

**ACCOUNTING AS AN
INFORMATION FUNCTION:
A proposal for change**

**Rutgers University
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**A Proposal to the Accounting
Education Change Commission**

**Accounting and Information Systems Area
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ACCOUNTING AS AN INFORMATION FUNCTION:
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Executive Summary

This proposal involves a major revolutionary change on the training of graduate students for the professional accounting professions. The program focuses on an MBA education geared towards accounting with full integration of business and accounting subjects.

Integration is obtained through an information/decision module focus where topics of different disciplines broken down into basic units (coverage points) are brought together in a coherent framework.

Throughout the program a pervasive socialization program works on students attitudes and skills aiming at forming a wide-based, tooled-for-life-learning professional. This professional high in skills and positive in attitudes will have a strong basic set of technical skills that will be acquired through a mix of teaching methodologies. The curriculum has an intensive "unfreezing" period, a body of "change", and a series of concluding experience to "refreeze" attitudes and skills.

Basic to the effort is the assemblage of a knowledgware platform composed of two main elements: teacher and student platforms. the platforms are to be very generic in nature, public domain in philosophy, and adaptable to a wide set of different institutional constraints.

The project is to last four years, first class to start in May 1991, to be managed by different faculty members in its elements and is requesting \$169,500 to the AECC. Institutional contributions by Rutgers over a four years period are estimated to be around \$332,000 on an incremental basis.

Rutgers faculty are committed to support the AECC in a program of dissemination of its teachingware, instruction to faculty of other institutions, publication of educational research related to the program and support of the teachingware clearing house.

ACCOUNTING AS AN INFORMATION FUNCTION:
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I. Motivation and Objectives

Accounting education can be segmented into four major approaches servicing four complementary and overlapping markets;

The adult/education executive training

The community college

The baccalaureate in accounting

The postgraduate accounting education

These four educational approaches are complementary in the supply of accounting professionals. The 150 hours requirement¹ will undoubtedly confuse these markets resulting in a redefinition of their scope and objectives.

This proposal focuses on the fourth market discussed above. Post-graduate degrees in accounting are typically of two types:

Masters in Accountancy

Masters of Business Administration

The first is typically an accounting specialization to supplement a baccalaureate in Accounting, while the second entails an MBA degree with an emphasis in Accounting.

The need for change in the accounting profession, and consequently in the education of accountants, is amply documented and discussed in the literature.² This proposal sets forth the architecture of a long term program of change within an MBA

¹ The AICPA in 1988 amended its by-laws requiring all new candidates for membership in the year 2000 and thereafter to present 150 credit hours of education to qualify for membership. This in practical terms entails an additional year of study after a 120 hour undergraduate program. This requirement has already been adopted by several states as a prerequisite to sit for the Uniform CPA Examination and many more states are expected to follow.

² Bedford Shenkir (1987) , Arthur Andersen & Co. et al (1989), AECC (1989), AAA (1986), Elliott (1989).

program, with an emphasis in accounting, which aims to change the attitudes, skills and methods of thought (unfreeze, move and --refreeze³) of accounting students, accounting faculty and accounting curricula.

Throughout this proposal a methodology and plan will be developed to achieve a series of specific objectives, within an axiomatic approach, including: (1) Lifelong learning, (2) Integrated learning, (3) Wide non-accounting background, (4) Technological preparedness, (5) Basic grounding on the methodology of learning, (6) Identification and instruction on a basic set of competences on which to build a foundation for lifelong learning, (7) Internationalization of our thinking, (8) Construction of a basic set of skills, (9) Development of a basic set of attitudes, (10) Preparedness for a widely different teaching technology environment.

The work discussed in the proposal entails two essential complementary elements: the educational program and a knowledgeware platform (KP). These axioms are the basic tenets of the Accounting Education Change proposal presented in this document.

The second section of this document describes the current composition of the Professional Accounting Program at Rutgers and argues it to be an ideal setting for experimentation in accounting change. The third section of the document discusses the five dimensions of the education process and posits an approach for this effort. The fourth section proposes a modular approach to accounting education while the following section deals with course articulation in and out of the traditional accounting courses. The sixth section proposes a decision based modular approach and section seven a four year plan. Section eight presents a computer-based teaching platform. The ninth section deals with resources required, the tenth with a communications plans and the proposal is concluded with follow-up considerations and the continuation of the program for change.

II. The Professional Accounting MBA (PAMBA) Program at Rutgers Graduate School of Management

History

In 1957 the College of Business Administration on the Newark campus of Rutgers The State University of New Jersey graduated the first students in a new and innovative MBA program. This program, designed by Professor William J. Von Minden, accepted only non-business undergraduates who had taken no more than 9 semester hours of accounting in their undergraduate program. In

3 Schein (1961).

the Professional Accounting MBA program students would receive 27 semester hours of accounting and 36 hours of related business courses. Since that historic first class over 1600 students have been graduated from the program. At the schools last information survey, conducted in 1986, 40% of the total graduates were employed in public accounting. Approximately 40% of the graduates were primarily in accounting or finance related positions and many had become chief financial officers and chief executive officers. The remaining graduates were employed in a wide variety of other occupations.

The program today, in terms of total hours and the split between accounting and business courses, resembles very closely the early curricula developed by Professor Von Minden. Over the years the faculty has constantly updated the material in all of its courses to keep in step with new developments, teaching methods, and the microcomputer.

With the advent of the Accounting Education Change Commission and the fundamental changes occurring in business today, the Graduate School of Management feels very strongly that a very long and hard look needs to be taken at the content of the subject matter in the professional accounting curriculum and that better articulation of the various subjects, one with another, needs to be achieved. In addition to the basic cognitive knowledge that needs to be taught in the program, students must be conditioned into certain skills of a non cognitive nature never before part of an accredited college curriculum.

Current Setting of the Program

Figure 1 shows a comparison of the PAMBA program from 1969 to 1989. Despite a series of changes the program's structure is still similar. The courses with one asterisk (*) existed in 1969 and do not exist in 1989. The opposite is marked with a double asterisk (**).

Figure 1

PROFESSIONAL ACCOUNTING MBA PROGRAM
CURRICULUM COMPARISON 1969-1989

19691989First Term

3 Accounting Problems & Policy I	3 Accounting Problems & Policy I
3 Aggregate Economics	3 Organizational Behavior**
3 Quantitative Analysis I	3 Marketing Management
3 Quantitative Analysis II *	3 Financial Management
3 Marketing	3 Managerial Economics

Second Term

3 Business Law I	2 International Business **
3 Accounting Problems/Policy II	3 Deterministic Optimization
3 Auditing	3 Accounting Problems/Policy II
3 Tax Aspects of Business	3 Tax Aspects of Business
3 Cost Accounting	3 Management Info. Systems**
3 Quantitative Analysis III *	3 Business Law I

Third Term

3 Accounting Problems/Policy III	3 Business Law II
3 Advanced Cost *	4 Operations Management
3 Business Law II	3 Accounting Problems/Policy III
3 Accounting Research *	3 Auditing
3 Finance I	3 Taxation of Business Entities

Fourth Term

3 Accounting Problems/Policy IV	3 Accounting Problems/Policy IV
3 Industrial Management	3 Cost Accounting
3 Marketing Cases *	3 Advanced Financial Management
3 ELECTIVE *	3 Aggregate Economics **
3 Finance II	3 Business Policy **

* Courses not in 1989 curriculum

** Courses not in 1969 curriculum

III. The Five Dimensions of Learning

When discussing the training of medical professionals. Merton, Reader and Kendall (1957) argue that the essence of professionalization is the acquisition of both the technical and attitudinal dimensions of a professional role. A major program of change must aim at endowing an accountant with a certain set of attitudes and skills. Furthermore for the satisfaction of entry and progress requirements technical knowledge must be acquired. These are acquired in educational settings by students attending a formalized educational program that uses a certain set of teaching methodologies.

Attitudes

Attitudes⁴ are defined herein as "generic postures adopted by individuals in relation to events, institutions or situations of every day life." GRAECE (Graduate Rutgers Accounting Education Change Effort) will include attitude building contexts in its program through all courses and activities in the curriculum. Essential attitudes to develop among students of accounting are:

Service: An attitude of service must be instilled in the student/professional. The nature of professional accounting work, whether public or private, requires a service orientation. The Rutgers Professional Accounting MBA advisory board found this quality to be lacking in accounting students.⁵

⁴ Rokeach (1970) defines an attitude as "...a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner. (p.112) He also places emphasis on attitudes as contextual determinants when stating "... a person's attitude toward some thing is also affected by the person's attitude towards the situation in which the thing occurs. behaviorist, at least in part, a result of the interaction of the two attitudes."

[Hooks , (1981) citing Rokeach, p.28]

⁵ Begun (1986) and Goode (1952) are sociologists of the professions. They argue that there is an implicit contract between the society and the professions in which society grants autonomy and the right of self-regulation in return for the willingness by the professions to discipline their members and to socialize the new entrants into self-restrain and an attitude of service towards the society.

Mautz and Sharaf (1961) strongly emphasize the role of service in the auditing profession.

Positive View of Business: Rutgers' PAMBA program brings in a majority of non business school undergraduates. Part of the programs attitude change effort must concentrate on projecting a positive image of business, and the people in business.

Ethics: Ethical issues and instilling a high sense of business ethics in accounting students became the issue of the eighties and will continue to be an issue into the next century.⁶

Quality: A major contribution to traditional occidental management models has been the Japanese quality emphasis. Most major US organizations now have quality programs in every area of activity. However, quality has not yet been recognized as an issue in accounting education. It is essential that quality be considered in the actual process of accounting education as well as an attitudinal issue in the preparation of entrants into the profession.

The Japanese philosophy of management stipulates that the major objectives of corporations are to produce high quality products to enhance the quality of life of customers and contribute positively to social welfare. Sustaining high profits are a by product of a consistent pursuit of quality. Human resources are part of the corporate family, and the most valuable assets of any organization. Hence, employee involvement, motivation, education and training toward the attainment of high quality constitutes the highest managerial priority. Two Americans, W.

6 There is strong perception in public accounting of the need for a concentrated effort in the ethics area. [Langerdorfer & Rockness(1989), Loeb (1988), Bollom(1988), Goode (1957)]

For example in 1988, Arthur Andersen & Co., announced a 5 year, \$5 million commitment to assist and encourage the teaching of business ethics in undergraduate and graduate business schools. Approximately 2,000 business school faculty will attend these conferences. The program was initiated because Arthur Andersen & Co. believes the public interest is best served by fostering ethical business practices.

Edwards Denning (1981-82) and Joseph Juran (1967) provided some of the tools and much of the advice that helped the transformation of Japanese manufacturers from low-cost, low-quality to high-quality, high-margin producers. In the process, the Japanese through competitive pressure are changing American managerial practices toward total commitment to quality involving employees at all levels of the organization.

Life-long learning: An attitude of life long learning as well as an educational program of such a nature are necessary in the educational process. It is clear that a different set of skills and talents makes the accountant successful at different levels of a professional accounting career⁷. Some of the technical competence required at the staff accountant level (e.g. bookkeeping) is of little value for partners while a strategic view of business is of limited help to the senior trying for promotion. Instructional programs can benefit by identifying a common starting core and designating further learning for different stages in personal development. [AAA, 1986]

Consequently, in order to prepare successful accountants not only a good initial mix of skills and attitudes is necessary but these must evolve through the professional life to maximize the chances of success. A life-long training program is a natural consequence.

This proposal aims at identifying the basic core of knowledge necessary for entrants in the profession, regardless of professional qualification requirements and

⁷Aranya and Wheeler (1986) found differences in the level of enterprising traits of CPA partners versus other workers on these firms. Aranya, Lachman and Armernic (1982) found that partners had higher professional commitment, higher organizational commitment, less need deprivation, higher job satisfaction and lower migration intention than other employees.

Several other studies in the accounting literature also find major differences among motivation, skills for success and qualifications between the ranks of employees in public accounting.

works towards the identification of incremental competence skills related to the public and private professional accountants development.

Skills

The GRAECE will deal with skills issues throughout all learning experiences⁸ in the PAMBA program including the course work (cases and class presentations), the professional components (interviews, internship work) and life on campus (toastmasters, business clubs, ethics lectures, student government). These skill issues include:

Integrative ability: Baron & Sternberg (1987) discuss the four qualities needed in addition to the "right thought processes" in order to be a good thinker: motivation to use thinking skills, knowledge base, mental representations (ability to formulate and represent different points of view) and combining thought processes into workable strategies for problem solving (integrative ability). The latter, integrative ability is of the highest order.

Business problems and the detection of accounting discrepancies requires the accountant, whether in public or private industry, to integrate issues of a wide variety of fields in many of which he/she has no specific competence.

Verbal Communication: a major criticism of the quality of competence of accounting graduates is their communication skills. In the verbal communication area students must be able to verbally express ideas and abstract concepts as well as explain in words numerical issues in accounting. Furthermore, the ability to make effective presentations to large or small audiences is also part of this skill and of great importance in the modern corporate world. [AAA, 1986]

Writing Ability: both short management memos as well as in-depth analyses and news pieces require accountants to write extensively in their managerial duties. More than this accountants in their letters to management,

⁸ Baron & Sternberg (1987) strongly endorse the multi-modal approach.

proposals to prospective clients, and briefs for legislative and judicial bodies, require clean organized business communication of a specific accounting nature. Quellmalz (in Baron & Sternberg, 1987) state that "... evidence is accumulating that our students need instruction on higher order skills and that writing and sustained discussion are essential activities for fostering critical thought." (p.87)

Ability to work in groups: most audit field work is performed in teams with part of the procedural work distributed among the members of the audit. Most audit review work is done hierarchically and decisions are made as "group decisions". Such facts as well as learning from the Japanese methods of quality improvement and consensus building lead to the conclusion that group projects and group-based management simulations are of essence in accounting education. [Solomon, (1987); Ashton, Kleinmuntz, Sullivan & Tomassini (1988)]

Technical background

Technical background skills entail a set of **building tools** on which the program will construct a wider set of **technical and knowledge skills**. This basic division allows for the allocation of learning throughout the program.

The initial period of the curriculum envisages an intensive unfreezing effect where issues through cases and business discussions will be raised on a wide variety of attitudes and skills. In this intensive period students will be made to question prior values and attitudes without an attempt to bring them to stability.

Intensive work will be performed on making sure that all students have the basic building tools through intensive instruction and drilling of the basics. The more advanced set of technical and knowledge skills will be instilled throughout the entire program in most of its modules.

Computer Skills: the student/professional must be able to use a computer as a day to day tool. Under current technology the student must be able to use word processing, spreadsheets, database packages and access other computers through telecommunication.

Research Skills: a greatly neglected skill in our instructional process relates to the

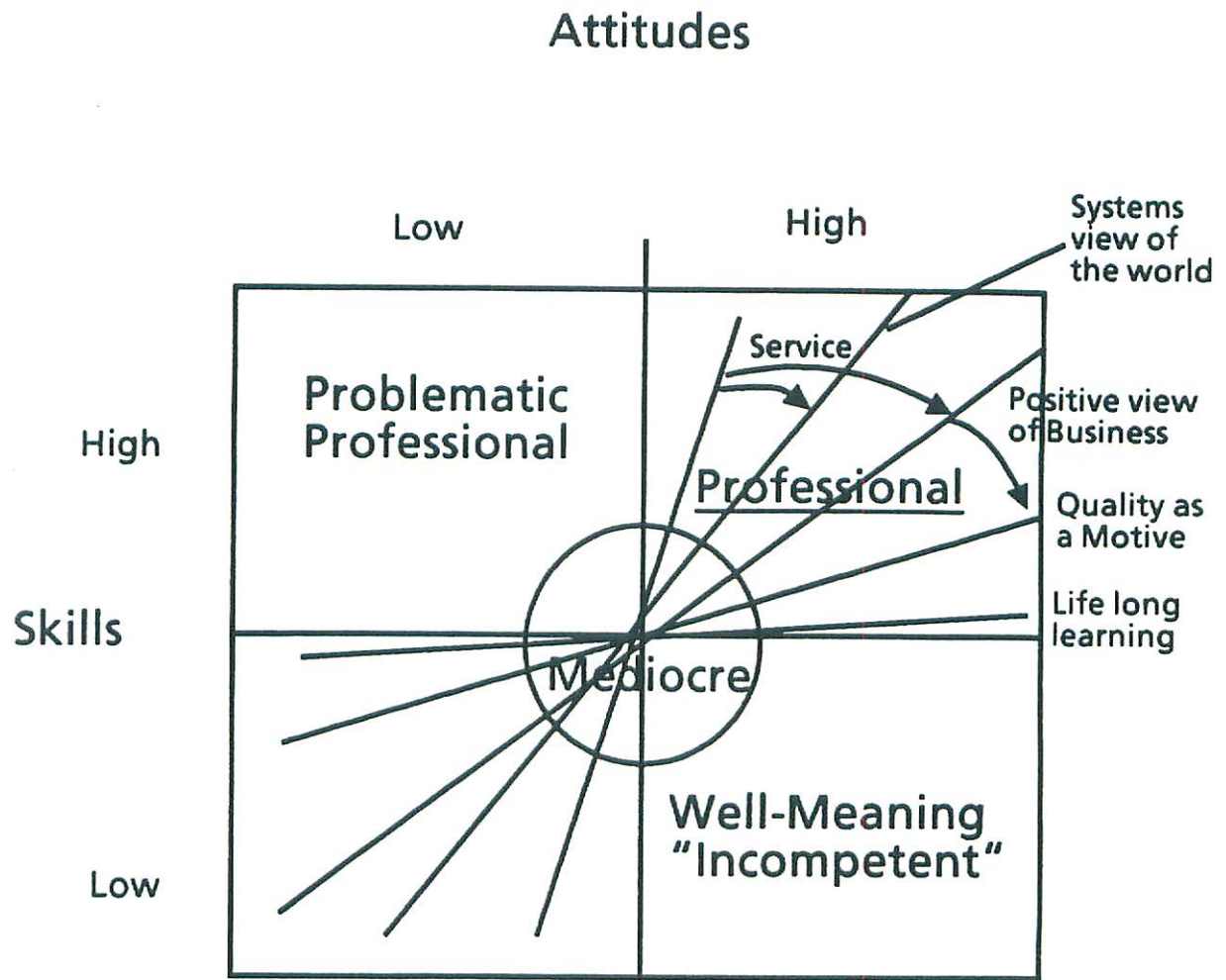
ability of performing research of a professional nature. These skills include literature surveys, access to computerized databases, designing surveys and questionnaires, and analyzing these results. [AAA, 1986]

International Skills: the internationalization of American business as well as the strong interconnection of the US economy with world-wide factors forces us to prepare much more of an internationalist as an accountant. Of general nature is the command of foreign language(s), awareness of geography and awareness of cultural and religious differences. Specific to the accounting domain is the awareness of differences in accounting standards and the difficulties in measurement across nations.

Statistical and Mathematical Skills: Both statistics and mathematics (through calculus) are important in the development of accountants. Statistics, especially sampling theory and methodology is necessary for Operations Management, Auditing, and Cost Accounting. Regression analysis is also used in Cost Accounting, Marketing, Economics, and Finance. Mathematical models are used extensively in parts of Finance, Operations Management, Economics, and Marketing. It is important that students possess basic skills in order to be able to learn the more advanced concepts in the instructional modules.

Figure 2 displays a visualization of the links between attitudes and skills. The professional should be trained both high in skills and attitudes. These dimensions are pervasive in relation to technical skills requiring simultaneous coverage with course coverage.

Figure 2
Attitudes and Skills



Educational Program

Traditional course constructs in the PAMBA offer a large set of advantages in the reformulation of an accounting program. Issues such as faculty load, coordination, teaching days, skill set and preparation have been resolved over the years and have a momentum of their own. On the other hand, they also present a set of difficulties and rigidities particularly in relation to the traditional way of doing things and a long term overreliance on established textbooks and their coverage.

The GRAECE will rely substantially on a modularization effort of the learning objectives and on the utilization of non-accounting courses to cover essential accounting procedures. The careful examination of the current curriculum and of a normatively desirable program of studies indicates that:

Efficiencies within Accounting Curriculum: It is possible to eliminate approximately 20% of the current accounting course coverage simply by eliminating duplication in these courses.

Efficiencies within MBA Curriculum: It is possible to move a series of accounting topics and issues to the basic MBA courses by using accounting examples to cover these topics. Since GRAECE entails the redesign of non-accounting, basic MBA courses that are given **exclusively** to accounting students coverage savings of an additional 10% is expected.

Efficiencies Resulting from Change in Emphasis: As the essential basic coverage is redesigned with an emphasis on life-long learning, self-instruction and deemphasis on professional exam coverage as well as statute coverage a smaller set of accounting topics will be needed. This also will allow an estimated 15% reduction in coverage.

These previously mentioned efficiencies will be used to satisfy the needs of the new curriculum. The new curriculum will bring in about 10% of integration exercises, about 5% of communication work, about 10% of new international work, about 10% of new technical coverage and 10% of additional technical skill emphasis including special modules on research methodology and philosophy of science.

Teaching Methodology

This proposal entails the development and evolution of the PA/MBA program towards the usage of a mixed teaching methodology using traditional teaching methods, experiential exercises, cases (integrative along different disciplines, illustrative of accounting issues and as a medium of transmitting real accounting/management experience), computer-based exercises and a wide range of other experimental pedagogical methods.

IV. A Proposed Modular Approach to Accounting Education

Unfreezing, Moving and Refreezing

The first stage of the process has to involve the **unfreezing** of attitudes in relation to former training and values. Students must be made to question the adequacy of their prior attitudes dealing with accounting issues and the other areas of attitudes discussed earlier in this proposal. This is to be accomplished by two coordinated methods:

- a) An intensive socialization and introduction period of six weeks at the start of the program.
- b) a series of cases and experiential exercises⁹ tailored to key attitudes in question⁹

The second stage of the process, lasting throughout most of the program involves the moving of attitudes and the building of skills towards the desired direction. This stage encompasses the modular instruction process and the other peripheral activities.

The third stage of the process works in the refreezing of attitudes towards the last three months of the program where the students are eased into the profession by a major increase of intensity of contacts with the profession and a large set of integrative exercises.

V. The Case For Articulation In The PAMBA Curriculum

In every professional accounting curriculum, whether undergraduate or graduate, there never seems to be enough time to cover necessary material. Also, in these same curricula, very little is done to articulate material between and among the various courses. It is not possible at this time to exhaust the possibilities of articulation, but it is possible to cite a few examples. The full extent of meaningful articulation can only be carried out by means of a complete curriculum review and lengthy experimentation. Consider the following example drawn from the curriculum:

There is a requirement in the PAMBA for courses in Cost Accounting, Managerial Economics, and Operations Management. In a major section of Managerial Economics entitled, The Economics of the Firm, cost behavior is discussed extensively, including opportunity cost, marginal cost, etc.

⁹ A set of modified SEC enforcement cases are one of the tools to be used in order to raise the difficult ethics questions where no line of action seems to be optimal.

In addition, the make or buy problem, intra firm behavior (transfer pricing), and profit maximization are also discussed. In Operations Management substantial coverage is given to human resources management (part of the discussion includes time standards, incentive pay systems, learning curves, and productivity) and Materials Management (involving inventory planning, cost components of inventory systems, optimum order quantities, materials requirement planning, and scheduling)

All of the topics mentioned above in the Managerial Economics and Operations Management courses are covered in the Cost Accounting course. Unfortunately, each respective professor discusses the topic from his own point of view and the student is left to integrate (or articulate) the material. This can become difficult, if not impossible for the student, since Managerial Economics is taught in the first term, Operations Management in the third and Cost Accounting in the fourth. Before a solution is suggested consider another example.

In the PAMBA program Financial Management and Advanced Financial Management, taught by professors in the Economics and Finance Areas, are taken along with a four term series of financial accounting (devoted to intermediate financial accounting theory, advanced theory, and financial accounting research of complex issues). The basic financial management course is concerned, among other topics, with the time value of money, capital budgeting within the firm, mergers and acquisitions, management of short-term financial assets, and financial planning. The advanced financial management course covers the problems of cash flow, including the risk/return trade off, and working capital management. Extensive use is made of analytical models of cash management, marketable securities, accounts receivable and payable, inventory, and short term borrowing. All of the topics mentioned above in the financial management courses are covered in the financial accounting sequence and cost accounting. The accounting courses, obviously, are concerned with the accounting model, however, a good accounting instructor will discuss the same ideas, from the same perspective, or nearly so, as the finance instructor in all of the areas. If there are differences of perspective the students must do the deciphering and interrelate the material. Few students are able to do this effectively. There are many other examples one could draw upon. To name two more - Sampling theory and methodology in Statistics and its use in Operations Management, Cost Accounting, and Auditing. Federal income taxes and its relationship to the business decision situations discussed in financial management, operations management, marketing management, and international business management.

Attempts have been made to integrate subject material as it relates to business decisions by requiring students to take a Business Policy course toward the end of their courses of study. At best this only partially solves the problem. Figure 3 illustrates the overall structure of the curriculum. The methodology to be adopted to eliminate the overlap of topical coverage, to achieve the enhancement on non-cognitive skills, to professionalize the student, and to redefine course coverage is discussed below.

Obtain the commitment of one professor from each area represented by the present courses in the curriculum to serve on a curriculum revision committee who agrees with the articulation of subject matter within a general philosophy.

Accumulate a detailed syllabus for every course curriculum, including textbooks, cases, and any other teaching material used.

Break each course down into discrete topics¹⁰ covered (coverage points are the basic atoms to be considered) and relate similar discrete topics among courses.

Decide which topics are essential to the education of a professional accountant and decide which essential topics are missing.

Carefully integrate topics into decision modules that may not have been related between and among courses.

Resequence the related essential topics so that coverage is carried out in a logical and orderly progression.

Keep related topics together as much as possible and develop either a team approach to the teaching of the material or a modular approach with the

¹⁰ Subject coverage will be segmented into coverage points, placed into a relational database, organized and sorted and repackaged into multidisciplinary modules which will allow the examination of issues from a series of different standpoints.

The basic elements of curriculum within this framework of analysis are: (1) coverage points (20 minute sectors), (2) lectures, (3) instructional modules (decision /information oriented). Different lecture sizes can be accommodated at different institutions or programs by extracting selected coverage points from the knowledgeware.

curriculum director orchestrating and moderating the integration of material.

Commission the redevelopment of the key modules both inside and outside accounting to high quality faculty members. These modules are to be delivered in a common medium (the knowledgware platform)

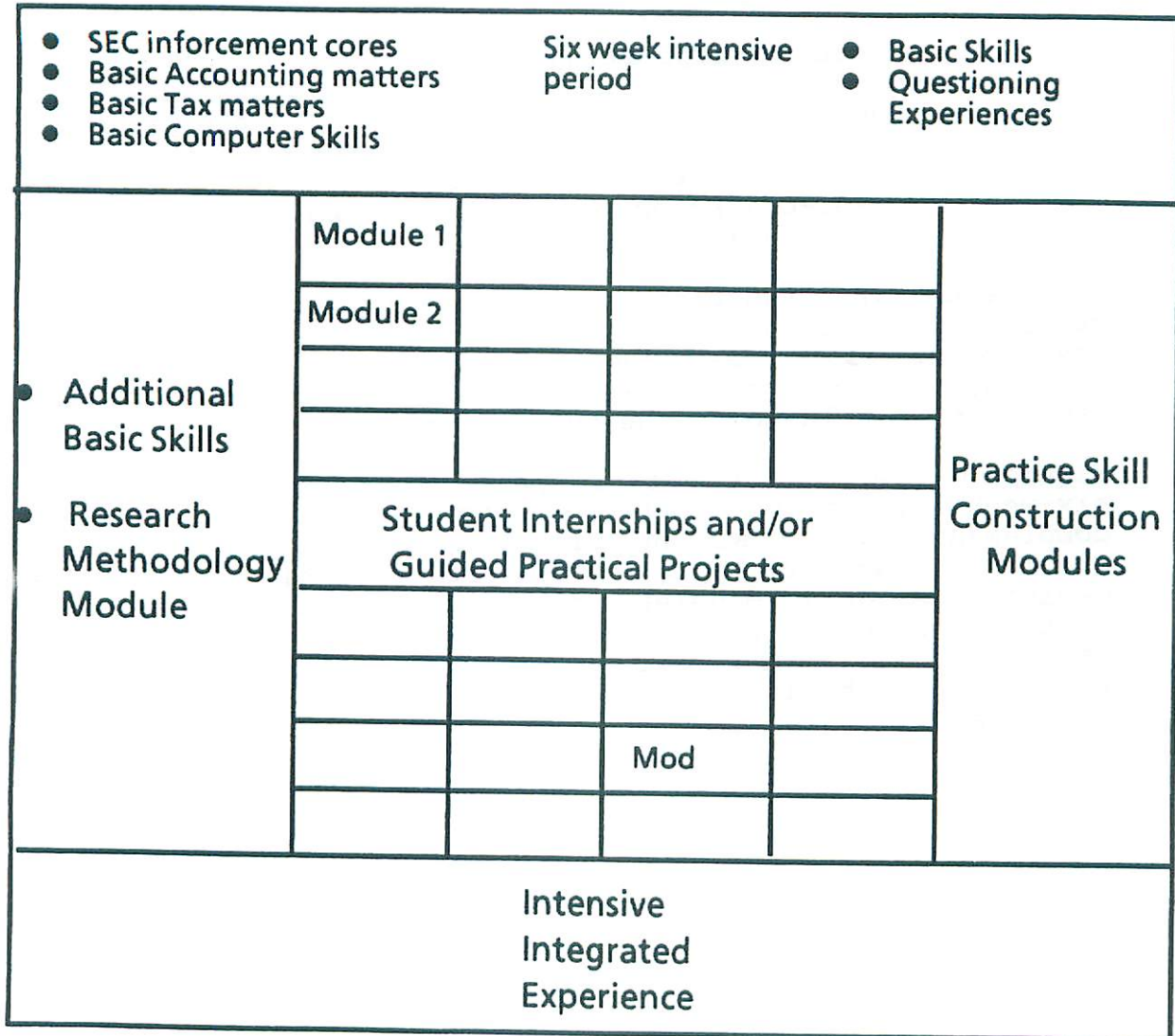
Create a supporting structure to work on the communication (oral and written) issues as well as computing skills supports throughout the program.

Create a supporting structure to facilitate the out-of-classroom activities to be relied upon in the educational process.

These steps are associated with the effort of adding to the curriculum certain non-cognitive skills and attitudinal development such as negotiation, oral communication, writing, and customer/client service, which now are only haphazardly included in the curriculum.

Figure 3 describes the first part of the curriculum as a six-week intensive period where basic skills are complemented while at the same time attitudes questioned. The second part (or core) of the program includes the major decision oriented modules providing the main elements of factual enrichment with a pervasive inclusion of skills and attitudes. The third part of the curriculum is a wrap-up with heavy emphasis on integration and on the refreezing of attitudes.

Figure 3
Overall Structure of the Proposed PAMBA Program



Subject coverage will be segmented into coverage points, placed into a relational database, organized and sorted and repackaged into multidisciplinary modules which will allow the examination of issues from a series of different standpoints.

The key focus will be on Accounting as an Information Function with critical management decisions serving as the focus point of clustering CPs into modules.

VI. A Decision Emphasis in Module Coverage

A traditional view of accounting deals mainly with accounting as a financial reporting function. Accounting as an information function considers a wider set of reporting needs and consequently many more management issues. Figure 4 illustrates this view of the world that serves as the basis for focusing on management decisions as one of the fundamentals of a wider accounting function.

Figure 4

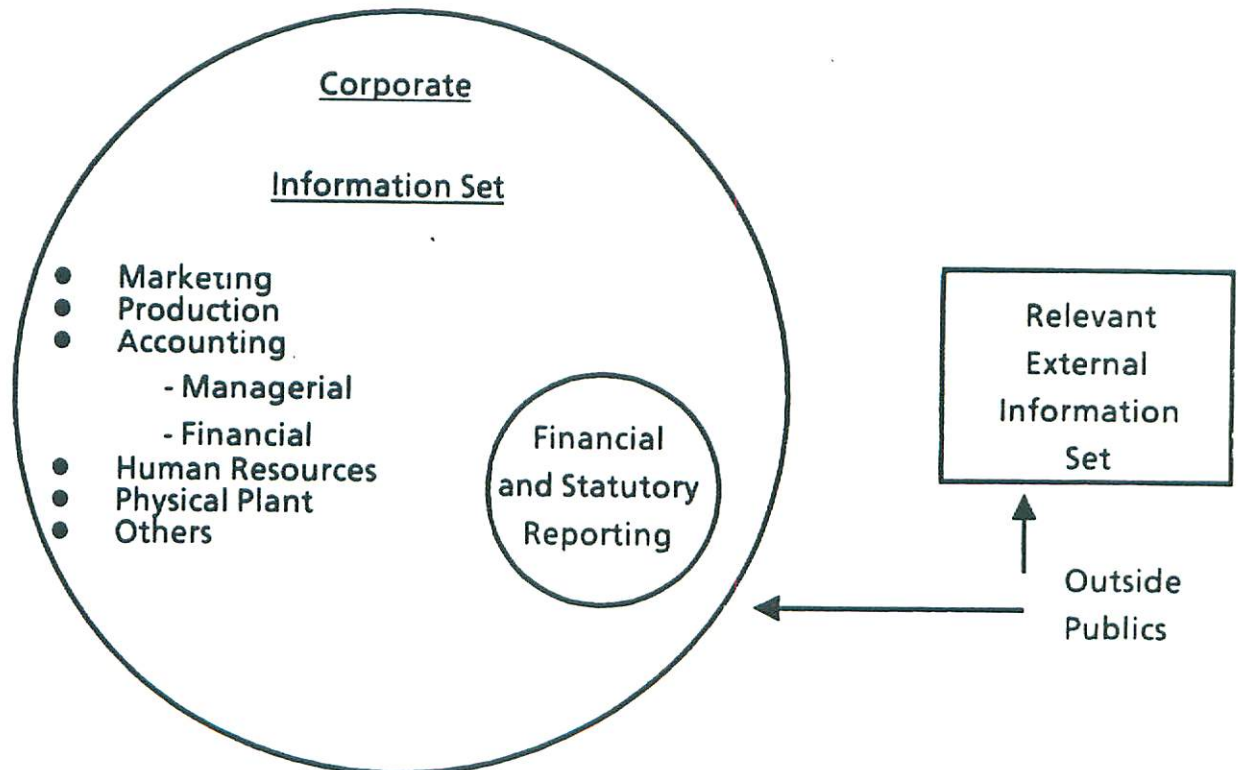


Figure 5 is a preliminary framework for structuring accounting education with the view that accounting is an **information function** and the most important role of accounting is that of an information structure for decision support systems throughout the organization.

Accordingly, the principal task of accounting is to provide the bulk of the information for the continuous Strategic Planning, Decision Making and Statutory Reporting Processes as well as to systematically interface with "non-accounting" sources of information and integrate them into a comprehensive interactive information system. Many of the important modules of the system are specified in Attachment B.

Figure 5

The Strategic Planning and Decision Making Process
Information Requirements

<u>Planning Process</u>		<u>Information Requirements</u>
Mission(s)-----	 <----->	Decision support information relating to environment competition marketing, technology, finance, human resources etc.
Objectives-----		
Strategies-----		
Action Plans -----		
Resource Requirements <----->		Human resources, capital procurements, production inventory and suppliers info.
Budgets <----->		Prices, revenues & cost forecasts
Controls <----->		Analysis of external & internal factors causing variances between budgets and actuals
Performance Evaluation --		
Corrective Actions <----->		Support for decisions to change, revise, modify all phases of planning process

VII. A Four Year Plan Towards the Desired Objective

Disclosure requirements and external auditing are of great importance and a key part of the corporate information systems. They are however, only a subset of the greater picture of corporate information and the role of the corporate information supplier and analyzer. Figure 3 illustrates the corporate information set and the position of required disclosures and the attestation process. Furthermore, emphasizing the decision support roles of the information network will improve the quality of public accounting practices.

This approach implies that all accountants must acquire a broad management education in order to be familiar with the entire range of managerial uses of the information they generate, structure, analyze and provide.

In summary, the approach to be adopted breaks the current PAMBA courses into coverage points that are reorganized into multidisciplinary modules to be taught in accounting or non-accounting courses. These modules will focus on critical decision processes within the organization. As an initial framework for discussion a series of key decisions were identified.

GRAECE is designed along an initial four year implementation plan by the end of which two full classes will have completed the program and the major facets of the change effort have been put into place. On the other hand this four year effort is just the beginning of a long term constant evolution of the program and parallel to an effort to change some institutional constraints (e.g. AACSB accreditation standards for MBA programs, entry salaries for accountants, Boards of accountancy coverage requirements in courses).

Year 1 (March 1990/May 1991)

Dissection of current course coverage

Creation and development of key decision modules

Creation of normative model of course coverage

Design of specific features of key modules: integrative modules, research module, philosophy of science module

Development of two-year proposed curriculum

Obtaining agreement from appropriate academic committees

Commissioning of non-accounting and accounting modules (semesters 1&2)

Development of the "basic" teacher's platform

Marketing and acceptance of new "parallel" PAMBA change class (first class)

Testing of developed materials (semesters 1&2)

Year 2 (June 1991/May 1992)

Commissioning of non-accounting and accounting modules (year 2)

Development of the "basic" Student platform

Marketing and acceptance of second "parallel" PAMBA change class

Testing of developed materials (semesters 3 & 4)

Reexamination of curriculum for semesters 1 & 2

Year 3 (June 1992/May 1993)

Test of materials with this class

Modification and redevelopment of modules as each semester is completed

Marketing and acceptance of third PAMBA class

Year 4 (June 1993/May 1994)

Marketing and acceptance of fourth new PAMBA class

Research review of the first class now graduated

Development of the yearly extended education module for lifetime learning

Review of C/PAMBA program and decision on integration with regular PAMBA

Completion and implementation of the "clearing house" concept

VIII. The Elements of the Knowledgeware Platform (KP)

As discussed above the proposal entails two main elements: the educational program and a teaching/educational research support computer platform. This section discusses the proposed knowledge platform and its two main elements: the teacher's platform and the student's device. The knowledge platform is an intrinsic part of the change proposal. It allows for the easy communication and diffusion of the concepts and methods developed in this proposal as well as facilitates the construction and delivery of the educational modules.

It is envisaged that all modules and their **teachingware** will be part of an overall dictionary/database construct to allow for the easy location and access by the instructor as well as administration of the education process and utilization of the knowledgeware outside formal educational programs.

A proposed philosophy

The platform will be constructed using purely **off-the-shelf** software tools with the only development required being integration of different tools or limited interface aids.

All software tools to be adopted will be if possible either in **public domain** or of very wide distribution.

The focus of the platform will be **illustrative** in nature attempting to illustrate and facilitate the usage of generic tools to solve problems and support generic teaching problems.

In the adoption of software **alternative approaches** will be tested and discussed in the documentation. For example, if a spreadsheet such as LOTUS 1-2-3 is used as part of the platform the discussion of the approach being used and other public domain tools available (e.g. DQ) will be an intrinsic part of the documentation. Forms, costs and methods of procuring the different tools will be facilitated to the manual readers.

All software used will be in a **demonstration mode** whereby if proper procurement is performed (acquiring software usage rights where necessary) the methodology is **ready-to-use** and all teachingware developed is automatically and immediately usable.

All modules developed in the GRAECE effort will use the platform facilities to **demonstrate** its capabilities and provide a basic set of materials to allow immediate user startup.

The Rutgers Accounting Research Center (RARC) will take responsibility for electronic storage and clearing house for knowledgeware developed and compatible with the approach. This service will be provided at cost to any authorized requestor of the software if direct support of the clearing house effort cannot be procured from a third party (for example, an associated publisher).

The **value-added** of the platform effort is selection, assemblage and demonstration of forward looking computer-based teaching support.

A teaching support module

The **teacher's platform (TP)** entails the usage of a powerful workstation connected to (or serving as) a server where

materials of many modules are stored. (See Figure 6) It also entails the usage of an ultra-light laptop, attached to an LCD display device and an overhead projector for classroom utilization.

The key element for the teaching support is the development of the concept of basic teaching materials (BTMs) or viewgraphs (individual screen images). These basic materials, constituting a page of text (prepared with a text-editor), a graphic (prepared with a text editor, spreadsheet or business graphic package) or a picture of something captured in pixel-image (through the use of a scanner) are carefully indexed and classified through the facilities of software.

The second element is a **viewgraph presentation module (VPM)** whereby BTM's are stored (iconized if possible), and presentations organized choosing icons of BTM's and the order of their presentation. Software such as LOTUS' Freelance or Harvard Graphics may serve as a medium of presentation. The delivery requirement encompasses overhead projection, the ability of immediate production of hard copy, and the ability of transmission (electronic distribution) to compatible medium.

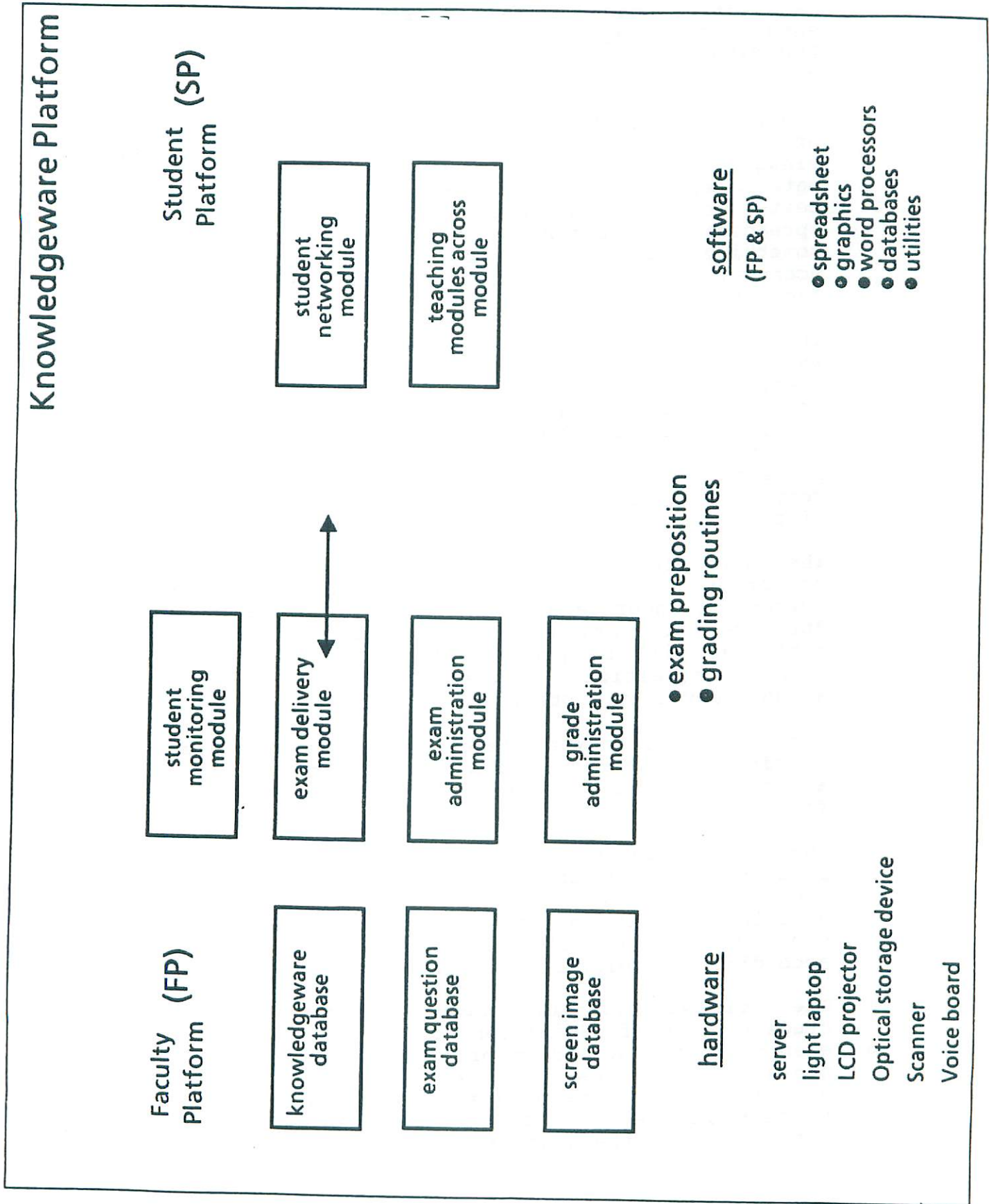
The third element of the TM is a prototype experimentation of optical storage of text and teaching materials with the purpose of understanding the issues and costs related to the "prepare your own text" approach. The cooperation of a publisher will be procured to get insight into questions such as royalties for one chapter usage and the issues around copyright protection.

The fourth prototype element encompasses **voice and image** coordination whereby voice storage and image storage are associated through a similar approach used for text in the first element.

The fifth element is an **exam delivery module** whereby students can respond to multiple-choice, open-ended and other types of questions in an on-line real-time environment. The faculty member can draw from a carefully ever changing question database with questions indexed according to topic, level, difficulty and other variables.

The **exam administration module** entails a device to allow students to self administer and faculty to manage and design examinations. A series of selective modules to assist in the grading process. Counters for multiple choice exams, evaluators for open-ended exams and key-word based routines to help in the evaluation of open ended questions. Direct interface with the grade administration module.

Figure 6



The **grade administration module** entails the usage of a spreadsheet and a series of macros to update, enter, query, sort, analyze, weight, and other functions to help in the assignment of grades. An optional feature may allow students to access, upon permission, the module and query their own current best estimate of the grade. Educational and pedagogical implications of this feature are not quite clear.

The exam question database module will include question bodies and a large number of classificatory items to allow for the long-term construction of large testing bases. In the long range it is conceivable that students may be allowed to use the database for self-testing and exam preparation. To allow for this the database must be large enough to avoid substantive overlap between exams and self-testing. Other approaches such as restricting access to a sub-base or variations to a theme may be implementable. A prototype question database may encompass classifications in relation to: topic (CP), sub-topic, difficulty, module or course, answer, history of usage, history of student performance, time for response, date of creation, other comments.

The exam question database is interfaced to an **exam preparation module** which allows for attaching the results of a database question selection to a word processing file leading to a complete printable exam.

The utilization of a common server for data storage and other academic administration functions allows for the development of a **student monitoring module** where: logs of assignments and communication (electronic) receipts are kept, difficulties with assignments, student class attendance, etc.

The KP will also encompass: electronic mail, calendar, some PC utilities and a boilerplate for teaching test preparation.

A student use module

Associated with the teacher's platform is a student's platform. It will front-end with several of the modules described above.

The **exam delivery module** allows for the student to interface with the question database both for self-testing and the administration of live exams from a remote mode.

Student communication needs include a **student networking module** to communicate with the class server, other students and the external world including bulletin boards, database utilities and Internet facilities.

Teaching materials and other supporting educational matters stored on a pixel basis on the server may be distributed in an electronic form through the networking capabilities. A **teaching support materials access module** allows for the display of these materials, their storage, their management and their eventual printing.

Finally, certain basic tools will be accessible including: spreadsheet, business graphics, word processing, database and utilities.

IX. Resources Required

Support for module development

The initial estimate of module development cost amounts to \$84,500 which relates to the preparation of 169 lectures at \$500 each. The current estimate is that from the total of 546 lecture-equivalents that encompass the C/PAMBA program approximately 32% must be commissioned. It is assumed that at least another 60 lectures will be prepared by the faculty at no incremental cost. In addition 12 major "integrative/unfreezing/refreezing" cases must be prepared at the cost of \$12,000. (equivalent to 24 lectures)

A module would contain the following elements if relevant:

Lecture outlines including classroom notes, overhead projection master, case studies, computer templates, and sufficient indexation information.

Support for hardware

The ADP electronic classroom will be used for computer intensive instruction at no cost to the program. Classroom wiring and other communication facilities are expected to be in place. Faculty computers and other implements exist and/or will be procured through other sources.

Specific to this proposal the following is needed:

386 or equivalent driver	\$ 2,000
2 gigabytes of storage	10,000
Scanner and imagers	4,000
LCD projector	800
Other (estim.)	3,200
	=====
	\$ 20,000

Support for software acquisition and testing

The knowledgware platform will be built on top of generic/publicly available software. In order to expand the scope of applicability, platform documentation will encompass comments on the application of other similar software that the particular user institution might use. The software costs of this module entail acquisition of the software for test and across software compatibility testing. Estimated cost: \$10,000

Spreadsheets	\$1,000
Databases	2,000
Translation software	500
Word Processors	1,500
Outlining software	500
OCR	1,500
Misc. utilities	2,000
	=====
	\$9,000

Support for development of knowledge platform

The assembling, construction, interface, testing, adaptation, search and other software assemblage tasks will require research assistance and computer support. A 20 hours per week research assistant will be required over the first two years of the project and 10 hours a week for support over the last two years of the project totaling \$30,000 [(\$10.00/hour x 50 weeks x 20 hours x 2 years) + (\$10.00/hour x 50 weeks x 10hours x 2 years)].

Funding Requested from the AECC

This proposal requests the following funding to be disbursed over the four years of the program.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year4</u>
Module development	\$25350	\$42250	\$16900	
Integrative modules	5000	4000	3000	
Hardware funds	10000	2500	2500	5000
Software funds	5000	2000	1000	1000
Software development	10000	10000	5000	5000
Miscellaneous	4000	4000	3000	3000
	=====			
TOTAL	<u>\$169500</u>	<u>\$59350</u>	<u>\$64750</u>	<u>\$31400</u>
				<u>\$14000</u>

University resources contributed

Rutgers University's Graduate School of Management is fully committed to the need for accounting change and consequently to the change in accounting education. Through the PAMBA program Rutgers has been a pioneer in accounting education and intends to continue this trend. In order to put the change program in place it is intended to admit a first class of the C/PAMBA (Change/PAMBA) in May 1991 in parallel to the regular admissions to the program.

Support for project management

Detailed project administration will be necessary for every semester of the program. As the program will encompass a wide variety of independent modules sequenced in a way that require variable faculty schedules and extensive faculty coordination project administration needs will be extensive. It is expected that a full time effort by one faculty member will be necessary when the program is fully deployed.

Support for communications and other skill testing

All written assignments and verbal presentations will be evaluated not only in content but also in quality of communication. Graders with communications competence will be assigned to all courses as well as verbal communication observers will be used extensively. Rutgers GSM one-way observation room and video-tape facilities are expected to be used in about 10% of the class hours.

The school will contribute:

2 doctoral teaching/research Assistants throughout the four year period for educational research monitoring and other support duties.

One course release for a key faculty member for the duration of the project for module coordination and administrative tasks in addition to the current PAMBA administrative support.

Putting in place connectivity between faculty microcomputers, knowledgeware platform, and the outside world.

Physical facilities for the expanded administrative and teaching needs of the C/PAMBA program.

Computer facilities for the knowledgeware clearing house role described in this proposal including: on-line access to the knowledgeware server, software for dictionary access and knowledgeware download, computer storage for the on-line storage of the documents.

Computer assistance for the C/PAMBA students over the three years of instruction covered in this program at the Graduate School of Management microlab facility including special instruction and an intensive instruction period at the unfreezing stage.

Other miscellaneous logistic support needs.

Summary of Resources (Four Years): Incremental Costs

	Rutgers GSM (estims.)	AECC
Faculty Coord.	120,000	
Dr. Students	160,000	
Networking	12,000	
Other (estims.)	40,000	
Integr. Modules		12,000
Module Dev.		84,000
Hardware		20,000
Software		9,000
Software Dev.		30,000
Miscel.		14,000
	=====	=====
	332,000	169,500

Faculty responsibilities in the C/PAMBA

Project Leadership	Miklos A. Vasarhelyi
Financial Coord.	Dan Palmon
Tax Coordination	Shirley Arbesfeld
Managerial Coord.	Ephraim Sudit
Program Management	Robert Schlosser
System Coord.	Robert Schlosser

Coordinators will be responsible for the supervision and interfaces of non-accounting and accounting related modules.

X. Plan for Communication and Transmission of Results

An extensive program of pedagogical research and psychometric measurement is planned to be associated with the GRAECE. Rutgers Graduate School of Management has a Ph.D. program and two doctoral fellowships will be dedicated for measurement and support of the effort. The results of this effort will be written up for Accounting Education publications as well as potentially as doctoral dissertations.

The nature of the knowledgware platform is a natural medium for the communication of results to third parties. The platform structure and its knowledgware will be made available to any accounting teaching organization of not-for-profit nature for teaching purposes. Agreements with vendors for preferential treatment of platform users of proprietary software will be negotiated and the actual products used will be contingent on the willingness and cooperation of these vendors.

Each module commission will be attached to the commitment of working with the AECC in presentations and support of other user institutions.

Incremental travel and instruction costs for the dissemination of the work will be requested to the AECC under its communication program.

Rutgers will invite local educational institutions to an annual conference in New Jersey at the end of each year of the grant to discuss results and tutorials on the use of the developed material.

XI. Conclusions and Follow-up considerations

In conformity with its history of innovation in Graduate Accounting Education the Graduate School of Management is proposing a revolutionary change in approach to accounting education. This proposal focuses on the Graduate Education MBA market and benefits from two key facts: (1) its students by-and-large come from a variety of non-accounting backgrounds leading to a much more eclectic product and (2) all non-accounting courses are taught exclusively for the PAMBA program allowing for great control and change in its content.

The program being proposed attempts to unfreeze students' attitudes and skills, modify them according to a model of wide professionalization and refreeze them within a context in consonance with the needs of the future accounting profession.

The program encompasses a six week intensive period where fundamentals are reviewed in a student-tailored mode and basic questions on the environment raised. Then students go through a series of decision-oriented modules covering material from the stewardship function to the function of modern computerized information systems. Throughout this stage integration and methodology are explored in independent tracks while contextual and technical knowledge is administered. The final phase of the program encompasses a series of integrative experiences and the closing of a series of issues raised in the first part of the program.

An intensive pedagogical research program will serve to review the progress over the first four years of the C/PAMBA and provide a base for periodic adjustment starting with a thorough review of the state of the program.

PAMBA alumni will be contacted and a program of life-long learning suggested using the knowledgeware platform as the medium of educational selection and in-loco as well as remote administration.

Bibliography

- AAA (1986). "Future Accounting Education: Preparing for The Expanding Profession", Issues in Accounting Education, Vol. 1. No. 1, 168-195.
- Aranya, Nissim; Lachman, Ran; Armenic, Joel; "Accountants' Job Satisfaction: A Path Analysis", Accounting Organizations and Society, 1982, 201-213.
- Aranya, Nissim; Wheeler, J.T., "Accountants Personality Types and their Commitment to Organization and Profession", Contemporary Accounting Research Vol.3. No. 1, 184-199.
- Armitage, H.M. and Boritz, J.E., "Integrating Computers Into the Accounting Curriculum", Issues in Accounting Education, , 86-101.
- Ashton, R.H., Kleinmuntz, D.N.; Sullivan, J.B.; and Tomassini, L.A., (1988) Ch. 4, "Audit Decision Making" in Abdel-khalik, A.R.; Solomon, I (editors), Research Opportunities in Auditing: The Second Decade (Sarasota, FL: AAA) pp 95-132.
- Baron, J.B.; Sternberg, R.D.; (1987) Teaching Thinking Skills: Theory and Practice. (New York: W. H. Freeman & Co.).
- Bedford, N.M. and W.J. Shenkir, "Reorienting Accounting Education," Journal of Accountancy, August 1987, pp.84-91.
- Begun, John W., "Economic and Sociological Approaches to Professionalism", Work and Occupations, Vol 13. No. 1, 1986, 113-129.
- Bollom, William J., "Ethics and Self Regulation for CPA's in the U.S.A.", Journal of Business Ethics, Vol.7. 1988, 55-61.
- Brandon, Charles; Drtina, Ralph E.; and Plane, Donald, "Using Modeling Languages In Managerial Accounting: An Example for Pricing Decisions", Journal of Accounting Education, Vol. 4. No. 1, Spring 1986, 69-80.
- Burton, E. James, McKeown, James C. and Shlosberg, Jeffrey, "The Generation and Administration of Examinations on Interactive Computer Systems", The Accounting Review, Vol. LIII. No. 1, January 1978, 170-178.

- Callaghan, David; Fetters, Michael and McKenzie, John,
 "Does the Computer Hinder Accounting Education?
 An Analysis of Some Empirical Data", Issues in
 Accounting Education, Spring 1986, 76-85.
- Denning, W. E. "Improvement of Quality and Productivity
 Through Actions by Management," National Productivity
 Review, 1981-
 82, I(1), pp. 12-22.
- Dickens, Thomas L. and Harper, Robert M., " The Use Of
 Microcomputers in Intermediate Accounting: Effects
 On Student Achievement and Attitudes", Journal of
 Accounting Education, Vol. 4. No. 1, Spring 1986,
 127-146.
- Elliott, R. "The Third Wave Breaks on the Shore of
 Accounting Education," Information Technology
 Forum, University of
 North Carolina, 1989.
- Fowler, Janet F., "Use of Computer-Assisted Instruction in
 Introductory Management Science", Journal of
 Experimental Education,
 , 22-26.
- Goode, William J., "Community within a Community: The
 Professions", American Sociological Review, Vol. 4.,
 1957, 194-200.
- Goosen, Kenneth R. and Kusel, Jimie, "Integrating
 Microcomputer Use Into An Information Systems
 Course", Issues in Accounting Education,
 77-86.
- Helmi, Medhat A., "Integrating the Microcomputer Into
 Accounting Education - Approaches and Pitfalls",
Issues in Accounting Education, 102-111.
- Hiltebeitel, Kenneth M. and Harmon W. Ken, "Microcomputers
 in Accounting Education: A Survey of Current and
 Planned Usage", Journal of Business Education,
 October 1984, 18-20.
- Hooks, Karen Leah, "Values and Value Systems of Public
 Accountants Relating to Professional Success."
 Ph.D. Dissertation, Georgia State University, 1981.
- Howe, Harold II, "Computers: The New Kick in the Schools",
The College Board Review, No. 128, Summer 1983, 24-32.
- Izzard, C. Douglas and Reeve, James M., "Electronic
 Spreadsheet Technology In The Teaching Of Accounting
 And Taxation - Uses, Limitations, and Examples."
Journal of Accounting Education, Vol. 4. No. 1,
 Spring 1986, 161-175.

- Juran, J. M. "The Quality Circle Phenomenon," Industrial Quality Control, 1967, 23, 329-336.
- Langenderfer, Harold Q.; Rockness, J.W., "Integrating Ethics into the Accounting Curriculum: Issues and Problems, and Solutions", Issues in Accounting Education, Vol.4. No. 1. Spring 89, 58-69.
- Loeb, Stephen E., "Teaching Students Accounting Ethics: Some Crucial Issues", Issues in Accounting Education, Vol. 3. No. 2 1988, 316-329.
- Mautz, R.K.; Sharaf, H.A., The Philosophy of Auditing, (Sarasota FL: AAA), 1961.
- McKell, Lynn J., and Stocks, Kevin D., " An Evaluation of Computerized Accounting Practice Sets", Journal of Accounting Education, Vol. 4. No. 1, Spring 1986, 177-190.
- McKeown, James C., "Computer-Assisted Instruction for Elementary Accounting", The Accounting Review, January 1976, 123-130.
- Merton, Robert K.; Reader, G. G.; Kendall, P.L.; The Student Physician: Introductory Studies in the Sociology of Medical Education. (Cambridge MA: Harvard University Press).
- Petersen, Russell J. and Grimlund, Richard, "CADRAS: Computer Assisted Data Recording and Analysis, A Tool for Learning about Accounting Concepts and Accounting Information Systems" Issues in Accounting Education, , 146-151.
- Quellmalz, E.S., "Developing Reasoning Skills" in Baron, J. B.; Sternberg, R.S., (1987) Teaching Thinking Skills: Theory and Practice (NY: W. H. Freeman & Co.).
- Rest, James R., "Can Ethics Be Taught in Professional Schools? The Psychological Research." Easier Said Than Done, Winter 1988, p. 22-26.
- Rokeach, M., Beliefs, Attitudes and Values, Jossey-Bass Inc., San Francisco, 1970.
- Rushinek, Avi; Rushinek, Sara F. and Stutz, Joel, "Development and Testing of a Discriminant Model for Measuring Changes in Instructor Evaluation due to Using Computer-Assisted Instruction", The Journal of Computers in Mathematics and Science Teaching, Summer 1983, 17-25.

Schein, Edward, "Management Development as a Process of Influence," Industrial Management Review, Vol. 2, 1961, pp:59-77

Solomon, I., "Multi Auditor Judgement/ Decision Making Research", Journal of Accounting Literature, Vol. 6. 1987, 1-25.

Wu, Frederick H., "Teaching Accounting Information Systems: A Synthesis", Issues in Accounting Education, 132-145.

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- Shirley Arbesfeld** Associate professor, CPA PhD, New York University. Dr. Arbesfeld's teaching, professional, and research interests are in the fields of corporate and individual federal income taxes.
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- Phil Hartley** Professor, PhD, University of Washington. Dr. Hartley's professional concerns include the interrelationship of accounting and business finance with special emphasis on the function of the audit corporate community. He is also interested in specialized accounting theory and the use of the computer as an aid to students in and out of the classroom.
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Attachment B

Decision/Information Modules

<u>Type of Decision</u>	<u>Information Requirements</u>
Valuation and Capital Budgeting Decisions	Cash flow forecasts before and after taxes. Cost of debt instruments. Cost of equity. Overall risk and individual project risk. Cost of capital.
Industry/Market Analysis	Industry structure. Market share Product configuration. Market segmentation. Competitive forces. Competitive advantages.
Product Configuration and Product Line Decisions	Product line synergisms. Customer relationships. Product attributes relative to competition. Degrees of customization. Estimates of substitution or complementarity of demands. Product costing.
Marketing Mix Decisions	Pricing, advertising, promotions, products attributes, distribution decisions and tradeoffs.
Human Resource Management -Recruitment Decisions -Training Decisions -Employee Involvement -Design of Incentives	Composition of labor resources (professional qualification, education, experience, seniority, age.) Career paths. Training programs and plans. Present and future requirements relative to present capabilities. Recruitment and training plans. Employee morale. Participatory decision making. Improvement circles. Team and individual suggestions. Review and feedback patterns. Individual and team bonuses. The competitiveness of monetary and non-monetary reward systems and their relation to performance.

Decision/Information Modules (cont'd)

<u>Type of Decision</u>	<u>Information Requirements</u>
Capital Management	Configuration and maintenance of productive assets. Frequent analysis of replacement needs. Cost benefit estimates of replacement/hold decisions.
Procurement Decisions	Price information for equipment, raw materials, supplies, etc. Information about suppliers' costs, quality, reliability. Selection of designated suppliers.
Production Management	Engineering/production decisions relevant to cost and products. Analysis of flexible production systems. Standards for producing; cost, time, reliability and quality of production processes.
Inventory Management	Demand forecasts, inventory cost estimates. Cost/benefits of Just-In-Time inventory systems.
R&D Management and Product Development	Technology feasibility and cost estimates of new products and processes. Marketing estimates of new and modified products. Cost/benefit estimates.
Total Quality Enhancement	Quality standards. Zero defects. Quality enhancement circles. Incentives for quality. Cost of quality estimation. Benefits of quality estimates.
Productivity Measurement	and analysis of partial and total factor productivity indexes. Setting productivity standards. Analysis of distribution of productivity gains.

Decision/Information Modules (cont'd)

<u>Type of Decision</u>	<u>Information Requirements</u>
Cost Management	Estimation of cost functions and cost-volume-profit relationships. Cost allocation systems. Cost classification systems (e.g. fixed v. variable, direct v. full.)
Forecasting	Forecasts of revenues and costs by products, profit centers, cost centers, categories, functions, etc.
Operating Budgets	Quantification of business plans. Matching the objectives and goals with the feasible (forecasts) for revenue and costs.
Tax Management	National and international macroeconomic aspects of tax policies. Information on tax legislation, regulation, administrative and court interpretation, on the local, state, national, and international levels. Information required for tax filings and disclosures to relevant authorities. Alternative tax minimization strategies. Tax implications of major strategic decisions (e.g. acquisitions, capital budgeting, international investments) and operations. Estimates of costs of the use of
Financing Decisions -Debt Management -Equity Management -Cost of Capital	Range of financing instruments available and their characteristics. Prevailing financing patterns in own industry and related industry. Financing patterns of national and international competitors. Cost of various debt and equity instruments and their respective risk assessments. Alternative weighted average cost of capital.

Decision/Information Modules (cont'd)

<u>Type of Decision</u>	<u>Information Requirements</u>
User's Cost of Capital	Estimates of costs of the use of capital assets per unit of input (e.g. cost of specific machines per machine hour.)
Control -Cost Control -Quality Control -Revenue Control	Competitive analysis of actual levels of revenue, costs, and quality relative to standards and budgets. Analysis of the variances thereof and the interdependence among the variances. Statistical quality control. Statistical analysis of revenue and cost variances.
Responsibility Acctg -Performance Evaluation -Reward Decisions	Configuration of principal-agent relationship. Explicit and implicit individual arrangements among levels of management, cost centers, profit centers, and investment centers. The extent of information flow and exchange. Actual and desired criteria of performance evaluation of decision units. Controllable v. non-controllable aspects. The extent to which rewards are related to performance. Extent of collective rewards. Short term v. long term incentives. Patterns of risk sharing.
Corrective Actions	Consolidation of information and its use for changes, revisions and modifications of all phases of strategic business plans.

Decision/Information Modules (cont'd)

<u>Type of Decision</u>	<u>Information Requirements</u>
Information Flow	Configuration and analysis of networks of decision makers and networks required to support strategic decisions and tactical decisions. Who has to get what information and when. Required and desired information sharing patterns. Frequency of missing information and its type. Patterns of withholding and blocking information. Patterns of information destruction (deliberate and inadvertent.) Theory of information concepts. Estimates of the quantity of information, value of information and fineness of information available to decision makers.
Measurement Decisions	Choice among alternative accounting methods to measure transactions and events and disseminate accurate, useful information to various users. Consideration of economic consequences.
Disclosure Management -Internal -External	Extent of desirable disclosure of sensitive information to various levels of management. Intelligence and counter intelligence considerations relative to competitors, raiders, regulators, unions, etc. Required external disclosure including financial reporting, tax filings, additional regulatory reporting, additional legal reporting requirements. Voluntary disclosure including additional disclosure to shareholders, financial community, prospective creditors, etc. designed to enhance the interests of the company.

Decision/Information Modules (cont'd)

<u>Type of Decision</u>	<u>Information Requirements</u>
Audit Decisions-Internal	<p>Level of support and disclosure provided to the board of directors and external auditors. Choice of external auditors. Resolution of differences and conflicts between company and external auditors. Comprehensive restructuring of all control aspects in an organization. Information network and flow patterns for control, performance evaluation and corrective action. Application of modern control systems (e.g. feedback, expert systems). Organization of internal auditors. Definition of responsibilities and reporting patterns. Data processing and computer information systems for internal auditing (e.g. on-line auditing).</p>
Audit Decisions-External	<p>Support from and cooperation with the managements and internal auditors of audited companies. Scope of audit. Sampling techniques and requirements. Basis for the audit report.</p>
Historical Documentation	<p>Necessary and desirable information requirements for documenting and recording systematically the economic history of the firm for decision making as well as legal and historical documentation purposes.</p>
Research Support	<p>Information required for accounting information systems, financial and economic, basic and applied research conducted internally by staff and consultants as well as by external academic research to advance the state of the art.</p>

Decision/Information Modules (cont'd)

<u>Type of Decision</u>	<u>Information Requirements</u>
Ethical Decisions	Scope and manner of disclosure to external auditors. Truthful revelations, concealment, incomplete information, misleading information disclosures to outside groups. Resolution of differences between auditors and firms. Recognition and resolution of conflicts of interest.
Social Welfare Decisions	Effects of the accounting practices on social and economic welfare of customers, employees, creditors, shareholders, suppliers, management, and society at large. Social welfare implications of restructuring the public accounting profession.

Attachment C

Allumni Advisory Committee to GRAECE:
Extracts From Focus Group

An accounting alumni group held a meeting on December 21, 1989 at Rutgers University-Graduate School of Management. The Group consisted of alumni, faculty and one student. (Names and affiliations are listed below.) The purpose of the meeting was to serve as an advisory board to GRAECE. At the meetings, we discussed recommendations for improving our Professional Accounting Program from the prospective of having been out of school and in the work area for several years. Their recommendations and comments were channeled into 4 areas: Curriculum, Problem Solving Skills, Interpersonal Skills and Attitudes and Computer Proficiency. Each of these areas will be discussed separately and the group's comments and recommendations will be given.

CURRICULUM

A successful university has well - defined goals which fulfill the equally important functions of educating its students, and preparing them for the market place. The following are comments made by the accounting alumni advisory board:

- ± The student should be given more freedom on course selection (less core classes and more electives).
- ± Classes should incorporate subject matter from several courses.
- ± Apply FASB to real world situations, and intergrate throughout the curriculum.
- ± Students should have a general understanding of the overall business environment in addition to debts and credits.
- ± More outside speakers.
- ± General course work should be included at the beginning of the program so students can make a more informed career decision.
- ± Requirements of institutional bodies restricts curriculums and reduces the flexibility of a student course selection.
- ± Should the CPA exam be the focus of the school curriculum?

Problem Solving Skills

A successful career in public accouting can be achieved if one has been trained in understanding problems and selecting the

best alternative course of action taking into consideration all stakeholders who may be involved. Here are some comments of the alumni advisory board:

- ± Case studies should require students to solve problems that have several alternative solutions and advise them how to select the best alternative.
- ± Students should be trained to defend their recommendations.
- ± Students should have a high level of problem solving skills.
- ± Students should be taught to look at all aspects of a problem situation.
- ± Classes should teach students to think on their own.
Less quantitative classes and more qualitative (case study).
- ± More accounting classes that apply accounting to business decisions.
- ± Ethical considerations should be included in case studies and/or business problems.
- ± Students should be trained for entry-level jobs, as well as senior positions (i.e. partner).

Interpersonal Skills and Attitudes

Effective communication, oral and written, are vital skills in dealing with a colleague, a supervisor or a client. The alumni advisory board stressed this and made the following comments:

- ± Persuasion and negotiating skills should be taught.
- ± Dealing with others (people skills) should be stressed in the program.
- ± Communication skills are a must.
- ± Communication skills should be addressed in a separate class and/or integrated into every class by assigning written reports and memo's.
- ± Classes should incorporate public speaking.
- ± Business writing should be stressed over academic writing.

Computer Proficiency

The type of information provided by accountants has evolved slowly, but tools used today to provide the information have taken on a new dimension. Accounting and computers go side by side and successful accountants of the future must also be computer literate. Any student entering the work force without computer skills will be at a great disadvantage, and also be less marketable. Some issues, comments, and solutions discussed are summarized below:

- ± The PC lab should be expanded
- ± Classes should require more homework done on computers
- ± Homework assignments should incorporate the latest software being used in business.
- ± Proficiency exams should be administered for computer skills
- ± Workshops and/or class sessions on computer skills should be added to the program
- ± A student should understand building and using databases
- ± The basic computer course should be upgraded

LIST OF MEMBERS OF THE C/PAMBA ALUMNI ADVISORY BOARD

Lewis J. Grenwald	Ernst & Young
John T. Dalton	AT&T Bell Laboratories
Norman A. Rost	Computer Sciences Corp.
Ronald V. Trense	IRS- Pensions
Steve Sarafconn	KPMG Peat Marwick
Rachel Lynne Malakoff	Pfizer, Inc.
Evan Wasserman	J.H. Cohn & Co.
Rita Ting	KPMG Peat Marwick

Attachment D

PUBLIC ACCOUNTING ADVISORY COMMITTEE TO GRAECE:
Extracts from focus group

The following information was gathered from a focus group held on January 18, 1990 at Rutgers University-Graduate School of Management. The group consisted of faculty members and representatives from 5 of the Big 6 accounting firms. (Their names and affiliations are given below.) The purpose of the meeting was to discuss improvements that can be made to the Professional Accounting (MBA) curriculum. Their comments are divided into 3 areas: curriculum, attitudes, and skills.

CURRICULUM

A strong MBA curriculum fulfills the needs of our students and the needs of the public accounting profession. A graduate school with a strong program is in a position to attract the best students for the profession. It is the desire and hope of the accounting professionals, who attended the above meetings, to see professional accounting programs achieve the same status, on an educational level, as schools of law and medicine. Some of their comments on curriculum are summarized below:

- ± What are the educational needs of an accounting student
- ± What are the needs of the marketplace i.e., employers
- ± Should FASB be taught and to what extent as its volume is substantial
- ± Teach students to understand and use the standards; students should be taught to understand and use FASB
- ± A brief overview of SEC reports should be included in curriculum
- ± What is the correct focus of the professional accounting program
- ± Should the curriculum drive the accreditation
- ± The curriculum should not specialize in accounting disciplines. However, specialization in regional industries should be considered.
- ± There appears to be no required course in the curriculum that integrates all the skills learned in the program

- ± A policy course or a well-designed auditing course could integrate the program
- ± Add more case studies, using real-world situations; enforcement and SEC releases would be a good basis for cases used in the classroom
- ± Firms might be willing to open some of their files for the case studies
- ± There should be more orientation toward service industries as manufacturing is a smaller part of the economy
- ± Courses should be coordinated to reduce redundancy

PROFESSIONAL ATTITUDES

A professional accounting program must also develop a student's attitude towards the accounting profession. That is, the student must learn to develop a professional attitude or professionalism. A clear sign of professionalism is a concern with ethical behavior in public accounting and in business generally. The general public must believe the accountant can be trusted in financial matters. Some issues and comments from the professional accounting advisory group are as follows:

- ± Firms want high quality people and a lower turnover rate
- ± The firms must provide an environment in which employees want to stay
- ± Most employees must be challenged and stimulated or they will leave
- ± Is part of the problem of turnover in the accounting profession the result of the schools setting the students expectations too high
- ± What, if any, attitudes should the schools try to instill in students
- ± Students with a positive attitude will be more successful
- ± How do you integrate attitude training in the courses

SKILLS

Communication, written and oral, is the most important skill for a professional accountant. Yet, entry-level accountants do not possess these skills. Also important are skills in doing

research; sorting out solutions to problems; and, how does one assess risk? Comments of the advisory group follows:

- ± The professional accounting program should inspire students to strive for higher skills
- ± The ideal solution is to integrate communication skills in all classes
- ± Half of all classes should require oral and written reports
- ± Computer skills are important
- ± Courses that integrate computer work should be expanded
- ± Teach risk assessment
- ± Research skills should be taught
- ± Teach students how to find solutions
- ± The "rule book" should not be taught to the students
- ± The firms do not want students trained for entry-level jobs, but for the executive level
- ± Good "technocrats" on average do not make good partners
- ± Financial executives who advance in their career have well rounded backgrounds

LIST OF MEMBERS OF THE C/PAMBA PROFESSIONAL ADVISORY BOARD

(Advisors from Public Accounting Firms)

Eugene Gaughan	Price Waterhouse
John Thornton	Coopers & Lybrand
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Joseph Pompeo	Arthur Andersen
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