times during the school year at selected colleges and universities in Texas.

There are approximately 40 multiple-choice items in each of the three sections, of which several are included for research and are not used to calculate a score. The reading section consists of 300- to 700-word passages taken or adapted from textbooks or other reading material which is college level.

The TASP mathematics section covers four general areas: fundamental mathematics, algebraic graphing and equations, algebraic operations and quadratics, and geometry and reasoning. Calculators are not allowed, but formulas are provided.

The writing section includes an essay in addition to the objective ques-

---

**Table 2. Characteristics of Students in the Population**

<table>
<thead>
<tr>
<th>Course</th>
<th>Sex</th>
<th>Age</th>
<th>Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>&lt;25</td>
</tr>
<tr>
<td>ACCT 2301</td>
<td>196</td>
<td>211</td>
<td>256</td>
</tr>
<tr>
<td>ACCT 2302</td>
<td>144</td>
<td>172</td>
<td>185</td>
</tr>
<tr>
<td>BIOL 1411</td>
<td>253</td>
<td>275</td>
<td>424</td>
</tr>
<tr>
<td>BIOL 1413</td>
<td>175</td>
<td>225</td>
<td>323</td>
</tr>
<tr>
<td>CHEM 1411</td>
<td>255</td>
<td>201</td>
<td>316</td>
</tr>
<tr>
<td>CHEM 1412</td>
<td>199</td>
<td>162</td>
<td>227</td>
</tr>
<tr>
<td>ECON 2301</td>
<td>168</td>
<td>140</td>
<td>207</td>
</tr>
<tr>
<td>ECON 2302</td>
<td>201</td>
<td>205</td>
<td>286</td>
</tr>
<tr>
<td>ENGL 1411</td>
<td>253</td>
<td>275</td>
<td>424</td>
</tr>
<tr>
<td>ENGL 1413</td>
<td>175</td>
<td>225</td>
<td>323</td>
</tr>
<tr>
<td>CHEM 1411</td>
<td>255</td>
<td>201</td>
<td>316</td>
</tr>
<tr>
<td>CHEM 1412</td>
<td>199</td>
<td>162</td>
<td>227</td>
</tr>
<tr>
<td>ECON 2301</td>
<td>168</td>
<td>140</td>
<td>207</td>
</tr>
<tr>
<td>ECON 2302</td>
<td>201</td>
<td>205</td>
<td>286</td>
</tr>
<tr>
<td>ENGL 1411</td>
<td>253</td>
<td>275</td>
<td>424</td>
</tr>
<tr>
<td>ENGL 1413</td>
<td>175</td>
<td>225</td>
<td>323</td>
</tr>
<tr>
<td>MATH 1301</td>
<td>899</td>
<td>868</td>
<td>1,335</td>
</tr>
<tr>
<td>MATH 1302</td>
<td>427</td>
<td>521</td>
<td>636</td>
</tr>
<tr>
<td>GOVT 2301</td>
<td>316</td>
<td>396</td>
<td>492</td>
</tr>
<tr>
<td>GOVT 2302</td>
<td>427</td>
<td>521</td>
<td>636</td>
</tr>
<tr>
<td>HIST 1301</td>
<td>465</td>
<td>487</td>
<td>743</td>
</tr>
<tr>
<td>HIST 1302</td>
<td>670</td>
<td>800</td>
<td>1,149</td>
</tr>
<tr>
<td>MATH 1314</td>
<td>609</td>
<td>773</td>
<td>972</td>
</tr>
<tr>
<td>PSYC 2301</td>
<td>308</td>
<td>382</td>
<td>507</td>
</tr>
<tr>
<td>SOCI 1301</td>
<td>368</td>
<td>370</td>
<td>600</td>
</tr>
<tr>
<td>SPCH 1315</td>
<td>290</td>
<td>356</td>
<td>462</td>
</tr>
<tr>
<td>TOTALS</td>
<td>6,046</td>
<td>6,717</td>
<td>9,303</td>
</tr>
</tbody>
</table>

---

Fall 1996
Table 3. Texas Academic Skills Program (TASP) Levels

<table>
<thead>
<tr>
<th>Reading</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>TASP Score</td>
</tr>
<tr>
<td>1</td>
<td>100-129</td>
</tr>
<tr>
<td>2</td>
<td>130-164</td>
</tr>
<tr>
<td>4</td>
<td>165-199</td>
</tr>
<tr>
<td>6</td>
<td>200-219</td>
</tr>
<tr>
<td>7</td>
<td>220+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>TASP Score</td>
</tr>
<tr>
<td>4</td>
<td>100-179</td>
</tr>
<tr>
<td>6</td>
<td>180-219</td>
</tr>
<tr>
<td>7</td>
<td>220-279</td>
</tr>
<tr>
<td>9</td>
<td>280-300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>TASP Score</td>
</tr>
<tr>
<td>1</td>
<td>100-149</td>
</tr>
<tr>
<td>4</td>
<td>150-179</td>
</tr>
<tr>
<td>6</td>
<td>180-219</td>
</tr>
<tr>
<td>7</td>
<td>220-239</td>
</tr>
<tr>
<td>9</td>
<td>240+</td>
</tr>
</tbody>
</table>

Local Interpretation of Test Scores

The institution has defined skill levels corresponding to ranges of scores on the TASP Test. Table 3 lists the skill levels and ranges of TASP scores they represent.

These skill levels, ranging from 1 to 9, are used to determine placement in reading, mathematics, and English courses and also to satisfy stipulated skills prerequisites for other courses.

Research Design and Data Analysis

This study was a nonexperimental design. A series of 18 multiple regressions with forward selection was used to determine which combination of the three independent variables, TASP subscores in reading, mathematics, and writing, were most useful in predicting the dependent variable course grade. Cohen and Cohen have recommended the following conditions for using this statistical procedure, both of which were satisfied in this study:

The Kuder-Richardson index has been used to assess the reliability of the TASP Test. For the June 1991 administration, the K-R20 estimates were .82 for reading, .86 for mathematics, and .88 for writing.

Scores on the TASP Test are reported on a scale of 100 to 300, with 220 designated as the minimum passing score for each section (TASP Technical Summary 1990-91).
1. The research goal is entirely or primarily predictive (technological), and not at all, or only secondarily, explanatory (scientific).

2. n is very large, and the original k (that is, before stepwise selection) is not too large; a k/n ratio of 1 to at least 40 is prudent (1975, p. 104).

Grades of W (withdrawn) or I (incomplete) were not used in this analysis. Because of the very individual nature of assigning grades in college courses and the differences in the nature of the courses in the study, it was not practical to use numerical averages. Letter grades were coded as numerals, with the numeral 5 representing an A and the numeral 0 representing a W or I. The cases with missing TASP scores were then deleted.

Procedure for Data Analyses

A forward selection procedure was used to identify the independent variables which yielded the highest \( R^2 \) (coefficient of determination). With a forward selection, the correlation of each independent variable with the dependent variable is calculated, and the independent variable with the highest correlation is entered first. Once entered, an independent variable is not removed. The variable that produces the greatest increment to \( R^2 \), taking into account the variable already in the equation, is entered next if it meets the specified threshold for entry. According to Pedhazur (1982), there is no simple way to determine an appropriate F-to-enter value because the probabilities do not correspond to the tabled F. Consequently, the SPSS software defaults of \( p = .05 \) for entry and \( p = .10 \) for removal were used (Norusis 1990).

Results of Data Analyses

The results of the data analyses are presented separately for each course in Table 4. The tolerance for the independent variables was examined for each regression and, in all cases, indicated that the independent variables are highly correlated. This was an expected outcome, and the tolerance measures are not displayed.

The basic equation for a prediction formula is: \( Y' = a + b_1X_1 + b_2X_2 + b_3X_3 \), where \( Y' \) is the predicted value, \( a \) is the intercept, \( b \) is the slope, and \( X \) is the value of the independent variable(s). These values were used to formulate the prediction equations shown in Table 5.

Conclusions

The major purpose of this study was to examine the usefulness of TASP subscores as predictors of success in college courses and to build a model for setting course prerequisites. A review of relevant literature indicates that there may be other variables such as intelligence or high school grades that are stronger predictors of college success than minimum competency tests (Astin 1971). However, since TASP legislation makes no provision for the use of any indicator other than TASP subscores to set course prerequisites, the information from this study may be used to prescribe those prerequisites. Table 6 lists the TASP subscores that were in use at the institution and the subscores that were shown to have a linear relationship to the course grades.

The general conclusion that may be drawn from this table is that the existing course prerequisites were not in all cases those that were the best predictors of course grades. In only two instances, SPCH 1315 and MATH 1314, did the current prerequisites match those prescribed by the research. There were two other groups of courses which had too many prerequisites: Chemistry and Economics. There were five courses which had a correctly identified prerequisite but should include at least one more: ACCT 2302, ENGL 1301, GEOG 1303, PSYC 2301, and SOCI 1301. The remaining seven courses had prerequisites that were not shown to have a linear relationship with the final course grade and/or failed to include some which were related.

A second practical application for this series of regressions is the prediction equation that was developed from each one and exhibited in Table 5. By substituting a student's actual TASP score, one might predict that student's final course grade. In a similar manner, appropriate cutoff scores might be algebraically derived for each course.

Recommendations

This study was a nonexperimental design, an after-the-fact investigation of data for the purpose of developing appropriate course prerequisites. As such, it has provided the basis for some recommended changes in actual practice. It was also a foundation study, one of the first to specifically research TASP competencies. In this capacity it served to more narrowly define areas that merit further research.

The prediction equations are difficult to interpret due to the fact that the independent variables are highly intercorrelated, but it appears that there is ample evidence to indicate that the
## Table 4. Multiple Regression Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Step</th>
<th>Constant</th>
<th>Variable</th>
<th>( b )</th>
<th>SE ( b )</th>
<th>( F )</th>
<th>Mult. ( R )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 2301</td>
<td>1</td>
<td>-.304214</td>
<td>Math</td>
<td>.013374</td>
<td>.004707</td>
<td>8.07228</td>
<td>.23753</td>
<td>.05642</td>
</tr>
<tr>
<td>ACCT 2302</td>
<td>1</td>
<td>-1.019848</td>
<td>Reading</td>
<td>.017087</td>
<td>.004599</td>
<td>13.80546</td>
<td>.32364</td>
<td>.10474</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-2.846047</td>
<td>Reading</td>
<td>.013989</td>
<td>.004803</td>
<td>9.04181</td>
<td>.36588</td>
<td>.13387</td>
</tr>
<tr>
<td>BIOL 1411</td>
<td>1</td>
<td>-1.606143</td>
<td>Math</td>
<td>.018075</td>
<td>.003154</td>
<td>32.83650</td>
<td>.32874</td>
<td>.10807</td>
</tr>
<tr>
<td>BIOL 1413</td>
<td>1</td>
<td>-1.368720</td>
<td>Math</td>
<td>.015736</td>
<td>.002683</td>
<td>34.41299</td>
<td>.39969</td>
<td>.15975</td>
</tr>
<tr>
<td>CHEM 1411</td>
<td>1</td>
<td>-.883165</td>
<td>Math</td>
<td>.015197</td>
<td>.004373</td>
<td>12.07762</td>
<td>.25477</td>
<td>.06491</td>
</tr>
<tr>
<td>CHEM 1412</td>
<td>1</td>
<td>-.976862</td>
<td>Math</td>
<td>.015148</td>
<td>.004869</td>
<td>9.67963</td>
<td>.24777</td>
<td>.06139</td>
</tr>
<tr>
<td>ECON 2301</td>
<td>1</td>
<td>-.708721</td>
<td>Reading</td>
<td>.014511</td>
<td>.003449</td>
<td>17.69969</td>
<td>.32883</td>
<td>.10879</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-2.719717</td>
<td>Reading</td>
<td>.011718</td>
<td>.003579</td>
<td>12.14142</td>
<td>.37987</td>
<td>.14420</td>
</tr>
<tr>
<td>ECON 2302</td>
<td>1</td>
<td>-1.241212</td>
<td>Math</td>
<td>.016350</td>
<td>.003675</td>
<td>19.79075</td>
<td>.32292</td>
<td>.10428</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-2.622537</td>
<td>Math</td>
<td>.014015</td>
<td>.003755</td>
<td>15.03587</td>
<td>.36546</td>
<td>.13356</td>
</tr>
<tr>
<td>ENGL 1301</td>
<td>1</td>
<td>-.155052</td>
<td>Reading</td>
<td>.011859</td>
<td>.001858</td>
<td>40.75526</td>
<td>.22659</td>
<td>.05134</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-1.725397</td>
<td>Reading</td>
<td>.009890</td>
<td>.001909</td>
<td>28.26993</td>
<td>.26444</td>
<td>.06993</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Writing</td>
<td>.008716</td>
<td>.002249</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-2.002931</td>
<td>Reading</td>
<td>.008266</td>
<td>.002017</td>
<td>20.94173</td>
<td>.27784</td>
<td>.07720</td>
</tr>
<tr>
<td>GEOG 1303</td>
<td>1</td>
<td>-3.524568</td>
<td>Reading</td>
<td>.025624</td>
<td>.005154</td>
<td>24.72127</td>
<td>.43824</td>
<td>.19205</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-5.650548</td>
<td>Reading</td>
<td>.022034</td>
<td>.005245</td>
<td>15.93614</td>
<td>.48612</td>
<td>.23631</td>
</tr>
<tr>
<td>GOVT 2301</td>
<td>1</td>
<td>1.067673</td>
<td>Math</td>
<td>.008404</td>
<td>.002316</td>
<td>13.16608</td>
<td>.19474</td>
<td>.03792</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-.339135</td>
<td>Reading</td>
<td>.007078</td>
<td>.002805</td>
<td>9.87231</td>
<td>.23659</td>
<td>.05597</td>
</tr>
<tr>
<td>GOVT 2302</td>
<td>1</td>
<td>.928319</td>
<td>Math</td>
<td>.009202</td>
<td>.002007</td>
<td>21.01882</td>
<td>.21169</td>
<td>.04481</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-.536396</td>
<td>Math</td>
<td>.007608</td>
<td>.002546</td>
<td>15.16176</td>
<td>.25205</td>
<td>.06353</td>
</tr>
<tr>
<td>HIST 1301</td>
<td>1</td>
<td>0.518741</td>
<td>Reading</td>
<td>.009637</td>
<td>.001712</td>
<td>31.69190</td>
<td>.24838</td>
<td>.06169</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-.905243</td>
<td>Reading</td>
<td>.008166</td>
<td>.002264</td>
<td>22.74714</td>
<td>.29396</td>
<td>.08641</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Writing</td>
<td>.006919</td>
<td>.001851</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-1.774533</td>
<td>Reading</td>
<td>.006716</td>
<td>.002366</td>
<td>16.65241</td>
<td>.30703</td>
<td>.09427</td>
</tr>
<tr>
<td>HIST 1302</td>
<td>1</td>
<td>-.572823</td>
<td>Reading</td>
<td>.015336</td>
<td>.001705</td>
<td>80.91660</td>
<td>.29094</td>
<td>.08465</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-1.691639</td>
<td>Reading</td>
<td>.012409</td>
<td>.001781</td>
<td>54.09780</td>
<td>.33190</td>
<td>.11016</td>
</tr>
<tr>
<td>MATH 1314</td>
<td>1</td>
<td>-1.023490</td>
<td>Math</td>
<td>.015344</td>
<td>.002635</td>
<td>33.91388</td>
<td>.24655</td>
<td>.06079</td>
</tr>
<tr>
<td>PSYC 2301</td>
<td>1</td>
<td>-0.148122</td>
<td>Math</td>
<td>.013009</td>
<td>.001624</td>
<td>64.19251</td>
<td>.30880</td>
<td>.09536</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-2.140583</td>
<td>Reading</td>
<td>.010760</td>
<td>.002211</td>
<td>45.13399</td>
<td>.35955</td>
<td>.12927</td>
</tr>
<tr>
<td>SOCI 1301</td>
<td>1</td>
<td>.068856</td>
<td>Reading</td>
<td>.012629</td>
<td>.002157</td>
<td>34.29285</td>
<td>.28633</td>
<td>.08219</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-.751801</td>
<td>Reading</td>
<td>.009894</td>
<td>.002345</td>
<td>21.47440</td>
<td>.31754</td>
<td>.10083</td>
</tr>
<tr>
<td>SPCH 1315</td>
<td>1</td>
<td>2.348072</td>
<td>Reading</td>
<td>.006128</td>
<td>.002540</td>
<td>5.82014</td>
<td>.13165</td>
<td>.01733</td>
</tr>
</tbody>
</table>
Table 5. Prediction Equations Based on Multiple Regression Results

<table>
<thead>
<tr>
<th>Course</th>
<th>Predicted Grade = Constant + Slope x Score + Slope x Score + Slope x Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 2301</td>
<td>-0.304214 + 0.013374 x Math</td>
</tr>
<tr>
<td>ACCT 2302</td>
<td>-2.846047 + 0.013989 x Rdg. + 0.009779 x Math</td>
</tr>
<tr>
<td>BIOL 1411</td>
<td>-1.606143 + 0.018075 x Math</td>
</tr>
<tr>
<td>BIOL 1412</td>
<td>-1.368720 + 0.015736 x Math</td>
</tr>
<tr>
<td>CHEM 1411</td>
<td>-0.883165 + 0.015197 x Math</td>
</tr>
<tr>
<td>CHEM 1412</td>
<td>-0.976862 + 0.015148 x Math</td>
</tr>
<tr>
<td>ECON 2301</td>
<td>-2.719717 + 0.011718 x Rdg. + 0.010186 x Math</td>
</tr>
<tr>
<td>ECON 2302</td>
<td>-2.622537 + 0.007569 x Rdg. + 0.014015 x Math</td>
</tr>
<tr>
<td>ENGL 1301</td>
<td>-2.002931 + 0.008266 x Rdg. + 0.003554 x Writ. + 0.007833 x Math</td>
</tr>
<tr>
<td>GEOG 1303</td>
<td>-5.650548 + 0.022034 x Rdg. + 0.011535 x Math</td>
</tr>
<tr>
<td>GOVT 2301</td>
<td>-0.339135 + 0.007078 x Rdg. + 0.006629 x Math</td>
</tr>
<tr>
<td>GOVT 2302</td>
<td>-0.536398 + 0.007068 x Rdg. + 0.007130 x Math</td>
</tr>
<tr>
<td>HIST 1301</td>
<td>-1.774533 + 0.006716 x Rdg. + 0.006689 x Math + 0.005465 x Writ.</td>
</tr>
<tr>
<td>HIST 1302</td>
<td>-1.691639 + 0.012409 x Rdg. + 0.007139 x Math</td>
</tr>
<tr>
<td>MATH 1314</td>
<td>-1.023490 + 0.015344 x Math</td>
</tr>
<tr>
<td>PSYC 2301</td>
<td>-2.140583 + 0.010760 x Rdg. + 0.009885 x Math</td>
</tr>
<tr>
<td>SOCI 1301</td>
<td>-0.751801 + 0.009894 x Rdg. + 0.005838 x Math</td>
</tr>
<tr>
<td>SPCH 1315</td>
<td>2.348072 + 0.006128 x Rdg.</td>
</tr>
</tbody>
</table>

Table 6. TASP Subscores Which Are Significant Predictors of Grades

<table>
<thead>
<tr>
<th>Course</th>
<th>Current Prerequisites</th>
<th>Significant Predictor(s)</th>
<th>Course</th>
<th>Current Prerequisites</th>
<th>Significant Predictor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 2301</td>
<td>Reading</td>
<td>Math</td>
<td>GEOG 1303</td>
<td>Reading</td>
<td>Math</td>
</tr>
<tr>
<td>ACCT 2302</td>
<td>Reading</td>
<td>Reading, Math</td>
<td>GOVT 2301</td>
<td>Reading, Writing</td>
<td>Reading, Math</td>
</tr>
<tr>
<td>BIOL 1411</td>
<td>Reading</td>
<td>Math</td>
<td>GOVT 2302</td>
<td>Reading, Writing</td>
<td>Reading, Math</td>
</tr>
<tr>
<td>BIOL 1413</td>
<td>Reading</td>
<td>Math</td>
<td>HIST 1301</td>
<td>Reading, Writing</td>
<td>Reading, Math, Writing</td>
</tr>
<tr>
<td>CHEM 1411</td>
<td>Reading, Math</td>
<td>Math</td>
<td>HIST 1302</td>
<td>Reading, Writing</td>
<td>Reading, Math</td>
</tr>
<tr>
<td>CHEM 1412</td>
<td>Reading, Math</td>
<td>Math</td>
<td>MATH 1314</td>
<td>Math</td>
<td></td>
</tr>
<tr>
<td>ECON 2301</td>
<td>Reading, Math, Writing</td>
<td>Reading, Math</td>
<td>PSYC 2301</td>
<td>Reading</td>
<td>Reading, Math</td>
</tr>
<tr>
<td>ECON 2302</td>
<td>Reading, Math, Writing</td>
<td>Reading, Math</td>
<td>SOCI 1301</td>
<td>Reading</td>
<td>Reading, Math</td>
</tr>
<tr>
<td>ENGL 1301</td>
<td>Writing</td>
<td>Reading, Math</td>
<td>SPCH 1315</td>
<td>Reading</td>
<td>Reading, Math</td>
</tr>
</tbody>
</table>
TASP scores have statistically significant relationships to the grades in some courses. In the absence of any other research, institutions that identify minimum competency prerequisites should use those indicated in Table 6.

The regressions on these 18 courses should serve as a model for the study of all courses that have minimum competency, skill-level prerequisites. A pattern may emerge for different programs or different kinds of courses that could indicate a screening by program rather than by course. And although philosophical considerations about minimum levels of competencies may outweigh statistical evidence, research into the open-door policy of the community college might indicate a climate of change.

The regressions did not include grades of W (Withdrawn) or I (Incomplete). An underlyng justification for the testing mandate of the Texas Academic Skills Program is that testing allows students to be placed in courses that are not too difficult for them. It may be that such testing enhances student retention, and that increasing retention rates is more valuable than the actual prediction of course grades. In any case, student retention merits further examination.

All the students in this study had at least the minimum TASP score necessary for the course in which they were enrolled. It is likely, then, that the prediction formulas are skewed. More study should be given to verifying that the cutoff level at which a student is said to have passed is related to successful course completion.

In all cases, the value for the coefficient of determination ($R^2$) indicated that the predictor variable(s) did not account for the majority of the variance in course grade. Because the TASP Test is an expensive undertaking, its cost/benefit ratio should be scrutinized and possible alternative measures explored.

References


----------. 1990-91. TASP technical summary. Austin, TX: Texas Higher Education Coordinating Board.


Transformation:  
The Student Services Domain

By Louise Lonabocker

On August 5-7, 1996, Martha Beede and Darlene Burnett, student services consultants from IBM's Higher Education Consulting and Solutions Division, hosted a forum on Innovation in Student Services in Durham, North Carolina. The forum focused on envisioning the future for student services and addressing the challenges that accompany transforming higher education organizations in a rapidly changing climate.

Participants had an opportunity to work collaboratively to address ways to move traditional student service organizations where processes are segregated to a more customer-oriented service organization. Fifteen institutions and associations were invited to attend the forum, which offered a combination of information sharing, work sessions, and presentations by student services professionals. Each participant submitted an abstract of a student services innovation on their campus. The forum was of interest to me because Boston College is engaged in Project Delta (described later in this article).

Sean Rush, General Manager of IBM's Higher Education Division, described how IBM is working with institutions to take a global view of student services from the student perspective, adding that this is a challenge because institutions and most professional associations are still aligned with the organizational silos they support.

I was pleased to report that AACRAO is in the process of a transformation that recognizes that the AACRAO professional is now likely to be a generalist within several domains rather than a specialist in one domain. The functional domains, which include enrollment management, instructional management, student services, and information technology, can be envisioned through an expanded set of intersecting circles (see page 26).

The forum for me was a welcome opportunity to share experiences with colleagues, learn about best practices at other institutions, and better understand critical success factors for transformation. Everyone was there to share, network, and establish partnerships.

The Student Services Model

The forum began with an address by David Hollowell, executive vice president at the University of Delaware. The University of Delaware has received wide recognition for its student services building where generalists and specialists from records, registration, financial aid, cashier, parking, dining, telephone services, IDs, and financial services have come together, thereby allowing most students to address their administrative needs in one stop. Delaware also has a fully integrated online student information system with worldwide network and interactive voice access. Most students can obtain the information they need themselves or have their question answered or problem solved within the confines of the one very large room that comprises the student services building.

When forum participants later split into teams to envision the future of student services, echoes of the Delaware model were heard:

- student centered
- cross-functional staff
- "one and done"
- empowering student with information
- multiple methods of communication
- using technology as an enabler
- 90% self help, 8% generalist, 2% specialist

When the barriers to development of one-stop shopping were addressed, it became clear that even institutions that have succeeded in distributing informa-
tion access and update to students have plenty of work to do. Barriers include:

- leadership—must come from the top
- developing a shared vision
- technology infrastructure—limited resources for development
  - migration to the next generation of computing
- culture—departments as silos
  - resistance to change
  - institutional traditions
- training/staffing
  - commitment and funding for training
  - staff as knowledge navigators and problem solvers

Critical success factors to redesigning student services include strong leadership, a call to action that creates dissatisfaction with the present situation, identifying a core team of change agents, helping people to see their place within the new structure, and providing support for change. Despite these challenges, a number of institutions are forging ahead, and the following represents some of these efforts.

Arizona State University

Arizona State University (ASU) is engaged in the Student Process Reengineering Project with the goal of improving services to students. ASU plans to provide easily accessible, on-campus, integrated-service locations that address students' varied needs. ASU will also provide the technology to permit the integrated-service concept to extend to off-campus locations (including community-based sites and students' homes).

At various service locations, students will have the option of directly accessing information and efficiently transacting business through enabling technologies. Staff at the integrated-service locations will be knowledgeable about the full range of services provided. These staff members, some of whom will be specialists in particular service fields, will be responsible both for providing assistance and information about a range of student processes and for making quality referrals when necessary. A pilot, called OASIS, is currently in progress.

Babson College

Babson College has a long-range strategic plan that requires tremendous resources—human and financial. A dramatic step was necessary to reduce structural costs, to find ways to redirect those resources toward the delivery of academic programs, and to effectively and efficiently deliver a wide range of quality support services to students. To that end, Babson introduced a reengineering effort that focused on the core administrative processes that affect all students.

One of the significant changes at the College is organizational: Babson now has generalists who deliver academic advising (supplementing the role of faculty advisors), personal support,
general administrative assistance to undergraduates, integrating what used to be delivered by various offices on campus.

In addition, Babson has set a target—90 percent of all routine business transactions will be conducted by students through the use of technology. These two changes combine to free up the team members on the specialist teams (i.e., student financial services and academic records and registration) for more value-added activities.

Boston College

Boston College has launched Project Delta with the goal of transforming the University into an agile, responsive organization committed to customer service, driven by breakthrough technologies, and dedicated to continual, incremental improvements in business processes. The Project's main goals are to reduce costs and improve productivity, customer service, and competitive advantage.

As a result, Boston College will be a smaller, more flexible organization, characterized by a customer-centric perspective with team-oriented, empowered employees, responsible to students, parents, faculty, and alumni. There will be a service-driven orientation that provides customers centralized, transparent access to information and highly adaptable human resource management that institutionalizes growth and flexibility in staff responsibilities.

The core team is about to release the overall framework of the plan and a more detailed implementation plan will be prepared during the upcoming year.

Brigham Young University

Brigham Young University (BYU) has a long history of using technology to improve the delivery of information and services to students. BYU pioneered the voice response movement and was among the first institutions to develop a degree audit module, post degrees electronically, allow students to access and update their own records on kiosks and terminals, image admissions and financial aid documents, exchange transcripts electronically, and place their admission application on the World Wide Web.

Now BYU is developing the Financial Path to Graduation (FPG) program, which will better inform, educate and assist students in making informed choices for financing their education. Financial aid counselors are certifying to become financial planners, and an interactive program called 7 Steps to a Financial Path to Graduation has been developed, which includes an individualized workbook, website worksheet, and a coordinated plan to require students to look at financing their education.

Each student will have to file an FPG before the second disbursement of a Stafford loan. The financial aid office can help monitor a student's need as determined by the student's own preset limits, and step in with offers of help if the student exceeds the plan.

The University of California

The University of California is offering a web-based student service system called Pathways. The Pathways concept stems from a broad vision designed to use new technologies to improve services to students. Pathways is more than an online admissions application system.

Students will be able to access—at their fingertips—general information about the University and its campuses, academic programs, housing, faculty, financial aid, and all other items contained in catalogues and brochures. An interactive feature will allow students to transmit questions about the University to a UC counselor and later receive an electronic response. Students will also be able to browse a file of commonly asked questions and answers.

In the Discovery phase students will be able to electronically access catalogues and brochures and tour the University of California's eight undergraduate campuses. In the Contract and Advising phase students can compile a record of their classes, extracurricular activities, honors and awards, and other personal achievements as early as the ninth grade.

The information will be stored in a secure environment and can later be used in the admissions process. The final phase of Pathways will provide notification of admissions, financial aid, and preregistration services electronically.
Miami-Dade Community College

At Miami-Dade Community College the Narwhale Student Advisement System is being developed. Narwhale is a strategic, intelligent microcomputer program that advises students on course selection. Online student record data are downloaded from the institution's mainframe computer and combined with keyboard input from a faculty advisor and/or student. Inferences from this data are made using over 2000 decisions points, which represent the rules and knowledge for properly advising Miami-Dade students. Screen and printed reports are produced that list all the courses a student must take to graduate within state guidelines.

The screen reports include a hypertext online course catalogue with links to all prerequisite and corequisite courses. The information contained in the reports could be used to directly register students into classes and generate bills electronically.

The University of Pennsylvania

The Student Entry project, which integrates the collection of information an applicant must supply to the University to secure entry and obtain desired services up to the first day of classes, is one of the student services initiatives at the University of Michigan. Applicants will be able to remotely enter all information needed to apply for admissions, financial aid, orientation, and housing placement, at one time, to any unit in the University. Relevant general information about the university and specific information about status will be provided to the applicant in the medium requested.

The Student 2000 Project is a multi-year effort to replace existing student record information systems with new systems that can handle semesters and the year 2000, as well as provide more effective, student-centered support services to students, staff, and faculty. Admissions, registration, and financial aid processes will be seamless, simple, and convenient.

Minnesota's website will give access both to the things students have to do (admit, register) and to their major activities which include planning their academic program, assessing their performance, and exploring academic and career opportunities.

The University of Michigan

The University of Pennsylvania several years ago consolidated the offices of the bursar, student financial aid, student loans, collections, and student employment into a student financial services unit with the goal of helping students and their families cope with the cost of attending an Ivy League university. Penn will now take this concept to another level and add the registrar, cashier, and PennCard. Residential living and dining would be added were it not for space constraints.

The student administrative service center will be guided by three principles: (1) eliminate the reasons why students visit, (2) give students the means to solve their own problems, and (3) if a contact is made, the first person should be able to solve the problem. The center will have a reception area and a reception desk. All staff members will be in private offices. The traditional counter will be removed.

Western Virtual University

The Western Governors Association (WGA) is creating the Western Virtual University which will use advanced information technology to expand the delivery of instruction and foster the formal recognition of learning by employers and higher education institutions. Key goals include moving towards competency- and performance-based credentialing, improving access to learning opportunities, reducing higher education costs, and meeting individual and private sector needs for lifelong learning.

Also under the direction of the WGA, the Western Interstate Commission for Higher Education, developed a proposed design for a virtual catalogue and for student support services including learning resources, recruitment, advising, technology training, social support, financial aid, residency requirements, and reaching under-served students.

The Student Services Domain

AACRAO in the meantime is in the midst of its own transformation. Student services now appear within the AACRAO domains because colleges and universities realize that student services and student activities cannot exist in isolation from the core academic missions.

The domains referred to at the beginning of this article are interrelated and becoming more so. In the discussions on AACRAO's role in the 21st century, the domains are seen as interlocking and overlapping circles. These interlocking and overlapping areas are where the future of AACRAO lies.
Impostors in the Temple
By Martin Anderson

255 pages, hardcover, $22.00

As one can tell from the title, Martin Anderson believes something is wrong in the temple of academe. Unlike the pop media and its propensity for sensationalism, Anderson not only identifies a problem, but illuminates the cause and offers viable solutions. This approach is certainly worth reading.

The impostors in the temple are those professors who "scorn students and disdain teaching." Anderson quickly points out that although their numbers are small, their influence is great. These impostors had no disposition toward hubris until they entered the academy. They are products of their environment. That environment is insulated, where they must gain acceptance and please members of the academy, first to earn the Ph.D., then to publish, then to gain tenure.

The insularity of the environment, according to Anderson, creates two distinct intellectual classes in the United States. The first is the professional intellectual: writers, editors, and journalists. Their work must be important, timely, and interesting. They are in a very capitalist society, one where their product is judged in a volatile workplace and marketplace on an almost daily basis. The other class is the academic intellectual, the products of the formal higher education system. This is the socialist intellectual state where members receive a job for life (tenure), wonderful working conditions, recreational facilities, subsidized housing (in some cases) and a world sheltered from extramural issues (peer review).

In the academic intellectual's world, hubris, the subject of a substantial chapter, is allowed to flourish, and outsiders, students among them, are viewed as lesser beings. Research, regardless of relevance, becomes important, and teaching becomes the Rodney Dangerfield of the university, receiving no respect. Teaching is left to TAs who may have little training. Of course, how many Ph.D.s receive training in how to teach during their doctoral studies? In the mind of the author this arrogance and elitism leads to personal, professional, political, and institutional corruption.

Anderson makes a number of strong statements throughout the book. He is, however, highly credible in the area. A member of the academy for several decades and a part of the professional intellectual community, he is well acquainted with both facets of the intellectual world. Throughout the work the author identifies the culprits for the state of American higher education and concludes with ten recommendations to correct the problems he has identified. All solutions can be accomplished without vast expenditures of money or other resources. To be sure, some will find Anderson's solutions painful: the abolition of tenure, a complete revamping of the Ph.D. process, and the return to the four-year degree among them.

In making and illustrating his points, Anderson chases a number of rabbits, but the chase is well worth the time spent to read this well organized, thought-provoking book. Members of the academy will identify with many of his examples and anecdotes. This is a book written from the heart on an emotional issue. Fortunately for all of us, emotion does not get the best of Anderson. We can all benefit from his ideas. There will be many who agree with him. "It is time to clean academic house in America; it is time to drive the impostors from the temple."

—Paul Dauphinais
Oklahoma State University
Medical School Admissions  
3rd Revised Edition

By John Zabala, Daniel B. Jones, and Stephanie B. Jones

188 pages, paperback, $12.95

What’s not to like about a guide to the medical school admission process when it’s written by three former and successful applicants? It’s creative, has utility and represents a resourceful spirit on the part of the writers. Taking the reader all the way from premedical preparation through the interview process, this book is sure to please the premedical student who is eager to learn the inside track to medical school admission. Unfortunately, while there is much useful information to be found in these pages, certain components contain significant omissions and inaccuracies.

At the time of the book’s first printing in 1989, the American Association of Medical Colleges (AAMC) reported 26,915 medical school applicants. In 1994 when the most recent edition was printed, applicant numbers had risen to 45,365. Times have changed, and admission processes and policies have adapted accordingly in order to accommodate significantly increased competition in these recent growth years. Truisms in 1989 application processes have since undergone significant revision. Affirmative action issues, the inception of the Americans with Disabilities Act, and especially the shift in many programs’ focus to primary care and managed care are all factors reflected in contemporary selection processes. None of these crucial elements has been addressed in this book and, as such, the reader is left with an incomplete and perhaps unrealistic assessment of the application process.

Premedical preparation advice provided in the book includes encouragement, if at all possible, to attend an undergraduate program at a university having a medical school. The reason given is that there is a statistical advantage to doing so. Could it also be that, for location considerations, more students are applying from the parent institution and this affects their sometimes large percentage among matriculants? Readers are also told that, if they do well on the Medical College Admissions Test (MCAT), they’ll likely get into medical school. While this advice may be true for certain institutions, others rely more heavily on academic performance, community service, and/or interviews as primary selection criteria.

In the chapter about technique for achieving higher grades, the reader is cheerfully informed that review of old exams commonly results in a two-letter increase in grade performance. To study alone is described as a more effective technique than group work, and flash cards are touted as the most useful of all study techniques. One need only consult the experts in learning for evidence that these pronouncements have great potential for leading certain learners down a path of frustration.

The MCAT is described as a test having petty rules and one designed to “break” the candidate. It is implied that if one does not possess skills necessary to do well on the writing and verbal reasoning sections, it’s practically useless to attempt improvement. Chapters on the application process, interviewing, and the essay are more accurate though each contains a good sprinkling of myth.

The book closes with copies of 50 successful essays, comprising approximately one-half of its total number of pages. There is nothing to hint to the reader as to the particular quality each essay possessed that influenced the selection committee. Without the context of the remaining application components, this section presents little utility to the potential applicant. It could just as well be that the personal statement was weak, but the candidate was selected because of other compelling and positive attributes.

In sum, Medical School Admissions suffers from a well-meaning but flawed treatment plan which stems from inaccurate assumptions in diagnostic assessment. The prescription? Caveat emptor!

—Paulette Lovell  
Michigan State University
Index for Volume LXXI

The following is an index of the articles and book reviews that appeared in Volume LXXI of the C&U: summer 1995, fall 1995, winter 1996, and spring 1996. The articles are indexed alphabetically by subject, author's name, issue in which the article appeared, and page number. Authors are also listed alphabetically.

### Subject Index

**AACRAO**

**Academic Reputation**

**Admissions**

**Assessment**

**Collaboration**

**College & University**

**Community Colleges**

**Enrollment Management**

**Exit Surveys**
Faculty

Germany

Graduate Students

Honors Students

International Education

Marketing

Physical Therapy

Planning

Professional Development

Professional Schools

Publications

Recruitment


Registration


Retention


Strategic Planning

Student Development

Training

Transfer Students
Author Index

Allen, Lida Cherie (see Webb, Marion Stanton)
Bausili, Mark T. (see Moran, Joseph J.)
Cooper, Dan W. (see Grossman, Robert J.)
Cunningham, Bruce W., Book review of Does College Make a Difference? Long-Term Changes in Activities and Attitudes, Fall 1995: 32-33.
Danley, Janet (see Bryant, Debbie)
Fleming, Shannon (see Bryant, Debbie)
Gramet, Pamela (see Seymour, Ron)
Huff, Betty J. (see Eaton, John L.)
Hyman, Randy E., Creating Campus Partnerships for Student Success, Fall 1995: 2-8.
Kramer, Michele (see Moran, Joseph J.)
Michael, William B. (see DuPraw, Christine)
Ritchey, Nathan P. (see DeSalvo, Joy)
Seidman, Alan, Retention Revisited: R = E. Id + E & In, Iv, Spring 1996: 18-20.
Silzer, Brian J. (see Krahn, Harvey)
Somers, Patricia (see Krahn, Harvey)
FAX or MAIL Directly to Our Advertisers—Find Out What They Have to Offer!

Select the advertisers that interest you and fax or mail this form to them for more information.

☐ I would like more information about ____________________________
☐ Please call me with information
☐ Please mail me information

☐ Educational Testing Services-TOEFL (inside front cover)
  TOEFL Program Office, P.O. Box 6155, Princeton, NJ 08541-6155

☐ National Student Loan Clearinghouse (page 8)
  John Ward, Vice President, 13100 Worldgate Drive, Suite 240,
  Herndon, VA 22070; phone (703) 742-4210; fax (703) 742-7792

☐ Quodata Corporation (inside back cover)
  Nancy Fraga, Marketing, One Union Place, Hartford, CT 06103;
  phone (203) 728-6777; fax (203) 247-0249

Please print, type, or attach business card.

Name_________________________________________ Title_____________________________________

Institution/Company_____________________________________________________________________

Address_________________________________________________________________________________

City________________________ State____________ Zip+4________________________

Phone________________________ Fax________________________

E-mail________________________
"Quodata helped us double our incoming class over the last four years."

Dennis Nostrand, Vice President for Enrollment Management at Beaver College, is sold on Quodata’s software and service. Dennis’s colleagues in the computer center helped select the software. Enrollment management people, computer center staff and Quodata support personnel work as a team. The result: Beaver College has a state-of-the-art system that meets the department’s needs.