

**L'Association Canadienne des Professeurs de Comptabilité  
The Canadian Academic Accounting Association**

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**COMPTE RENDU  
PROCEEDINGS**

**CONGRÈS ANNUEL DE 1987  
1987 ANNUAL CONFERENCE**



**Juin 1987 / June 1987  
McMaster University  
Hamilton**

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**PROCEEDINGS OF THE 1987 ANNUAL CONFERENCE**

**COMPTE RENDU DU CONGRES ANNUEL DE 1987**

**The Canadian Academic Accounting Association**

**Toronto**

**1987**

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L'Association Canadienne des Professeurs de Comptabilité  
The Canadian Academic Accounting Association

February 16, 1988

To the Members of the  
Canadian Academic Accounting Association:

These proceedings contain the program, paper abstracts and many of the papers presented at the 1987 Annual Conference of the Canadian Academic Accounting Association held at McMaster University, June 2 and 3. Some of the research papers have not been included in this volume at the request of the authors.

The program consisted of invited papers, and papers received in response to the general call. Twenty-three papers were received in response to the general call, of which fifteen were accepted following a review by two referees.

Many persons contributed to the planning and to the presentation of this conference. The 1986-87 CAAA Executive under the chairmanship of J. Alex Milburn, the Education Committee chaired by Anne Fortin, the local arrangements chairman A. W. Richardson, and the CAAA Administrative Officer Barbara Jaeger, all contributed significantly. Twenty-nine persons played a critical role in refereeing the papers received in response to the general call. A list of the referees and their university or business affiliation follows. We acknowledge especially those who presented the invited and submitted papers, and we thank all those who responded to the general call but whose papers could not be included in the program. A final acknowledgement is appropriate to the one hundred and forty members who attended the conference and by their presence and involvement contributed to its success.

We trust that this conference and the papers contained in these proceedings will further the development of accounting and accounting education in Canada.

Yours sincerely,

*Wally Smieliauskas*

Wally Smieliauskas, Ph.D., C.P.A.  
Associate Professor of Accounting  
University of Toronto  
1987 CAAA Conference Program Chairman



L'Association Canadienne des Professeurs de Comptabilité  
The Canadian Academic Accounting Association

le 16 février 1988

A l'intention des membres de L'Association  
canadienne des professeurs de comptabilité:

Vous trouverez ci-joint le programme du congrès 1987 de notre Association tenu à l'Université McMaster les 2 et 3 juin. Nous y avons joint les résumés des mémoires qui y ont été présentés ou dans certains cas leur texte intégral. A la demande de leurs auteurs, certains mémoires n'ont pas été inclus.

Les mémoires présentés lors du congrès avaient fait l'objet d'une sollicitation individuelle ou générale. Des vingt-trois mémoires reçus en réponse à notre sollicitation générale, quinze ont été acceptés après examen par deux arbitres.

De nombreuses personnes ont contribué de façon significative à la préparation et la présentation de ce congrès, le bureau exécutif 1986/87 de notre Association, présidé par J. Alex Milburn, le Comité d'enseignement présidé par Anne Fortin, le président du Comité des arrangements sur place, A. W. Richardson et l'adjointe administrative de notre Association, Barbara Jaeger. Vingt-neuf personnes ont accepté de juger les mémoires reçus en réponse à notre sollicitation générale. Vous trouverez plus loin les noms de ces arbitres ainsi que ceux de leur université ou compagnie. Si nous sommes particulièrement reconnaissants à ceux qui ont présenté des mémoires, nous aimerions également remercier tous ceux qui nous ont soumis des textes ainsi que les cent quarante participants qui ont permis de faire de ce congrès une réussite.

Nous avons bon espoir que ce congrès et les mémoires présentés contribueront à l'avancement des sciences comptables et à leur enseignement au Canada.

*Wally Smieliauskas*

Wally Smieliauskas, Ph.D., C.P.A.  
Professeur agrégé  
University of Toronto  
Président du congrès 1987 de l'A.C.P.C.

Referees of papers submitted for the  
1987 Annual Conference in Hamilton

Arbitres des mémoires soumis  
pour le Congrès 1987 à Hamilton

Names - Noms

Universities or Affiliations  
Universités ou institutions affiliées

Anthony Atkinson	Waterloo
Harvy Babiak	Toronto
Tom Beechy	York
J. Efrim Boritz	Waterloo
Len Brooks	Toronto
Murray Bryant	Toronto
Andreas Charitou	Toronto
Gilles Chevalier	Charette Fortier Hawey
Joan Conrod	Toronto
Carol Dilworth	Toronto
Martha Dunlop	Toronto
Lois Etherington	Simon Fraser
Jerry Feltham	UBC
Len Fertuck	Toronto
Jacques Fortin	H.E.C.
Mike Gibbins	Alberta
Jack Hanna	Waterloo
Jeffrey Kantor	Windsor
Stanley Laiken	Waterloo
W.P. Lam	Windsor
Morley Lemon	Waterloo
Donna Losell	Toronto
Alan MacNaughton	Waterloo
Sheryl Mapa	Toronto
Giora Moore	Toronto
David Quirin	Toronto
Gordon Richardson	McMaster
Chris Robinson	York
Dan Thornton	Toronto



L'Association Canadienne des Professeurs de Comptabilité  
The Canadian Academic Accounting Association

# 1987 CONFERENCE PROGRAM

## McMASTER UNIVERSITY, HAMILTON

### Tuesday, June 2

From 8:00 a.m.

Registration at Togo Salmon Hall, Room 118

7:00-10:00 p.m.

**CAAA Welcome Reception**  
(Sponsored by Canadian Institute of Chartered Accountants)

McMaster University Faculty Club, Great Hall

### Wednesday, June 3

From 8:00 a.m.

(Simultaneous translation available, Room B135  
Kenneth Taylor Hall)

Registration at Togo Salmon Hall, Room 118

9:00-9:15 a.m.

**Welcome** - Alex Milburn, CAAA President  
- Dean George W. Torrance, Faculty of Business  
McMaster University  
Location: Room B135 Kenneth Taylor Hall

9:15-10:30

**Plenary Session:** "Research and Research Methodology for  
Accounting Education"

Location: Room B135 Kenneth Taylor Hall

Chairperson: Irene M. Gordon, Simon Fraser University  
Speaker: Ralph L. Benke Jr., James Madison University,  
Editor, Journal of Accounting Education  
Discussant: William R. Scott, University of Waterloo

10:30-10:45 a.m.

**Break** (Refreshments at all breaks are compliments of  
Prentice Hall)

10:45-12:00 noon

**Concurrent Sessions I a) and I b)**

\* \* \* \* \*

### SESSION I a)

Location: Room B135 Kenneth Taylor Hall

Chairperson: Jeffrey Kantor, University of Windsor

Chau Le-Van, Université du Québec à Montréal

Pierre Giguère, Université du Québec à Montréal

"Le didacticiel de travaux pratiques auto-correcteurs:  
Un nouveau type d'utilisation de l'ordinateur comme  
instrument d'enseignement"

M. Ahmed Naciri, Université du Québec à Montréal

Robert Bloom, John Carroll University

Marilyn Collins, John Carroll University

"A Retrospective on Efforts to Establish a  
Conceptual Framework"

\* \* \* \* \*

#### SESSION I b)

Location: Room B132 Kenneth Taylor Hall

Chairperson: John Waterhouse, University of Alberta

Steven A. Kupitz, Peat Marwick, Mitchell & Co.

W. Morley Lemon, University of Waterloo

"Analytical Review: Analysis of Specific Procedures Used  
in Canada and the United States"

Bruce A. La Rochelle, University of Ottawa

"Burdens of Proof in the CICA Handbook"

\* \* \* \* \*

12:00-2:00 p.m.

**CAAA Awards Luncheon** (Sponsored by Certified General  
Accountants Association)

Location: Blue Room, McMaster University Medical Centre

Chairperson: Alex Milburn, President CAAA

Presentation of Awards

Address by Dean William Slater, Graduate School,  
McMaster University

2:00-3:15 p.m.

**Concurrent Sessions II a) and II b)**

\* \* \* \* \*

**Session II a)**

Location: Room B135 Kenneth Taylor Hall  
Chairperson: Gary Spraakman, Ph.D. Student,  
McGill University

Tony Dimmik, Ph.D. student, University of Western Ontario

"Control Issues and Managerial Attitudes Towards  
Telecommuting: An Application of Partial Least Squares  
to an Exploratory Study"

Andreas Charitou, University of Toronto

"The Association of Earnings and Cash Flows with  
Security Prices"

\* \* \* \* \*

**Session II b)**

Location: Room B132 Kenneth Taylor Hall  
Chairperson: George C. Baxter, University  
of Saskatchewan

Margot Northey, University of Toronto

"The Importance of Communication Skills in Accounting  
Firms: Fact or Fad?"

Michael Grosh, Wilfrid Laurier University  
Ebi Roumi, Wilfrid Laurier University

"Tax Education: An Empirical Analysis"

\* \* \* \* \*

3:15-3:30 p.m.

Break

3:30-5:00 p.m.

**CAAA Annual Meeting**

Location: Room B135 Kenneth Taylor Hall  
Chairperson: President Alex Milburn  
Business: CAAA Committee Reports  
Address by Robert S. Kaplan

6:00-9:00 p.m.

**CAAA Members Reception**

(Sponsored by John Wiley & Sons)  
Location: Faculty Club, Great Hall

**Thursday, June 4**

9:00-10:15 a.m.

**Plenary Session:**

**"The Continuing Evolution of Management Accounting"**

Location: Room B135 Kenneth Taylor Hall

Chairperson: Mike Gibbins, University of Alberta

Speaker: Robert S. Kaplan, Harvard University  
and Carnegie Mellon University

Discussant: Anthony A. Atkinson, Dalhousie University

10:15-10:30 a.m.

**Break**

10:30-11:45 a.m.

**Concurrent Sessions III a) and III b)**

\* \* \* \* \*

**Session III a)**

Location: Room B135 Kenneth Taylor Hall

Chairperson: Steven Glover, Executive Director,  
Institute of Chartered Accountants  
of Alberta

Dan Thornton, University of Toronto

Carol Dilworth, University of Toronto

**"Teaching Accounting Theory in an Intermediate  
Accounting Course"**

Discussant: Dan McDonald, Simon Fraser University

\* \* \* \* \*

**Session III b)**

Location: Room B132 Kenneth Taylor Hall

Chairperson: Wally Smieliauskas, Deloitte Haskins  
and Sells

Ted Mock, University of Southern California

Stan Biggs, University of Connecticut

Paul Watkins, University of Southern California

**"Analytical Review Procedures and Processes In Auditing"**

Discussant: W. Morley Lemon, University of Waterloo

\* \* \* \* \*

12:00- 1:30 p.m.

**CAAA MEMBERS LUNCHEON**

(Sponsored by the Society of Management Accountants of Canada)

Location: Blue Room, McMaster University Medical Centre  
Chairperson: Yvon Houle, Université du Québec à Montréal  
Address by Herbert Simon, 1978 Nobel laureate in economics, Carnegie Mellon University

1:45- 3:00 p.m.

**Concurrent Sessions IV a) and IV b)**

\* \* \* \* \*

**Session IV a)**

Location: Room B135 Kenneth Taylor Hall  
Chairperson: Andrée Lafortune, Ecole des Hautes Etudes Commerciales

William Waluchow, McMaster University  
Jim Gaa, McMaster University

"The Teaching of Ethics in an Accounting Context"

Discussant: Doug Derry, Price Waterhouse

\* \* \* \* \*

**Session IV b)**

Location: Room B132 Kenneth Taylor Hall  
Chairperson: Dean A. William Richardson, McMaster University

James Fisher, Wilfrid Laurier University  
Ebi Roumi, Wilfrid Laurier University

"The Impact of Size on the Management of and Accounting for Research and Development Activities"

Farhad Simyar, Concordia University  
Jerôme Doutriaux, University of Ottawa

"Use of Accounting Ratios as Determinants of Success in High-Tech Entrepreneurial Firms in Canada"

\* \* \* \* \*

3:15- 4:30 p.m.

**Concurrent Sessions V a) and Vb)**

\* \* \* \* \*



\* \* \* \* \*

Session V a)

Location: Room B135 Kenneth Taylor Hall  
Chairperson: Chris Robinson, York University

D. J. Cooper, UMIST, Manchester, England  
E. A. Lowe, UMIST, Manchester, England  
A. G. Puxty, University of Sheffield, England  
H. C. Willmott, Aston University, England

"Accounting Regulation Study"

Len Fertuck, University of Toronto

"Relative Values of Accounting Information"

\* \* \* \* \*

Session V b)

Location: Room B132 Kenneth Taylor Hall  
Chairperson: Guy Goulet, Université du Québec  
à Montréal

Murray Bryant, University of Toronto

"Problem Solving Activity: Birch Paper Revisited"

M.R. Mathews, Massey University, New Zealand  
(To be presented by Irene M. Gordon,  
Simon Fraser University)

"A Tentative Teaching Program for Social Accounting"

\* \* \* \* \*



L'Association Canadienne des Professeurs de Comptabilité  
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**PROGRAMME DU CONGRES 1987**

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**UNIVERSITE McMASTER, HAMILTON**

**Mardi, 2 juin**

A partir de 8h.00

Inscription, Togo Salmon Hall, salle 118

19h.00-22h.00

**Réception de bienvenue de l'A.C.P.C.**  
(Patronnée par l'Institut canadien des comptables agréés)

McMaster University Faculty Club, Great Hall

**Mercredi, 3 juin**

A partir de 8h.00

(Traduction simultanée, salle B-135, Kenneth Taylor Hall)

**Inscription - Togo Salmon Hall, salle 118**

9h.00-9h.15

**Bienvenue - Alex Milburn, Président de l'A.C.P.C.**  
- George W. Torrance, Doyen, Faculty of Business, McMaster University

Endroit: salle B-135, Kenneth Taylor Hall

9h.15-10h.30

**Séance plénière: "Research and Research Methodology for Accounting Education"**

Endroit: salle B-135, Kenneth Taylor Hall

Présidente:

Conférencier: Ralph Benke, James Madison University, rédacteur, Journal of Accounting Education

Participant: William R. Scott, University of Waterloo

10h.30-10h.45

**Pause** (Les rafraîchissements offerts à toutes les pauses sont une gracieuseté de Prentice Hall)

10h.45-12h.00

**Séances concomitantes Ia) et Ib)**

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**SEANCE Ia)**

Endroit: salle B-135, Kenneth Taylor Hall

Président: Jeffrey Kantor, University of Windsor

Chau Le-Van, Université du Québec à Montréal

Pierre Giguère, Université du Québec à Montréal

"Le didacticiel de travaux pratiques auto-correcteurs: un nouveau type d'utilisation de l'ordinateur comme instrument d'enseignement"

Ahmed Naciri, Université du Québec à Montréal

Robert Bloom, John Carroll University

Marilyn Collins, John Carroll University

"A Retrospective on Efforts to Establish a Conceptual Framework"

\*\*\*\*\*

#### SEANCE Ib)

Endroit: salle B-132, Kenneth Taylor Hall  
Président: John Waterhouse, University of Alberta

Steven A. Kupitz, Peat Marwick, Mitchell & Co.

W. Morley Lemon, University of Waterloo

"Analytical Review: Analysis of Specific Procedures Used in Canada and the United States"

Bruce A. La Rochelle, University of Ottawa

"Burdens of Proof in the CICA Handbook"

\*\*\*\*\*

12h.00-14h.00

**Déjeuner des prix de l'A.C.P.C.** (Patronné par l'Association des comptables généraux agréés du Canada)

Endroit: Blue Room, McMaster University Medical Centre

Président: Alex Milburn, Président de l'A.C.P.C.

Présentation des prix

Allocution: William Slater, Doyen, Graduate School, McMaster University

14h.00-15h.15

**Séances concomitantes IIa) et IIb**

\*\*\*\*\*

**SEANCE IIa)**

Endroit: salle B-135, Kenneth Taylor Hall  
 Président: Gary Spraakman, étudiant au doctorat,  
 McGill University

Tony Dimnik, étudiant au doctorat, University of  
 Western Ontario

"Control Issues and Managerial Attitudes Towards  
 Telecommuting: An Application of Partial Least  
 Squares to an Exploratory Study"

Andreas Charitou, University of Toronto

"The Association of Earnings and Cash Flows with  
 Security Prices"

\*\*\*\*\*

**SEANCE IIb)**

Endroit: salle B-132, Kenneth Taylor Hall  
 Président: George C. Baxter, University of Sas-  
 katchewan

Margot Northey, University of Toronto

"The Importance of Communication Skills in Account-  
 ing Firms: Fact or Fad?"

Michael Grosh, Wilfrid Laurier University

E. Roumi, Wilfrid Laurier University

"Tax Education: An Empirical Analysis"

\*\*\*\*\*

15h.15-15h.30

**Pause**

15h.30-17h.00

**Assemblée annuelle de l'A.C.P.C.**

Endroit: salle B-135, Kenneth Taylor Hall  
 Président: Alex Milburn, Président de l'A.C.P.C.  
 Rapports des comités de l'A.C.P.C.  
 Allocution: Robert S. Kaplan

17h.00-19h.30

**Réception des membres de l'A.C.P.C.**  
 (Patronnée par John Wiley & Sons)  
 Endroit: Faculty Club, Great Hall

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Jeudi, 4 juin

9h.00-10h.15

**Séance plénière:****"The Continuing Evolution of Management Accounting"**

Endroit: salle B-135, Kenneth Taylor Hall

Président: Mike Gibbins, University of Alberta

Conférencier: Robert S. Kaplan, Harvard University

Participant: Anthony A. Atkinson, Dalhousie University

10h.15-10h.30

**Pause**

10h.30-11h.45

**Séances concomitantes IIIa) et IIIb)**

\*\*\*\*\*

**SEANCE IIIa)**

Endroit: salle B-135, Kenneth Taylor Hall

Président: Steven Glover, directeur exécutif,  
Institut des comptables agréés de  
l'Alberta

Dan Thornton, University of Toronto

Carol Dilworth, University of Toronto

**"Teaching Accounting Theory in an Intermediate Accounting Course"**

Participant: Dan McDonald, Simon Fraser University

\*\*\*\*\*

**SEANCE IIIb)**

Endroit: salle B-132, Kenneth Taylor Hall

Président: Wally Smieliauskas, Deloitte Haskins  
and Sells

Ted Mock, University of Southern California

Stan Biggs, University of Connecticut

Paul Watkins, University of Southern California

**"Analytical Review Procedures and Process in Auditing"**

Participant: W. Morley Lemon, University of Waterloo

\*\*\*\*\*

12h.00-13h.30

Déjeuner des membres de l'A.C.P.C. (Patronné par  
La société des comptables en management du Canada)  
**Allocution: Herman Simon, 1978 Nobel laureate in economics**  
Endroit: Blue Room, McMaster University Medical  
Centre  
Président: Yvon Houle, Université du Québec à  
Montréal

13h.45-15h.00

Séances concomitantes IVa) et IVb)

\*\*\*\*\*

**SEANCE IVa)**

Endroit: salle B-135, Kenneth Taylor Hall  
Présidente: Andrée Lafortune, Ecole des Hautes  
Etudes Commerciales

William Waluchow, McMaster University

Jim Gaa, McMaster University

"The Teaching of Ethics in an Accounting Context"

Participant: Doug Derry, Price Waterhouse

\*\*\*\*\*

**SEANCE IVb)**

Endroit: salle B-132, Kenneth Taylor Hall  
Président: A. William Richardson, Doyen, McMaster  
University

James Fisher, Wilfrid Laurier University

**Ebi Roumi, Wilfrid Laurier University**

"The Impact of Size on the Management of and Account-  
ing for Research and Development Activities"

Farhad Simyar, Concordia University

Jérôme Doutriaux, University of Ottawa

"Use of Accounting Ratios as Determinants of Success  
in High-Tech Entrepreneurial Firms in Canada"

\*\*\*\*\*

15h.00-15h.15

Pause

15h.15-16h.30

Séances concomitantes Va) et Vb)

SEANCE Va)

Endroit: salle B-135, Kenneth Taylor Hall  
Président: Chris Robinson, York University

Len Fertuck, University of Toronto

"Relative Values of Accounting Information"

D.J. Cooper, UMIST, Manchester, England  
E.A. Lowe, UMIST, Manchester, England  
A.G. Puxty, University of Sheffield, England  
H.C. Willmott, Aston University, England

"Accounting Regulation Study"

\*\*\*\*\*

SEANCE Vb)

Endroit: salle B-132, Kenneth Taylor Hall  
Président: Guy Goulet, Université du Québec  
à Montréal

Murray Bryant, University of Toronto

"Problem Solving Activity: Birch Paper Revisited"

M.R. Mathews, Massey University, New Zealand  
(sera présenté par Irene Gordon, Simon Fraser University)

"A Tentative Teaching Program for Social Accounting"

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L'Association Canadienne des Professeurs de Comptabilité  
The Canadian Academic Accounting Association

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**ABSTRACTS**

**1987 CAAA ANNUAL CONFERENCE**

**McMASTER UNIVERSITY, HAMILTON**



## RESEARCH METHODOLOGY FOR ACCOUNTING EDUCATION

Ralph L. Benke, James Madison University

Research of accounting education is not unique. The methodology appropriate for research of accounting education is the same as research in other disciplines. The accounting education environment, however, is unique, and the application of research methodology to accounting education can be unique. This paper, using example of published and unpublished accounting education research, discusses how research methodology can be applied to the research of accounting education.

**LE DIDACTICIEL DE TRAVAUX PRATIQUES AUTO-CORRECTEUR:  
Un nouveau type d'utilisation de l'ordinateur  
comme instrument d'enseignement**

par

**Chau Le-Van et Pierre Giguère  
Département des sciences comptables  
Université du Québec à Montréal**

In this paper, the authors report on the experience at the University of Québec at Montreal dealing with the introduction of a new concept of computer-assisted instruction in a management accounting course.

A self-correcting accounting software has been developed helping the students to solve practical problems. Furthermore, a complete computerized simulation on the process costing system has been elaborated enabling individualized assignments for 500 students and more.

The affordable cost and the time requirement for the development of this self-correcting accounting software constitute one of the main advantages of this CAI concept.

**A RETROSPECTIVE ON EFFORTS TO ESTABLISH A CONCEPTUAL FRAMEWORK**

M. Ahmed Naciri, Université du Québec à Montréal  
Robert Bloom, John Carroll University  
Marilynn Collins, John Carroll University

Even though the development of a conceptual framework for financial reporting may well be beneficial in many respects to every standard-setting body, most of the efforts towards attaining that objective have thus far come mainly from the Financial Accounting Standards Board (FASB) in the United States. In fact, the Conceptual Framework has monopolized much of the resources of the FASB. Apparently, the project is now essentially finished. This paper furnishes a comprehensive and up-to-date analysis of the long process of formulating the Conceptual Framework, considering developments in the U.S. as well as in Canada, Britain, and Australia. The American Conceptual Framework did not emerge in full-blown form, but rather evolved gradually over a period of about eighty years until the end of 1984 when it was essentially completed.

This study examines the foundations of the Conceptual Framework in historical and recent literature. The working hypothesis is that the Conceptual Framework is largely based on a broad synthesis of historical accounting thought and therefore is traceable to antecedent publications. Thus, the Conceptual Framework is evolutionary rather than revolutionary.

Should other countries consider the development of a Conceptual Framework, the steps followed in the establishment of the FASB Conceptual Framework can serve as a guide toward that end.

**ANALYTICAL REVIEW: AN INTER-INDUSTRY COMPARISON  
OF ITS USE AND AN ANALYSIS OF SPECIFIC PROCEDURES USED  
IN  
CANADA AND THE UNITED STATES.**

**Steven A. Kupitz, Peat Marwick Mitchell & Co.  
W. Morley Lemon, University of Waterloo**

Recent years have seen a significant increase in research into analytical review methods. However, almost all of that research has been concerned with rigorous testing of the various methods; there has been very little research of a descriptive nature. As a result, very little is known about the actual application of analytical review in practice. This paper describes exploratory research into the actual application of the various methods.

The project described was designed to ascertain the present usage of the more common analytical review procedures in different industries and to develop a data-base of specific applications of the various analytical review procedures. A survey was conducted of 123 practice offices of a "Big Eight" public accounting firm in Canada and the United States; each office was sent four copies of the survey instrument with a request that up to four senior audit staff members from that office complete the questionnaire. The offices represented a wide range of size, geographic location and clientele.

Responses were received from 362 individuals representing in excess of 100 offices. There were 1405 responses to the question of utilization of analytical review in the ten industry categories in the Canadian instrument and nine industry categories in the U.S. instrument (there were nine categories in common; the tenth Canadian category was Government including Crown Corporations and regulated utilities). In addition there were several hundred responses to the four questions about specific applications of the various procedures. Since we know that the respondents to our survey represent a broad range of geographic locations, a full range of office sizes and a broad diversity of clientele, we believe that these responses provide a fairly accurate picture of how analytical review is utilized in practice generally. The value of this paper is that it will provide future researchers with a rich lode of data about the "state of the [analytical review] art".

Burdens of Proof in the  
CICA Handbook

**Bruce La Rochelle, University of Ottawa**

The CICA Handbook is a form of legislative pronouncement in that it is incorporated by reference in certain corporate and securities legislation as the required disclosure standard. The application of the Handbook provisions involves the use of professional judgment, which is often to be with reference to a specific burden of proof, such as "reasonable assurance." This paper reviews the Handbook burdens of proof and compares them with generally recognized legal burdens of proof (balance of probabilities, beyond reasonable doubt). Since the Handbook burdens of proof are not identical to those recognized in law, questions are raised as to how professional judgment in applying the Handbook may be exercised in a legally defensible fashion.

Concurrent session II a)  
Wednesday, June 3, 2:00 p.m.

**Control Issues and Managerial Attitudes towards Telecommuting:  
An Application of Partial Least Squares to an Exploratory Study**

**T.P. Dimnik**

**Doctoral Candidate in Management Accounting and Control,  
School of Business Administration, University of Western Ontario**

This paper is an introduction to partial least squares (PLS). PLS, LISREL, and other second generation multivariate statistical techniques have been successfully applied in a number of other disciplines. PLS may be an especially useful tool for research in behavioral accounting because it explicitly estimates measurement error and because it allows interplay between theory and data. As well, PLS makes minimal demands on data: data need not be multivariate normal or measured on interval scales, and small sample sizes are acceptable.

The paper presents the general form of the PLS structural and measurement equations, and demonstrates the use of PLS in refining and testing a model of computer users' attitudes towards telecommuting. A jackknifing technique is used in statistical tests of the PLS estimates of the model parameters. The results of the PLS analysis are very tentative, but they do suggest that control issues should be considered in studies of computer-use innovations like telecommuting.

**The Association of Earnings and Cash Flows  
with Security Prices**

**Dr. Andreas Charitou  
Assistant Professor of Accounting  
Faculty of Management  
University of Toronto**

Security valuation has been prominent in the literature for many years. Although theory suggests that stock prices are related to ex ante cash flows, there has been controversy about the usefulness of the ex post accrual and cash flow measures in signaling stock prices. Recently, there has been an increasing interest in cash flow reporting and a strengthening belief that cash flows are valued in the marketplace; however, not much research has been devoted to that issue. Substantial evidence indicates that earnings are valued more than cash flows (defined as earnings plus depreciation). This study employs a cross-sectional equity valuation model to assess whether cash flows from Operation (CFFO) alter the variation in stock prices already explained by Operating Earnings (OPNI). The results of this study suggest that an earnings measure is valued in the marketplace, and that cash flows do not alter the variation in stock prices already explained by OPNI.

**THE IMPORTANCE OF COMMUNICATION SKILLS  
IN ACCOUNTING FIRMS: FACT OR FAD?**

Margot Northey, University of Toronto

As accounting firms face increasing scrutiny and increasing competition, their leaders are calling for better communication skills at all levels. But what, precisely is the need? What specific oral and written skills do professional accountants require to work successfully? Do needs alter as CA's climb the ladder to partnership? Is communication becoming a buzz-word?

This address will report the preliminary results of a study of communication skills in five major Canadian accounting firms. It will discuss not only individual activities and perceptions but also the extent to which the policies and practices of the accounting firms themselves encourage or discourage the development of communication skills. It will reveal the attitudes of accountants towards the training in oral and written communications they received in their university courses and elsewhere.



## TAX EDUCATION; AN EMPIRICAL ANALYSIS

Michael Grosh, Wilfrid Laurier University  
Ebi Roumi, Wilfrid Laurier University

The basic paper deals with an analysis of techniques used in Tax Education. Tax Education has followed a basic standard format for many years. This format has been based on a mechanical compliance approach to teaching the basic laws and their application. This paper is a result of a questionnaire sent to various Lawyers, Accountants and Academics. The analysis involves the issues of;

- (i) What specifics should be taught?
- (ii) What teaching techniques should be used as a learning tool?

A discussion of the basic research instrument is conducted showing coverage of respondents by profession, country, size of firm, type of Institution etc. The data is evaluated using some basic statistical comparisons producing some interesting results on the various issues. Results showed that respondents generally agreed on several issues of concern that should be taught as well as the method that should be used to teach this information.

The Continued Evolution of Management Accounting:  
Design Principles for New Systems

Robert S. Kaplan  
Harvard Business School and Carnegie Mellon University

There is now widespread recognition and agreement that existing management accounting systems are inadequate for the contemporary environment of global competition, deregulation, and rapid adoption of computer-aided-manufacturing. Cost systems must perform three basic functions: value inventory for financial and tax statements, measure and motivate performance, and estimate individual product costs. Existing systems, influenced strongly by auditing and regulatory requirements perform the inventory valuation function well but usually provide poor information for measuring performance or estimating product costs, the much more important, managerial functions. Rather than attempt to fix or patch up the existing system, it will be faster and cheaper to design separate and specialized systems for these three functions.

In this talk, we will describe the emerging theory for effective design of performance measurement and product cost systems. The main innovations for performance measurement systems are to de-emphasize some variance analysis and cost allocations in existing systems, to make the reports more timely, and to expand the set of measurements to include many non-financial indicators. The new principles for measuring product costs contradict much conventional thinking and teaching about the role for allocations and the importance of distinguishing fixed from variable costs. Also, the scope of the product cost system must be extended well beyond its current focus on factory costs to include also marketing, distribution, service, and corporate level expenses.

Concurrent session III a)  
Thursday, June 4, 10:30 a.m.

## Theory and Metaphor in Intermediate Accounting

Daniel B. Thornton  
University of Toronto

Traditionally, "intermediate" accounting has taught students a lot of rules for depicting real world things and events in the language of accounting. Heath [in Accounting Horizons, March 1987] has cautioned that accounting is a conceptual model, and it is all too easy to confuse the model with the things and events themselves. He even accuses most authors of intermediate texts of exacerbating the confusion. Though there is an element of truth in his argument, I will contend that much of what he calls confusion is metaphor. Metaphors seem to confuse concepts with real things and events only in the minds of uneducated people, who take everything they hear literally. For educated people, metaphors are powerful and efficient means of communication.

In my brief talk on this panel, I will develop the idea that because so much is omitted in the surface structure of historical cost accounting statements, the statements must be viewed as metaphors and only as metaphors. To appreciate metaphors, one needs to understand the deep structure of things and events that the metaphors stand for. I will argue that the only way to obtain the necessary education is to study theory, and that theory is especially important in intermediate accounting. I will also argue that failure to appreciate the metaphorical significance of accounting is one of the leading causes of the "expectations gap".

## AN EDUCATION COMMITTEE

## SEMINAR

## ON

## TEACHING ETHICS TO ACCOUNTANTS

Professor Wil Waluchow  
Department of Philosophy  
and

Professor Jim Gaa, Faculty of Business  
McMaster University

The debatees will use a case as a focus for their discussion. They will attempt to resolve the issue of whether ethics can be most successfully taught using the abstract theories of philosophy or the concrete details of specific ethics cases. The session will take the form of a three-way debate between Professors Waluchow and Gaa and Doug Derry, Price Waterhouse. The intent of this session is to consider how to more successfully teach ethics to accounting students.

Professor Waluchow has written a book Business Ethics in Canada forthcoming this spring from Prentice-Hall Canada, Inc. from which the case to be discussed is taken. He will also provide a list of sources of material for a course on business ethics.

The Impact of Size on the Management  
of and Accounting for Research and  
Development Activities

by

Jim Fisher

and

Ebi Roumi

Wilfrid Laurier University

This paper represents part of a larger study conducted to provide descriptive coverage of how firms in Ontario manage, select, evaluate and account for research and development activities.

The paper presents the findings of a mail survey carried out in an attempt to gain an insight into the research and development decision process as practiced by organizations of differing sizes. It also prompts the suggestion that there is a need to reassess the accounting treatment of such expenditures.

## **CANADIAN HIGH-TECH ENTREPRENEURIAL FIRMS: ON MEASURING SUCCESS**

**Farhad Simyar, Concordia University**  
**Jérôme Doutriaux, University of Ottawa**

High-tech companies are subject to a higher risk than other technology based firms resulting from shorter product life cycles, highly uncertain environments and severe competition due to little barriers to entry. Entrepreneurial high-tech firms are at even greater risk owing to limited or no managerial expertise. Most high-tech entrepreneurs possess technical background and have limited knowledge of information system and the aids it could provide in the managerial decision process. The lack of information system leads to inadequate accumulation of data, and inappropriate measurement and reporting of the results of operations used as decision aids in the managerial process. This paper investigates the qualitative and quantitative criterion, used by leading authors in the field, to measure the success of high-tech entrepreneurial firms. The paper then proposes the use of certain accounting ratios in order to measure success and the degree of it, for a high-tech entrepreneurial firm. This paper is a part of a major investigation by authors, in search of trendsetting factors which effect the success of high-tech entrepreneurial firms within the first eight years of incorporation.

The purpose of this paper is to introduce accounting ratios which may be used to measure the success, inherited from various success factors. The paper also identifies whether some or all of the selected ratios explain the same or different dimension of success. The findings of this study may be used later in the project to measure and identify the impact of various element in the first eight years of operations of the firms under study in the research project.

ACCOUNTING REGULATION STUDY

D. J. Cooper, UMIST, Manchester, England  
E. A. Lowe, UMIST, Manchester, England  
A. G. Puxty, University of Sheffield, England  
H. C. Willmott, Aston University, England

The paper presents a framework for examining how accounting practices are regulated within advanced capitalist societies. Through the critical use of Streeck and Schmitter's (1985) exploration of models of social order, regulation is theorised as an expression of the combination of the organising principles of Market, State and Community. The analytical framework is then applied to compare modes of accounting regulation in the Federal Republic of Germany, the United Kingdom, Sweden and the United States of America. The paper highlights the significance of contradictions within and between the organising principles of advanced capitalism and seeks to display the regulation of accounting as a medium and outcome of the articulation of these contradictions.

1987 CAAA Conference  
McMaster University  
Hamilton

Len Fertuck  
Faculty of Management  
University of Toronto

## **RELATIVE VALUES OF ACCOUNTING INFORMATION**

This is a proposal for the development of a laboratory tool for studying the relative value of accounting information. Students will use accounting information to make decisions about trades in a computerized simulation of a stock market. Measures such as frequency of use of information and performance in the market will be used as proxies for the value of specific items of information. Knowledge about the relative value of different items of information would permit auditors to determine which items need to be stated most accurately.



Problem Solving Activity: Birch Paper Reanalyzed

M.J. Bryant  
Faculty of Management/Erindale College  
University of Toronto

This study describes an empirical investigation of problem solving behavior. It was carried out to aid our understanding of human problem solving and decision-making processes for solving a complex accounting case. The case, Birch Paper, represents a knowledge rich domain. The problem solving knowledge required includes that of economics, differential costs, transfer pricing and organizational design.

Protocol analysis was employed in the study. Ten volunteers, first-year MBA students, were asked 'to think aloud' while they worked. The thoughts were tape recorded and analyzed.

A coding scheme was employed which included, in part, such categories as quoting, paraphrasing, making judgments, identifying constraints, making inferences, drawing conclusions and making recommendations. The coding scheme differentiated between possessing task knowledge and drawing inferences. It is similar to that employed by Bhaskar [1978].

The results indicate that subjects can be located in a multifactored space. One factor is the ability to paraphrase and use paraphrasing as a means to understand the problem. A second is that of double-reading: subjects who read through the case quickly at the beginning were more likely to obtain an acceptable solution. A third factor is the ability 'to bolster'; that is, the ability to reach a conclusion fairly early in the case and then look for ways to justify that conclusion. The last is the ability to set sub-goals and solve them as a means to problem solution. It is noteworthy that these factors were derived independently by the subjects themselves.

Therefore, the results show the existence of at least four factors necessary for effective problem solving. Three of the factors, paraphrasing, double reading and sub-goal analysis, are pedagogically important as they can and should be taught for effective analysis of unstructured material and the development of problem solving expertise. The ability 'to bolster', however, is a result of practice as it requires the development of heuristics. Moreover, the difficulty with using heuristics is the ability of problem solvers to determine when the heuristics are inappropriate.

**A TENTATIVE TEACHING PROGRAMME FOR SOCIAL ACCOUNTING**

M R Mathews  
Massey University  
Palmerston North  
NEW ZEALAND

The purpose of this paper is to suggest an integrated programme for the study of social accounting. The teaching programme should provide students with an understanding of some of the concerns felt by academics working in this area and motivate them to question the current accounting system into which they are to be inducted.

There are two main divisions in the teaching programme:-

- i. To provide a philosophical justification for the development of non-traditional disclosures. Three paradigms are considered, each with arguments for and against the main thesis.
- ii. To provide a structured study of non-traditional disclosures taking into account the public and private sectors, long and short terms and financial and non-financial forms of disclosure.

In addition to providing the structure referred to above, the paper provides useful reading lists and an extensive bibliography.



L'Association Canadienne des Professeurs de Comptabilité  
The Canadian Academic Accounting Association

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## **RESUMES**

**CONGRES 1987 DE L'A.C.P.C.**

**L'UNIVERSITE McMASTER, HAMILTON**

Séance plénière

Mercredi 3 juin, 9 h 15

**METHODOLOGIE DE RECHERCHE POUR L'ENSEIGNEMENT  
DES SCIENCES COMPTABLES**

**Ralph L. Benke Jr., Université James Madison**

La recherche dans l'enseignement des sciences comptables n'est pas unique. Les méthodes pertinentes y sont les mêmes que pour la recherche dans d'autres disciplines. L'environnement de l'enseignement des sciences comptables est toutefois bien particulier et l'application des méthodes de recherche peut elle aussi être tout à fait particulière. Ce mémoire, se servant d'exemples tirés de travaux de recherche dans l'enseignement des sciences comptables publiés ou non, traite de la façon dont la méthodologie de recherche peut s'appliquer à la recherche dans l'enseignement des sciences comptables.

Mercredi 3 juin, 10 h 45

**LE DIDACTICIEL DE TRAVAUX PRATIQUES AUTO-CORRECTEUR:  
Un nouveau type d'utilisation de l'ordinateur  
comme instrument d'enseignement**

**Chau Le-Van et Pierre Giguère  
Département des sciences comptables  
Université du Québec à Montréal**

Dans cette communication, on fait état de la récente introduction d'un didacticiel de travaux pratiques auto-correcteur dans le cours de comptabilité de management à l'Université du Québec à Montréal.

Le didacticiel permet à l'étudiant de faire des exercices relatifs au mode de fabrication uniforme et continue. De plus, grâce à ce nouveau type d'utilisation d'ordinateur comme instrument d'enseignement, il est possible désormais d'envisager des travaux pratiques individualisés, même pour un grand nombre d'étudiants.

Le coût abordable en ce qui a trait au temps de et aux ressources engagées pour développer ce didacticiel auto-correcteur constitue un des principaux attraits de l'approche préconisée.

Séance I a)

Mercredi 3 juin, 10 h 45

## RETROSPECTIVE SUR LES EFFORTS POUR METTRE AU POINT

## UN CADRE THEORIQUE

M. Ahmed Naciri, Université du Québec à Montréal,  
Robert Bloom et Marylin Collins, Université John Carroll

Bien que la mise au point d'un Cadre théorique pour la communication de l'information financière puisse être utile à de nombreux égards pour tous les organismes chargés de l'établissement de normes, la majeure partie des efforts ont été accomplis par le Financial Accounting Standards Board (FASB) aux Etats-Unis. En fait, le Cadre théorique a monopolisé presque toutes les ressources du F.A.S.B. mais le projet semble maintenant pratiquement fini. Ce mémoire donne une analyse complète du long processus de mise au point du Cadre théorique, faisant entrer en ligne de compte ce qui se passe aux Etats-Unis de même qu'au Canada, en Grande Bretagne et en Australie. Le Cadre théorique américain n'a pas été présenté de but en blanc sous sa forme définitive, il a plutôt évolué pendant environ 80 ans, jusqu'à la fin de 1984, date à laquelle il était pratiquement achevé.

Cette étude examine les bases du Cadre théorique dans les publications anciennes et récentes. On y part du principe que le Cadre théorique est fondé en grande partie sur une vaste synthèse historique de la pensée comptable et se réfère à des publications antérieures. Le Cadre théorique représente une évolution plutôt qu'une révolution.

Si d'autres pays envisageaient eux aussi la mise au point d'un Cadre théorique, les étapes suivies par le F.A.S.B. pourraient leur servir de guide.

Séance I b)

Mercredi 3 juin, 10 h 45

EXAMEN ANALYTIQUE: UNE COMPARAISON ENTRE LES INDUSTRIES  
DE SON UTILISATION ET UNE ANALYSE DES METHODES PARTICULIERES  
UTILISEES AU CANADA ET AUX ETATS-UNIS

Steven A. Kupitz, Peat, Marwick, Mitchell & Co.  
W. Morley Lemon, Université de Waterloo

Au cours des dernières années, il y a eu beaucoup plus de recherche effectuée sur les méthodes d'examen analytique. La majeure partie de cette recherche a procédé à des examens rigoureux des diverses méthodes employées et l'on a peu cherché à décrire ces méthodes. En conséquence, l'application pratique de l'examen analytique est très mal connue. Ce mémoire décrit la recherche exploratoire touchant l'application pratique des diverses méthodes.

Le projet décrit ici a pour but de déterminer l'utilisation actuelle des procédés les plus courants d'examen analytique dans diverses industries et de mettre au point une base de données concernant les applications particulières des divers procédés d'examen analytique. Un sondage a été effectué auprès de 123 bureaux au Canada et aux Etats-Unis appartenant à l'un des huit plus importants cabinets d'experts-comptables. Nous avons envoyé quatre exemplaires du formulaire de sondage à chaque bureau et avons demandé que quatre (ou moins) premiers vérificateurs remplissent le questionnaire. Les bureaux choisis représentaient un grand éventail de tailles, de points géographiques et de clientèles.

Nous avons reçu 362 réponses représentant plus de 100 bureaux. Nous avons eu 1405 réponses à la question d'utilisation de l'examen analytique dans les dix catégories d'industries pour le sondage au Canada et les neuf catégories d'industries pour le sondage aux Etats-Unis (il y avait neuf catégories en commun, la dixième catégorie était le gouvernement canadien, y compris les sociétés de la couronne et les services publics réglementés). Nous avons de plus obtenu plusieurs centaines de réponses en ce qui concerne les quatre questions sur les applications particulières des procédés divers. Etant donné que ceux qui ont répondu à notre questionnaire représentent comme nous l'avons dit un grand éventail de points géographiques, de tailles de bureaux et de clientèles, nous estimons que ces réponses fournissent une image assez exacte de la façon dont on pratique en général l'examen analytique. La valeur de ce mémoire est qu'il donnera aux chercheurs énormément de données sur l'examen analytique tel qu'il est effectué à l'heure actuelle.

Séance I b)

Mercredi 3 juin, 10 h 45

## FARDEAUX DE LA PREUVE DANS LE MANUEL DE L'I.C.C.A.

Bruce A. La Rochelle, Université d'Ottawa

Le Manuel de l'I.C.C.A. représente une déclaration législative dans ce sens qu'il est incorporé par référence dans une certaine législation touchant les entreprises et les valeurs mobilières comme une norme obligatoire d'information. L'application des stipulations du Manuel demande l'utilisation du jugement professionnel devant souvent être exercé en se référant à un fardeau de la preuve particulier tel que "assurance raisonnable". Ce mémoire passe en revue les fardeaux de la preuve du Manuel et les compare avec les fardeaux de la preuve juridiques (équilibre des probabilités, hors de tout doute raisonnable). Puisque les fardeaux de la preuve du Manuel ne sont pas identiques à ceux qui sont reconnus en droit, nous soulevons des questions quant à la façon dont le jugement professionnel dans l'application du Manuel peut s'exercer conformément aux principes juridiques.



Séance II a)

Mercredi 3 juin, 14 h

## QUESTIONS DE CONTROLE ET ATTITUDES DES GESTIONNAIRES

AYANT TRAIT AU TRAVAIL A DISTANCE PAR ORDINATEUR:

UNE APPLICATION DE LA METHODE DES MOINDRES CARRES PARTIELS

A UNE ETUDE EXPLORATOIRE

Tony Dimnik, candidat au doctorat,  
Université Western Ontario

Ce mémoire a pour but de présenter la méthode des moindres carrés partiels (PLS). PLS, LISREL et d'autres techniques statistiques de deuxième génération à variables multiples ont été appliquées avec succès dans un certain nombre d'autres disciplines. La méthode PLS peut être un outil de recherche particulièrement utile en comptabilité comportementale parcequ'elle estime explicitement l'erreur d'évaluation et parcequ'elle permet à la théorie et aux données d'avoir un effet réciproque. PLS n'exige que peu des données: celles-ci n'ont pas besoin d'avoir de nombreuses variables distribuées normalement ou mesurées sur des échelles d'intervalle. De petites tailles d'échantillons sont également acceptables.

Ce mémoire présente la forme générale des équations de structure et d'évaluation des PLS et montre comment utiliser la méthode PLS pour raffiner et tester un modèle des attitudes des utilisateurs d'ordinateur envers le travail à distance par ordinateur. On procède à des tests statistiques sur les estimations PLS des paramètres modèles. Les résultats de l'analyse PLS sont tout à fait provisoires mais ils suggèrent que l'on devrait prendre en considération les questions de contrôle dans des études des innovations dans l'utilisation des ordinateurs telles que le travail à distance par ordinateur.

Séance II a)

Mercredi 3 juin, 14 h

**L'ASSOCIATION DU BENEFICE NET ET DE LA MARGE BRUTE****D'AUTOFINANCEMENT AVEC LES PRIX DES VALEURS****Andreas Charitou, Université de Toronto**

L'évaluation des valeurs fait depuis de nombreuses années l'objet de débats dans les publications comptables. Bien que la théorie suggère que les prix des valeurs sont liés aux marges brutes d'autofinancement ex ante, une controverse est apparue concernant l'utilité des évaluations des produits à recevoir ex post et des marges brutes d'autofinancement pour indiquer les prix des valeurs. Il y a un intérêt de plus en plus manifeste pour la présentation des marges brutes d'autofinancement et l'on pense de plus en plus que l'on valorise ces marges sur le marché. Il n'y a toutefois que peu de recherche effectuée sur cette question. Nous avons des preuves concluantes que le bénéfice net est plus prisé que la marge brute d'autofinancement (définie comme le bénéfice net plus la dépréciation). Cette étude utilise un modèle d'évaluation des capitaux propres sectoriels pour voir si la marge brute d'autofinancement venant de l'exploitation modifie la variation dans le prix des valeurs déjà expliquée par le bénéfice de l'exploitation. Les résultats de cette étude suggèrent qu'une évaluation du bénéfice net a de l'importance sur le marché et que les marges brutes d'autofinancement ne changent pas la variation des prix des valeurs déjà expliquée par le bénéfice de l'exploitation.

Séance II b)

Mercredi 3 juin, 14 h

**L'IMPORTANCE DES COMPETENCES EN COMMUNICATION DANS LES  
FIRMES COMPTABLES: REALITE OU ENGOUEMENT**

Margot Northey, Université de Toronto

Les firmes comptables devant faire face à une compétition grandissante et un contrôle de plus en plus rigoureux, leurs dirigeants réclament à leurs employés, à tous les niveaux, de faire preuve de plus de compétence en matière de communication. Mais de quoi a-t-on vraiment besoin? De quelles compétences orales et écrites en communication les comptables professionnels doivent-ils faire preuve pour réussir? Ces compétences doivent-elles être différentes au fur et à mesure que les C.A. avancent dans leur profession. Le terme communication est-il en train de devenir un mot symbolique?

Cet exposé donnera les résultats préliminaires d'une étude des compétences en communication dans cinq grandes firmes comptables canadiennes. Il traitera non seulement des activités et perceptions individuelles mais aussi de la manière dont les pratiques et règlements des firmes comptables elles-mêmes encouragent ou découragent l'acquisition des compétences en communication. Il montrera les attitudes des comptables envers la formation dans le domaine des communications orales et écrites reçue à l'université ou ailleurs.

Séance II b)

Mercredi 3 juin, 14 h

## ENSEIGNEMENT DE LA FISCALITE, UNE ANALYSE EMPIRIQUE

Michael Grosh et Ebi Roumi, Université Wilfrid Laurier

Ce mémoire analyse les techniques utilisées pour l'enseignement de la fiscalité. Cet enseignement est resté le même depuis de nombreuses années, demandant pour apprendre les règlements de base et les façons de les appliquer, de suivre certaines méthodes précises. Partant des résultats d'un questionnaire envoyé à des avocats, des comptables et des universitaires, ce mémoire essaye de répondre aux questions suivantes:

- 1) Que devrait-on enseigner?
- 2) Quelles méthodes pédagogiques devrait-on utiliser?

Nous montrerons comment notre questionnaire nous a permis de classer les personnes y ayant répondu par profession, pays, taille de l'entreprise, type d'institution, etc., et comment nous avons évalué les données grâce à de simples comparaisons statistiques. Nous avons obtenu des résultats intéressants, les participants s'accordant en général sur l'enseignement de certains sujets et des méthodes à utiliser.

Séance plénière

Jeudi 4 juin, 9 h

L'EVOLUTION CONTINUE DE LA COMPTABILITE DE GESTION:

PRINCIPES POUR LA MISE AU POINT DE NOUVEAUX SYSTEMES

Robert S. Kaplan

Harvard Business School et Carnegie Mellon University

On reconnaît à présent que les systèmes de comptabilité de gestion actuels ne conviennent pas à un environnement de compétition globale, de déréglementation et d'adoption rapide de la fabrication informatisée. Les systèmes de coûts doivent accomplir trois fonctions essentielles: évaluer l'inventaire pour les états financiers et les rapports fiscaux, mesurer et encourager le rendement et estimer les coûts des produits. Les systèmes actuels, dépendant des exigences de la vérification et de la réglementation, évaluent les inventaires de façon satisfaisante mais ne sont guère utiles pour mesurer le rendement ou estimer les coûts des produits, les deux opérations de gestion les plus importantes. Plutôt que d'essayer d'améliorer le système en existence, il serait plus rapide et plus économique de mettre au point des systèmes séparés et spécialisés qui rempliraient ces trois fonctions.

Nous allons décrire ici une nouvelle théorie visant à mettre au point des systèmes efficaces d'évaluation du rendement et des coûts des produits. Les systèmes d'évaluation du rendement auront ceci de nouveau qu'ils diminueront l'importance que l'on accorde à l'analyse des écarts et aux ventilations de coûts dans les systèmes actuels, ils rendront les rapports plus pertinents et étendront la portée des évaluations, leur faisant comprendre des indicateurs non financiers. Les nouveaux principes mis en vigueur pour mesurer le coût des produits vont à l'encontre des façons traditionnelles de penser et d'enseigner en ce qui a trait au rôle des ventilations et à l'importance de la distinction entre les coûts fixes et variables. La portée du système d'évaluation du coût des produits doit également aller bien au delà des coûts de fabrication pour inclure les frais de commercialisation, de distribution, des services et du siège social.

Séance III a)

Jeudi 4 juin, 10 h 30

THEORIE ET METAPHORE DANS L'ENSEIGNEMENT DE LA COMPTABILITE  
AU NIVEAU MOYEN

Daniel B. Thornton, Université de Toronto

Traditionnellement, la comptabilité enseignée au niveau moyen cherche à donner aux étudiants beaucoup de règles pour décrire les choses et les événements du monde réel en utilisant le langage de la comptabilité. Pour Heath [Accounting Horizons, mars 1987], la comptabilité est un modèle théorique mais il est très facile de confondre le modèle avec les choses et les événements eux-mêmes. Il accuse également la plupart des auteurs des textes sur les sciences comptables à l'intention des étudiants du niveau moyen d'exacerber la confusion. Bien qu'il y ait un élément de vérité dans ses arguments, je répliquerai qu'une grande partie de ce qu'il appelle confusion relève en fait de la métaphore. Les métaphores n'entraînent une confusion des concepts avec les choses et événements réels que si les personnes n'ont pas l'éducation suffisante pour faire les distinctions nécessaires et prennent tout au pied de la lettre. Pour les personnes cultivées, les métaphores sont des moyens de communication puissants et efficaces.

Dans ce bref exposé, je présenterai l'idée que parce que tant de choses sont passées sous silence dans la structure superficielle des états financiers de la comptabilité au coût d'origine, on devrait considérer les états financiers comme des métaphores et seulement comme telles. Pour apprécier les métaphores, on doit comprendre la structure profonde des choses et événements qu'elles représentent. A mon avis, le seul moyen de les comprendre est d'étudier la théorie et la théorie est particulièrement importante dans l'enseignement de la comptabilité au niveau moyen. Le manque d'appréciation de la signification métaphorique de la comptabilité est l'une des causes principales de la "disparité des attentes".

Séance IV a)

Jeudi 4 juin, 13 h 45

#### ENSEIGNEMENT DE LA DEONTOLOGIE AUX COMPTABLES

(Professeur Wil Waluchow, département de philosophie et Professeur Jim Gaa, faculté de commerce, Université McMaster)

Les participants vont partir d'un cas pour savoir s'il vaut mieux se servir de théories philosophiques abstraites ou de cas de déontologie particuliers pour enseigner la déontologie. Cette séance consistera en un débat entre trois participants, les Professeurs Waluchow et Gaa et Doug Perry de Price Waterhouse et tentera de déterminer les façons les plus efficaces d'enseigner la déontologie aux étudiants de comptabilité.

Le Professeur Waluchow a écrit un livre intitulé Business Ethics in Canada qui sera publié au printemps chez Prentice-Hall, Canada, Inc., et d'où nous prendrons le cas qui nous servira pour nos discussions. Le Professeur Waluchow fournira également une liste de publications pouvant être utilisées comme documentation pour un cours sur la déontologie des affaires.

Séance IV b)

Jeudi 4 juin, 13 h 45

L'EFFET DE LA TAILLE DES ORGANISATIONS SUR LA GESTION  
ET LA COMPTABILISATION DES ACTIVITES  
DE RECHERCHE ET DE DEVELOPPEMENT

Jim Fisher et Ebi Roumi, Université Wilfrid Laurier

Ce mémoire fait partie d'une étude plus vaste visant à décrire comment les entreprises en Ontario gèrent, choisissent, évaluent et comptabilisent les activités de recherche et de développement.

Nous présenterons les résultats d'un sondage par courrier ayant pour but de comprendre le processus décisionnel touchant la recherche et le développement dans des organisations de tailles diverses. Nous suggérerons également qu'il faudrait réévaluer le traitement comptable des frais encourus pour la recherche et le développement.



Séance IV b)

Jeudi 4 juin, 13 h 45

LES ENTREPRISES CANADIENNES INDEPENDANTES VENDANT  
DE LA HAUTE TECHNOLOGIE: EVALUATION DE LEUR SUCCES

Farhad Simyar, Université Concordia et  
Jérôme Doutriaux, Université d'Ottawa

Les compagnies vendant de la haute technologie sont sujettes à des risques plus élevés que d'autres firmes s'occupant de simple technologie en raison d'une longévité beaucoup plus courte pour leurs produits, d'environnements très incertains et d'une compétition importante due à la facilité d'entrée dans le marché. Ces compagnies courent des risques encore plus grands en raison de leur expertise en gestion limitée ou non existante. La plupart des entrepreneurs en haute technologie ont une formation technique et ne sont guère au courant des systèmes d'information de gestion et de l'aide que ces derniers pourraient leur procurer pour prendre des décisions. Ceci donne lieu à une accumulation de données, des évaluations et des présentations de résultats d'exploitation non pertinentes pour la gestion. Ce mémoire examine les critères de qualité et de quantité utilisés par des autorités dans ce domaine pour mesurer le succès des firmes indépendantes s'occupant de haute technologie. On y propose ensuite l'utilisation de **ratios comptables** afin de mesurer leur succès. Ce mémoire fait partie d'une étude plus vaste ayant trait aux facteurs qui tendent à influencer le succès des entreprises indépendantes de haute technologie pendant les huit premières années suivant leur constitution en société.

Le but de ce mémoire est de donner des ratios comptables qui peuvent être utilisés pour mesurer le succès hérité de facteurs de succès divers. On y examine aussi si certains ou tous les ratios choisis expliquent une dimension semblable ou différente du succès. Les résultats de cette étude pourront servir plus tard à mesurer et identifier l'effet de divers éléments lors des huit premières années d'exploitation des entreprises étudiées dans ce projet de recherche.

Séance V a)

Jeudi 4 juin 15h 15

## ETUDE DE LA REGLEMENTATION EN COMPTABILITE

(D.J. Cooper et E.A. Lowe, UMIST, Manchester, A.G. Puxty, Université de Sheffield et H.C. Willmott, Université Aston, Angleterre)

Ce mémoire présente un cadre analytique permettant d'examiner la réglementation des pratiques comptables au sein des sociétés capitalistes évoluées. Grâce à l'utilisation critique de l'exploration des modèles d'ordre social de Streeck et Schmitter (1985), nous montrerons que la réglementation correspond à une combinaison des principes d'organisation du marché, de l'état et de la communauté. Ce cadre analytique sert ensuite à comparer les modes de réglementation comptable en République fédérale d'Allemagne, au Royaume-Uni, en Suède et aux Etats-Unis. Dans ce mémoire, l'accent est mis sur les contradictions existant dans et entre les principes d'organisation du capitalisme évolué. On y cherche également à montrer la réglementation de la comptabilité comme un moyen de communiquer ces contradictions et comme un résultat de celles-ci.

Séance V a)

Jeudi 4 juin, 15 h 15

## VALEURS RELATIVES DE L'INFORMATION COMPTABLE

Len Fertuck, Université de Toronto

Ce mémoire constitue une proposition de mise au point d'un outil de laboratoire pour étudier la valeur relative de l'information comptable. Les étudiants utiliseront l'information comptable pour prendre des décisions sur les transactions dans une simulation informatisée d'une bourse des valeurs. Des évaluations telles que la fréquence d'utilisation et le rendement sur le marché serviront à représenter la valeur des renseignements particuliers. La connaissance de la valeur relative de différents renseignements permettrait aux vérificateurs de décider quels renseignements ont besoin d'être présentés plus clairement.

Séance V b)

Jeudi 4 juin, 15 h 15

## LA DECOUVERTE DE SOLUTIONS:

## NOUVELLE ANALYSE DU CAS "BIRCH PAPER"

M.J. Bryant, Université de Toronto

Cette étude décrit une analyse empirique des comportements observés lors de la recherche de solutions à un problème. Cette analyse avait pour but de nous aider à comprendre le processus de découverte d'une solution et de prise de décision en face d'un cas comptable complexe. Ce cas, "Birch Paper" demandait pour être résolu de connaître les domaines de l'économie, des frais marginaux, de l'établissement des prix de transfert et de la structuration des organisations.

Nous avons, pour cette étude, demandé à dix volontaires, étudiants de première année, candidats à la maîtrise en administration des affaires, de "penser à haute voix" pendant qu'ils travaillaient. Leurs pensées ont été enregistrées et analysées.

Nous avons employé un système de codage comprenant des catégories telles que citer, paraphraser, passer des jugements, identifier les contraintes, faire des déductions, tirer des conclusions et émettre des recommandations. Le système de codage était semblable à celui de Bhaskar [1978] et faisait la différence entre connaître le sujet et procéder par déductions.

Les résultats nous indiquent que de nombreux facteurs entrent en ligne de compte. L'un est la capacité de paraphraser et d'utiliser cette paraphrase pour comprendre le problème, un autre est la double lecture: les personnes ayant lu le cas rapidement au début avaient plus de chances d'obtenir une solution acceptable. Un troisième facteur est la capacité de "justifier", c'est à dire d'arriver rapidement à une conclusion et de chercher ensuite à justifier cette conclusion. Le dernier facteur est la capacité d'établir des buts intermédiaires et de chercher à les atteindre pour résoudre le problème. Il est intéressant de noter que les sujets eux-mêmes ont pu identifier ces facteurs.

Les résultats montrent ainsi l'existence d'au moins quatre facteurs nécessaires à la découverte de solutions. Trois des facteurs, la paraphrase, la double lecture et l'analyse par buts intermédiaires sont importants sur le plan pédagogique car ils peuvent et devraient être enseignés pour savoir comment analyser des documents non structurés et comment résoudre les problèmes. La capacité de "justifier" demande toutefois de la pratique dans le domaine de l'heuristique et de savoir quand l'heuristique est pertinente et quand elle ne l'est pas.

Séance V b)

Jeudi 4 juin, 15 h 15

PROGRAMME EXPERIMENTAL D'ENSEIGNEMENT  
DE LA COMPTABILITE SOCIALE

M.R. Mathews, Université Massey, Nouvelle-Zélande

Le but de ce mémoire est de suggérer un programme intégré pour l'étude de la comptabilité sociale. Ce programme devrait faire comprendre aux étudiants certaines des préoccupations des universitaires spécialisés dans ce domaine et les encourager à remettre en question le système comptable auquel ils vont être initiés.

Ce programme aurait deux objectifs principaux:

1. Fournir une justification philosophique pour la mise au point de présentations non traditionnelles. Nous prendrons en considération trois paradigmes offrant chacun des raisons à l'appui et à l'encontre de la thèse proposée.
2. Fournir une étude structurée des présentations non-traditionnelles dans les secteur public et privé, concernant des questions à court et à long terme, financières ou non financières.

Ce mémoire, en plus de procéder à l'examen des programmes déjà enseignés et de fournir la structure mentionnée ci-dessus, donne des listes d'articles parus sur ce sujet et une bibliographie complète.

LE DIDACTICIEL DE TRAVAUX PRATIQUES AUTO-CORRECTEUR:  
Un nouveau type de l'utilisation de l'ordinateur  
comme instrument d'enseignement

I. INTRODUCTION

Un nouveau didacticiel a été élaboré et introduit à l'automne 1986 dans le premier cours de comptabilité de management à l'Université du Québec à Montréal. Ce didacticiel s'appuie sur un nouveau concept de l'utilisation de l'ordinateur comme instrument d'enseignement. Le présent article expose les objectifs visés par le didacticiel, la méthode utilisée et enfin, les principales étapes de sa réalisation.

II. UNE NOUVELLE APPROCHE A L'ENSEIGNEMENT ASSISTE PAR ORDINATEUR

Dès les années soixante et soixante-dix, l'enseignement assisté par ordinateur (le EAO) (M.E.Q., 1973) semblait vouer à un avenir brillant. Le développement des langages évolués conversationnels d'une part et l'avènement des micro-ordinateurs d'autre part devaient accroître l'affirmation de l'EAO comme un outil pédagogique dont on ne pourrait plus guère se passer.

Or, en ce qui concerne l'enseignement de la comptabilité au niveau post-secondaire et universitaire, on se rend compte que l'euphorie et l'optimisme ont depuis longtemps cédé la place au réalisme prudent. Au Québec et ailleurs au Canada, à part les efforts notoires accomplis par les universités Waterloo (Armitage et al., 1982 et 1984) et McMaster (Dunmore, 1982 et Fertuck, 1982), le taux d'utilisation de l'EAO demeure, à notre connaissance, faible et superficiel.

Les causes sous-jacentes à cette situation sont doubles. D'une part le développement d'un didacticiel de type tutoriel ou de type d'exercices répétés est très coûteux en ce qui a trait à la conception et à la programmation. D'autre part, pour la réalisation d'un didacticiel d'une bonne qualité pédagogique, il faudrait des équipes multidisciplinaires d'informaticiens, de comptables et de spécialistes en pédagogie.

Dès lors, il paraît souhaitable que soit redéfini le rôle de l'ordinateur comme instrument d'enseignement pour le rendre plus

opérationnel et plus abordable en ce qui a trait au coût et au temps de développement des programmes.

Par ailleurs, un des traits marquants de l'enseignement de la comptabilité au niveau post-secondaire et universitaire est le recours systématique et poussé aux problèmes et exercices. En effet, Beechy (1980) a constaté que dans plus de la moitié des cours des programmes de comptabilité au Canada, les travaux pratiques et les travaux de session sont composés uniquement ou de façon prépondérante de problèmes et d'exercices. En outre, les examens périodiques et finals contiennent des problèmes dans des proportions variant de 35% à 100%, avec une médiane à 65%.

### III. LE DIDACTICIEL DE TRAVAUX PRATIQUES AUTO-CORRECTEUR

Ce qui précède suggère qu'on devrait privilégier le type d'utilisation de l'ordinateur comme instrument d'enseignement appelé "les exercices répétés" et que le facteur coût serait le facteur déterminant dans l'élaboration d'un didacticiel. A cet effet, nous adoptons une nouvelle approche à l'utilisation de l'ordinateur comme instrument d'enseignement: le didacticiel de travaux pratiques auto-correcteur.

Le concept sous-jacent à cette approche pédagogique est simple: on exige des efforts individuels d'apprentissage à l'étudiant. Pour cela, les travaux pratiques doivent être individualisés. Bien que conceptuellement simple, l'approche nécessite la solution d'un certain nombre de difficultés d'ordre pratique pour sa mise en application.

Par exemple, pour le premier cours de comptabilité de management à l'Université du Québec à Montréal, il faut de 500 à 700 problèmes individualisés pour chacune des deux sessions principales. Bien que ces problèmes puissent être dérivés du même problème-source, la dérivation doit impliquer bien plus qu'une simple modification des données numériques. C'est une contrainte découlant de l'objectif pédagogique visé: exiger un effort individuel d'apprentissage.

Le nombre élevé des problèmes individualisés cause deux autres difficultés qui ne sont certes pas les moindres: la génération d'autant de solutions que de problèmes individualisés d'une part et la correction des travaux pratiques.

Ce qui précède résume les principales caractéristiques d'un didacticiel de travaux pratiques auto-correcteurs: (1) la génération d'un certain nombre de problèmes individualisés à partir d'un problème-source en sélectionnant une certaine combinaison de paramètres, (2) le développement d'un logiciel de portée générale pourqu'il puisse générer autant de solutions que de problèmes individualisés et, (3) le développement d'un logiciel pour informatiser la correction des travaux pratiques.

Dans le cadre du premier cours de comptabilité de management à l'Université du Québec à Montréal, nous avons élaboré un didacticiel de travaux pratiques auto-correcteur répondant aux caractéristiques mentionnées ci-dessus. Le problème-source traite du mode de fabrication uniforme et continue d'une usine possédant deux ateliers de production. Les paramètres retenus sont: (1) la méthode de de la moyenne pondérée ou la méthode de l'épuisement graduel modifié, (2) la présence ou l'absence du gaspillage (ou de pertes), (3) le moment où l'on constate le gaspillage, (4) le mode de calcul du niveau normal de gaspillage, (5) la présence ou d'absence de l'effet d'ajout de matière première, (6) le moment où l'on obtient l'effet d'ajout, (7) le mode d'imputation des frais généraux de fabrication. En supposant que chaque paramètre admet seulement deux alternatives possibles et en se limitant seulement à trois paramètres, le nombre de combinaisons correspondant à autant de problèmes individualisés atteint déjà le chiffre respectable de 32. Notons que la génération de textes des problèmes individualisés et le codage de données des problèmes (pour alimenter le logiciel de correction) peuvent être complètement informatisés.

Beaucoup de temps a été consacré à l'élaboration d'un modèle informatique du mode de fabrication uniforme et continue. L'objectif visé est simple: le modèle doit être général et facile à utiliser. Le programme comporte trois grandes étapes: l'entrée des données, le traitement des données et l'impression (l'affichage) des résultats du traitement. La difficulté de la phase de programmation réside essentiellement dans la conception des tableaux d'entrée et de sortie. Ces derniers doivent être (1) faciles d'utilisation, (2) visuels et, (3) synoptiques. Pour cela, on élabore un tableau pour les intrants et un autre pour les extrants dont un exemple est annexé (Annexe 1) à la fin de cet article.



#### IV. LA STRUCTURE DU DIDACTICIEL

Le didacticiel de travaux pratiques auto-correcteur comporte trois volets. Le premier permet à l'étudiant de faire des exercices relatifs au mode de fabrication uniforme et continue. Ces exercices plutôt simples par rapport au problème à remettre ont pour objectif d'initier et de familiariser l'étudiant aux modes d'entrée et de sortie de données et aux commandes de base d'une part et de lui permettre d'approfondir la technique et les différentes méthodes de calcul relatives au prix de revient en fabrication uniforme et continue, d'autre part.

Le deuxième volet aide l'étudiant à vérifier sa compréhension du texte du problème individualisé. Le test de compréhension consiste à faire remplir par l'étudiant deux tableaux d'entrée (voir l'annexe 2), un pour chacun des deux ateliers de production, de données-clés du problème. L'ordinateur signale les mauvais intrants qui doivent alors être remplacés par des données appropriées. Par une série "d'essais et d'erreurs", l'étudiant parviendrait à identifier correctement les données pertinentes à la solution du problème.

Le troisième volet permet à l'étudiant d'entrer les données de la solution qu'il propose pour résoudre le problème individualisé. L'opération comporte le remplissage de deux tableaux d'entrée, un pour chacun des deux ateliers. Pour être en mesure d'utiliser au maximum la capacité d'affichage de l'écran, le rapport de coût de production n'aura pas la même forme que celle présentée dans les manuels de comptabilité de management. Le tableau aura une forme matricielle où les colonnes font état des ressources (coûts) et où les lignes rendent compte du coût des intrants, des quantités d'extrants, du coût unitaire et, enfin des coûts des extrants (voir l'annexe 3).

A noter que, les programmes de ce volet fonctionnent grosso modo d'après les mêmes principes que les chiffriers électroniques. D'une part, chaque entrée peut être soit une valeur numérique soit un ensemble d'opérations arithmétiques. Dès lors, l'étudiant peut avantageusement faire son problème sans devoir recourir à une calculatrice et sans devoir sortir des programmes. D'autre part, les programmes écrits permettent, en fonction des paramètres choisis, de déterminer tant le format approprié du tableau d'entrée que les relations fonctionnelles qui existent entre certaines lignes de ce tableau matriciel.

Enfin, l'élément-clé du didacticiel est sans aucun doute le logiciel correcteur qui a pour tâche la correction de la solution proposée par l'étudiant. Il compare cette dernière avec la bonne solution qu'il génère sur place. L'opération de correction s'effectue en superposant la matrice de la solution proposée à celle de la bonne solution. L'ordinateur relève, compte les éléments concordants des deux matrices et note le travail de l'étudiant.

Dès la première utilisation à l'automne 1986 à l'Université du Québec à Montréal, le didacticiel de travaux pratiques auto-correcteur témoigne déjà d'un haut degré de fiabilité. Aucun défaut de fonctionnement (le "bug") n'a été signalé. En outre, on note l'absence de sources d'erreurs typiques des logiciels au stade de développement telles, par exemple, les informations disponibles qui ne correspondent pas à ce que le modèle requiert.

En effet, des contrôles ont été incorporés dans les programmes pour s'assurer que les données entrées soient fiables: le contrôle des valeurs admissibles, le contrôle du nombre de caractères admis et le contrôle des caractères admis. Enfin, pour s'assurer que le didacticiel soit vraiment "user friendly", dès sa mise en marche, l'utilisateur est entièrement pris en charge par le didacticiel lui indiquant quoi et comment faire.

## V. CONCLUSIONS

A présent, les auteurs mettent à profit les commentaires et suggestions très constructifs des professeurs et étudiants pour améliorer ce didacticiel de travaux pratiques auto-correcteur. Par exemple, il a été suggéré que le contenu conversationnel du logiciel soit augmenté c'est-à-dire que le didacticiel devrait fournir à l'étudiant des commentaires plus nombreux et plus pertinents. Comme il a été souligné (M.E.Q., 1973), "ce commentaire sert de renforcement ou permet à l'étudiant de connaître immédiatement son erreur et de la corriger. On sait aussi le rôle important que joue dans l'apprentissage, la connaissance immédiate des résultats". Les auteurs se proposent de poursuivre leurs efforts dans cette direction

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## A RETROSPECTIVE ON EFFORTS TO DEVELOP A CONCEPTUAL FRAMEWORK

Robert Bloom, John Carroll University (Ohio)  
 Marilyn Collins, John Carroll University (Ohio)  
 M. Ahmed Naciri, University of Quebec in Montreal

## I. INTRODUCTION

Although the development of a conceptual framework for financial reporting should be beneficial in many respects to every country, most of the efforts towards attaining that objective have thus far come mainly from the United States. The Conceptual Framework has monopolized a large share of the Financial Accounting Standards Board's (FASB) resources in the U.S. This project is now apparently finished. This paper describes the process of formulating the Conceptual Framework and considers developments in this regard not only in the U.S., but also in Canada, Britain, and Australia.

Accounting originated in the 15th century with the introduction of double-entry bookkeeping. Since then, the accounting discipline has undergone a significant metamorphosis in terms of techniques and standardization.

The advent of standardization in the United States occurred in 1887 with the creation of the American Association of Public Accountants. However, before the 1929 Stock Market Crash there were no generally accepted accounting principles. The stock markets were not regulated at that time. The New York Stock Exchange had engendered a storm of protest concerning the irrelevance, if not the misleading nature, of accounting information. A reaction to the crash was the introduction of a formal standardization process. Since then, the accounting profession has been confronted with many new issues and controversies caused by changes in the economic and financial environment. Even though the accounting profession has demonstrated some ability to change with the times, it has been unable to find solutions for many issues and controversies. The accounting profession has resorted to temporary solutions to thorny problems, more often a matter of fire extinguishment than fire prevention. Even today, the FASB's Emerging Issues Task Force, created in 1984, is providing "consensus" solutions to new controversies in financial reporting that arise. [See Wishon, 1986.] Up to the current time, the accounting profession has had difficulty defending itself against attacks by interested parties who do not appreciate the requirements of particular standards. In addition, the members of standard-setting bodies turn over frequently, and with this turnover standards tend to change. For these reasons, all too many standards, such as foreign currency translation and effects of changing prices, have been revised a number of times. We believe that the situation would be at least somewhat different if the profession had at its disposal a suitable set of evaluation criteria which would allow it to demonstrate the soundness of its decisions or standards—in other words, a well-structured, generally-accepted conceptual framework.

## II. HISTORICAL PERSPECTIVE

It is perhaps the inability of the profession to formulate generally accepted solutions to its problems that caused the U.S. government in 1933 and 1934 to enact the Securities Acts. The Securities and Exchange Commission (SEC) was mandated to regulate the disclosure of accounting information by firms trading their securities in interstate commerce. This was one of the earliest official warnings by a governmental agency to the accounting profession regarding the importance of standardization. However, over the years, the SEC has generally delegated the role of standardization to the accounting profession.<sup>1</sup> It is widely believed that the SEC will not continue this delegation if the profession demonstrates its inability to develop generally accepted standards. Conscious of this admonition, the profession has long attempted to resolve this problem. Among the proposed solutions have been the FASB, in view of its independence and due-process procedures, and the Conceptual Framework of Financial Reporting, the fundamental objective of which is to convey useful information to users for prediction and decision making. In this paper, we examine the American Conceptual Framework, its historical evolution, and developments in other countries—Canada, Britain, and Australia—towards establishing a Conceptual Framework.

The American Conceptual Framework did not emerge in full-blown form, but rather evolved gradually. It was not until the end of 1984 that this framework was essentially completed. Since the creation of the American Association of Public Accountants in 1887, the predecessor of the American Institute of Certified Public Accountants (AICPA), pressure has been placed on major corporations to standardize their financial reporting and

disclosure practices. In light of the demand for uniformity, some early academic accountants began to orient their efforts towards the development of an accounting theory. The work of Sprague (1980 edition) reflects this orientation. In a series of articles entitled "Algebra of Accounts," Sprague attempted to classify and summarize the most prominent accounting theories of the time. For example, the equation  $\text{Assets} = \text{Debts} + \text{Equities}$  comes from Sprague's work.

In fact, even before the beginning of our century, accounting did not really consider the need for a "science of accounts," i.e., a systematic framework or approach for dealing with accounting problems. Some accountants wanted to establish an informal guide that would be generally acceptable to accountants. At that time, all proposed accounting "theories" were pragmatic; they were principally concerned with interpretation of values. The defenders of pragmatic theories believed that a theory should be useful in order to be valid and that only a generalized conceptual framework would be acceptable. Accordingly, early theories such as the proprietary theory and the entity theory were based more on pragmatism than logic.

Early publications of the American Institute of Accountants (AIA), such as Uniform Accounting [1917] followed by Verification of Financial Statements [1929] and Examination of Financial Statements by Independent Public Accountants [1936], appealed for uniformity in financial reporting and auditing and described principles for various accounts. From 1932 to 1934, the AIA and the New York Stock Exchange attempted through correspondence, published as Audits of Corporate Accounts [1934], to identify accounting principles having won general acceptance, and the AIA urged the New York Stock Exchange to require listed companies to follow such principles. These publications cannot be described as comprehensive in scope with respect to accounting and reporting standards, and they gave no indication of the need for an explicit framework or foundation on which to build such principles.

In spite of appeals for uniformity put forth since the late 1800s and accentuated by the 1929 Crash, the accounting profession has had considerable difficulty in self regulation. The response to this situation by the government was enactment of the Securities Acts of 1933 and 1934 and the creation of the SEC in 1934, whose role has been to promote uniformity in financial reporting and disclosure. Having seen the role of standardization slide away from itself, the AIA reacted three years later by establishing the Committee on Accounting Procedure (CAP).<sup>2</sup> In response to the need for widely-observed standards of accounting and reporting, to demands for uniformity in accounting and auditing, and to a competitive urge to regain leadership lost to the American Accounting Association (AAA), CAP was established to improve accounting principles and practices by reducing alternatives. The SEC agreed to allow CAP to formulate accounting standards. However, CAP was pressed to find quick and adequate solutions to the accounting problems of the time. Beginning in 1939, Accounting Research Bulletins (ARBs) were issued, but they were directed to special problems, not toward a statement of principles. CAP did not succeed in developing a conceptual framework, and even though the standards set forth by CAP were not mandatory or based on research evidence, it was because of CAP that the profession acquired the privilege of establishing its own standards. The failure of CAP served at least one important objective: It became evident that standards could not be established without conducting research on the issues in question.

The AAA during this period took a path divergent from that of the AIA. In 1936, it issued A Tentative Statement of Accounting Principles Underlying Financial Statements, which emphasized preparation of statements for creditors and investors, discussed cost and value, called for all-inclusive income measurement, and distinguished between capital and surplus. Noting that much latitude or variation prevailed in accounting practice, the objective was not to formulate a comprehensive theory but to identify some of the bases underlying the preparation of accounting statements, taking into consideration industry and enterprise peculiarities while assuming financial statements "should be continuously in accord with a single coordinated body of accounting theory." [p. 61] Accounting problems had become of interest to the general public, and the need to address the problems was stressed by the efforts of the Federal Reserve Board and the New York Stock Exchange and by the initial publications and statements of the SEC. The 1941 revision of the Tentative Statement broadened the description of users of financial statements to include the general public, defined the realization concept, and, giving consideration to uncertainties in accounting practice and to the lack of comparability, called for a "unified and coordinated body of accounting theory . . . ." [p. 53] In 1948, users of financial reports were described as "persons having an interest," and a section on financial statements prescribed standards for presentation with emphasis on adequate disclosure.

The 1957 revision of the Tentative Statement recognized that for effective communication of financial information accounting must be developed within a framework of concepts and standards. The revision identified the concepts underlying the conventions on which financial statements are based—namely, business entity,

enterprise continuity, money measurement, and realization. It also defined and discussed assets, recognition, measurement, income determination, revenue, expired costs, income tax, equities, disclosure, and comparability.

The inability of CAP to adequately fulfill its role led the AICPA, the name of the AIA since 1957, to replace CAP in 1959 with the Accounting Principles Board (APB).<sup>3</sup> The AICPA recognized the need for research to precede pronouncements. In comparison to CAP, the APB was broader in scope, relying on the deductive method in developing theory and its applications to practice. Opinions were to be based more on the broad principles than on current accounting practice, and toward that end the AICPA commissioned Accounting Research Studies (ARSs). As Peasnell [1982] observes, because the AICPA had been widely criticized for its attempts to develop generally accepted accounting principles, it gave priority to studies of the basic postulates and broad principles of accounting, which resulted in ARSs 1 and 3 by Moonitz and Sprouse and Moonitz, respectively. Very little reaction was generated by ARS No. 1, but ARS No. 3 generated considerable dissent, primarily because current values for assets were espoused. Continuing to experience difficulties with its opinions, the APB commissioned Accounting Principles Board Statement No. 4: "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises" in 1965 and approved it in 1970. [Peasnell, 1982] In contrast to CAP, which desired to, but never actually did, develop a pragmatic theory, the APB attempted in Statement No. 4 to formulate a comprehensive theory of financial accounting. Although this "conceptual framework" was descriptive rather than normative, it should be emphasized that it was the first full-fledged endeavor to develop such a framework by an authoritative professional accounting body. This attempt was to influence subsequent efforts to develop a conceptual framework. The key weaknesses of Statement No. 4 were its inability to identify the needs of users of accounting information and its inability to identify the users' decision models.

In 1966, AAA published A Statement of Basic Accounting Theory, defining theory "as a cohesive set of hypothetical, conceptual, and pragmatic principles forming a general frame of reference for a field of study." [1966, p. 1] However, as Miller [1985, p. 64] asserted: "[T]he document didn't influence practice because it didn't receive enough support from powerful interests." In 1977, the AAA went beyond providing a theory of accounting or developing a conceptual framework to prepare a statement about theory itself in its Statement on Accounting Theory and Theory Acceptance.

Zeiff [1978] attributed the downfall of the APB partly to its inability to develop a conceptual framework. The replacement of the APB by the FASB in 1973, an independent standard-setting body,<sup>4</sup> may well be considered the most important move towards development of a conceptual framework. In fact, since the beginning of the 1970s the accounting profession has provided the wherewithal to develop this project, which has taken more than a decade to complete. In fact, in April 1971, the AICPA had created two committees: (1) to establish the objectives of financial statements--the Trueblood Study Group; and (2) to propose the creation of a new standard-setting body--the Wheat Committee, given the lessons learned from CAP and the APB. The Wheat Committee called for the creation of the FASB as an independent standard-setting body, which was subsequently responsible for the establishment of the Conceptual Framework in the U.S.<sup>5</sup> From the Trueblood Study Group, the AICPA published Objectives of Financial Statements in 1973, which later was incorporated as the first part of the conceptual framework, Statement of Financial Accounting Concepts No. 1. [1978]

### III. EVOLUTION OF THE CONCEPTUAL FRAMEWORK IN THE LITERATURE

The evolution of the Conceptual Framework can be traced through the literature published by the AICPA and the AAA as well as independent writings of prominent accountants. The AICPA and AAA initially had opposing viewpoints regarding the approach to resolving accounting issues and eliminating alternative accounting practices. What became the AICPA's viewpoint was a piecemeal approach to addressing accounting issues as they arose. The AAA's approach was one of developing principles for financial reporting in the sense of general guides. From the American Association of University Instructors in Accounting, Kohler and others formed the AAA to research and formulate a body of accounting principles specifically because the AIA had failed to produce such principles. In subsequent years, the two organizations took divergent paths in the development and articulation of accounting principles. Antithetical viewpoints resulted in publications alike in their significance to the evolution of the Conceptual Framework but different in their timing and influence on the ultimate development of the Conceptual Framework.

The AIA's 1917 Uniform Accounting, usually viewed as an auditing document, delineated principles of accounting found in practice in much the same way as later ARBs, APB Opinions, and Accounting Research Study

No. 7. The 1929 and 1936 revisions continued this descriptive approach.

Beginning with Audits of Corporate Accounts summarizing the correspondence between the AIA and the New York Stock Exchange from 1932 to 1934, the AICPA sought agreement on, or the acceptance of, accounting principles. The emphasis on principles represents a departure from the piecemeal approach which was initially adopted and continued to prevail in later pronouncements. They recognized the need for broad principles of accounting, setting a precedent for the support of research by the AICPA in the form of ARSs which ultimately would influence the Conceptual Framework.

From the 1930s until the establishment of the FASB in the early 1970s, the AICPA's authoritative pronouncements by CAP and the APB reflected a piecemeal and pragmatic approach to resolving accounting issues and problems as they arose and to eliminating alternatives where they led to abuses in the application of accounting principles. The APB had been formed with the idea that research should precede the promulgation of accounting standards. Several ARSs were prepared, especially numbers one and three, which set the AICPA on a course of developing a comprehensive statement of principles. These studies, The Basic Postulates of Accounting by Moonitz and A Tentative Set of Broad Accounting Principles for Business Enterprises by Sprouse and Moonitz led to the APB's Statement No. 4, "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises" [1970].

Although APB Statement No. 4 is preparer-oriented and SFAC 1 is user-oriented, users are described at length in chapter 3 of APB Statement No. 4 broadly as they are in SFAC 1. Although APB Statement No. 4 refers to much the same user group as SFAC 1, the former makes no attempt to characterize the ability or sophistication of the users. In Statement No. 4, the APB classified the accounting objectives into three categories: particular objectives, general objectives, and qualitative objectives. The particular objectives were defined in terms of faithful representations of the information provided in conformity with generally accepted accounting principles. The general objectives were characterized in terms of the production of reliable information. The qualitative objectives were defined in terms of usefulness, understandability, verifiability, neutrality, timeliness, comparability, and completeness.

In 1973, the AICPA published the Trueblood Report, Objectives of Financial Statements. This publication is diametrically different from APB Statement No. 4 in its emphasis on decision-making,<sup>6</sup> users' needs, forecasting,<sup>7</sup> long-run cash flows,<sup>8</sup> and uncertainty.<sup>9</sup> Nonetheless, some of the wording of APB Statement No. 4 on stewardship<sup>10</sup> was incorporated into the Trueblood Report, which was itself reflected in the Conceptual Framework. The Report stated the objectives and qualitative characteristics later appearing in the SFACs, and it emphasized information to assist users in predicting long-run cash flows. This emphasis was repeated in SFAC 1's objectives and SFAC 2's qualitative characteristics of information to be recognized in financial statements. The description of objectives and practices from Objectives of Financial Statements is essentially found as well in SFAC 1's Introduction as a description of the Conceptual Framework and its hierarchy [Objectives, p. 15].

Since its creation, the AAA's approach to resolving accounting issues was the development of "a single coordinated body of accounting theory . . .," as stated in its 1936 publication, A Tentative Statement of Accounting Principles. Neither the 1936 statement nor its revisions in 1948 and 1957 constituted a conceptual framework as such. Significant to the evolution of the Conceptual Framework was that these publications stated the objectives and the concepts underlying financial reporting rather than taking the piecemeal approach so characteristic of the AICPA. In 1940, the AAA published Paton and Littleton's An Introduction to Corporate Accounting Standards. As Greer noted in the forward to the Paton and Littleton monograph, the monograph was an evolutionary product of the attempts by numerous groups to provide a theoretical guide for accounting practices [pp. vi-vii]. In the first chapter on standards, Paton and Littleton touch on the concepts of general purpose statements, understandability, allocation of scarce resources, and conflicts and inconsistencies, which also appear in SFAC 1.

Part IV of this paper examines developments towards a conceptual framework outside the United States, and Part V considers implications and provides concluding comments.

#### IV. TOWARDS THE DEVELOPMENT OF CONCEPTUAL FRAMEWORKS OUTSIDE THE UNITED STATES

This section of the paper reviews efforts made in Canada, Britain, and Australia to develop their own

conceptual frameworks of financial reporting.

In Canada, as in the other countries considered in this section of the paper, there is no explicit conceptual framework. The standard-setting body, the Accounting Standards Committee of the Canadian Institute of Chartered Accountants (CICA), relies on the professional judgment and experience of its members in formulating accounting standards, many of which are copied largely from FASB standards. Nonetheless, there are fewer explicit standards, and much looser, less rigorous standards in Canadian financial reporting vis-a-vis American financial reporting.

Edward Stamp is largely responsible for an approach that was taken to develop a conceptual framework in Canada [Corporate Reporting: Its Future Evolution, CICA, 1980]. This framework however, has not been generally accepted, because it was not pragmatic enough to suit practitioners, and the whole Conceptual Framework project has been shelved in Canada since 1980. The Canadian framework based on Corporate Reporting would appear to be much more evolutionary than revolutionary. It is not so axiomatic, normative, and prescriptive as the FASB's framework. This report begins with a consideration of general and specific problems associated with the development of accounting standards. Afterwards, it sets forth what it perceives to be objectives of financial reporting in Canada, placing an accent on accountability and stewardship as opposed to the emphasis on provision of information for decision making in the FASB's Conceptual Framework. In addition, it emphasizes a much broader user group than the FASB considers. Like the FASB framework, this report stresses the issues of users' needs and uncertainty in financial reporting and provides a list of qualitative attributes of accounting information, including objectivity, comparability, full disclosure, freedom from bias, uniformity, materiality, and consistency.

As for efforts to develop a conceptual framework in Britain, they too have not gone far. The Accounting Standards Committee (ASC) has been criticized for failing to establish such a framework [see 1978 and 1979 references]. The ASC commissioned a study by Macve [1981] regarding the problems and prospects of developing a conceptual framework in Britain. Macve concluded that an "agreed" conceptual framework is not likely to be developed to provide clear-cut guidance on the preparation of financial statements and furthermore that such a framework ought to be viewed as a basis for identifying issues and research questions rather than a set of solutions. [Stamp, 1982, p. 123]

While a conceptual framework has still not been fully developed in Australia to provide explicit guidance to the Australian standard-setting authorities, Kenley and Staubus [1972] did take a first step in that direction. The second step is now in progress. First, in a statement of the most fundamental ideas guiding the profession, Kenley and Staubus considered the traditional state of financial reporting been based on professional pronouncements and other generally accepted accounting thought [1970], and subsequently, in an alternative set of fundamental ideas, considered what the state of financial reporting should be. [1972] Kenley and Staubus assert that the fundamental objective of financial reporting is "to provide financial information about the economic affairs of an entity for use in making decisions." The close similarity of the Trueblood Report's [1973] and FASB's [1978] fundamental objective is quite apparent. In addition to the fundamental objective set forth above, Kenley and Staubus [1972, pp. 104-5] furnish ideas about the usefulness of predicting cash flows and usefulness criteria, which also bear a striking similarity to those subsequently promulgated a year later in the Trueblood Report [1973] and six years later in FASB Statement of Financial Accounting Concepts No. 1 [1978]. Kenley and Staubus advised the Australian accounting profession to formulate its objectives, practices, and guidelines along the lines they recommended. What is remarkable about this monograph is that several key themes which are generally attributed in the literature to the Trueblood Report [1973]—such as the emphases on decision making, usefulness, future cash flows—were actually published a year earlier in this Australian book. It should be emphasized, though, that Staubus is a prominent accounting theorist from the University of California at Berkeley.

In the last six years, there has been a new movement in Australia towards construction of a conceptual framework, emphasizing the perspective of the standard setter and dealing with both the private and public sectors by the The Accounting Standards Board and the Public Sector Accounting Standards Board. Presumably the Australian concepts statements would be similar to the FASB's.

K. Stevenson, director of the Australian Accounting Research Foundation, contends that a conceptual framework is necessary in the standard-setting process. "[T]he only choice open is between having competing, individual and implicit frameworks, or an explicit framework which can be systematically developed (by both the standard-setters and their constituents)." [1986, p. 8] He further asserts that "a conceptual framework has to be developed having regard to the circumstances of the standard-setting agency and its constituents." [p. 9]



Finally, the International Accounting Standards Committee has been working on a Conceptual Framework project for the last three years, dealing with the objectives of financial statements and definitions of, as well as criteria for recognizing and measuring, assets, liabilities, expenses, revenues, and owners' equity. No such documents on this Conceptual Framework have thus far been issued. [Calrns, 1987]

## V. CONCLUDING COMMENTS

Several fundamental implications of the American Conceptual Framework could be deduced. First, the objective of accounting information is, above all, to convey input for decision making, whether the organization is commercial or not-for-profit. Second, in order for any information to be utilized in the process of decision making, it should be useful. Usefulness is, therefore, the fundamental characteristic of accounting information. Information is useful only if it affects the decision analysis. Third, users of accounting information are often assumed to be principally investors. This assumption applies especially to an American environment. We know, following the work of Kaplan and Roll [1972], Sunder [1975], and others, that investors utilize cash flows in their decision processes. The FASB has essentially recognized that by declaring that accounting information should be useful to actual and potential investors, creditors as well as others with a view to evaluating the amounts, timing, and uncertainty of cash flows [SFAC 1]. The FASB recognizes that in order for accounting reports to be useful they should include timely data. However, in order to be useful, accounting should help users in their predictions of cash flows, including the timing and probability of occurrence of such flows. This forecasting consideration is also implicit in SFAC 3, especially in the definitions of assets and liabilities stressing "probable future benefits" and "probable future sacrifices." The forecasting element is, therefore, very important in the American Conceptual Framework. However, the FASB does not assert that financial reports should provide a financial analysis for users, but rather suggests that such reports should convey presumably useful information to users who in turn should make their own forecasts and their own decisions. We should also mention that the Conceptual Framework did not resolve many issues such as the measurement unit (current monetary unit versus historical monetary unit) and historical cost versus current cost accounting. Furthermore, Sterling observes [1982, p. 106] another key deficiency in the Conceptual Framework:

... [I]f the concepts aren't honed to the point where the logical connections are at least plausible, preferably replicable, the framework is likely to be at best useless and at worst used to rationalize preconceived notions that are likely to be contradictory. . . .

The reaction to the American Conceptual Framework has been decidedly mixed. Some academic accountants consider it as not going far enough. Various authors and researchers such as Dopuch and Sunder [1980] and Watts and Zimmerman [1979] contend that this framework would serve only to assist FASB members in their standard-setting function, thereby providing them with a justification for the standards actually adopted. It is also Johnson and Messier's [1982] view that members of standard-setting bodies are captives of their own mandate and that any conceptual frameworks formulated by such bodies would serve the members' own self-interest rather than the public interest. Joyce, Libby, and Sunder [1982] have found that only two of the eleven qualitative attributes set forth by the FASB in SFAC 2 are operationally defined in the sense that these terms have been interpreted in much the same way by most parties interviewed in their study. Additionally, Dopuch and Sunder [1980] argue that the FASB concepts will not help to resolve accounting problems and controversies. Solomons views the Conceptual Framework as a tentative and timid step forward to provide a foundation for financial reporting [1986].

We do not wish to challenge the need for a Conceptual Framework, but we do express dissatisfaction with the inability of the FASB to separate theory from practice in the framework. In our judgment, a Conceptual Framework ought to be formulated in an ideal scenario, whether the framework pertains to accounting, economics, finance, or other social sciences. Putting together practice and theory in such a framework is a prescription for confusion.

Stamp provides a countervailing view in Corporate Reporting [1982, p. 124], criticizing the axiomatic nature of the American Conceptual Framework, and Stevenson [1985, p. 2] seems to view a conceptual framework as a linkage between the ideal and the pragmatic.

## ENDNOTES

1. It was not until 1973 that the SEC officially delegated its authority to establish accounting standards to the FASB, a non-governmental agency. [Accounting Series Release No. 150]
2. CAP published some 50 bulletins dealing with generally acceptable, rather than generally accepted, accounting principles, and did not attempt to "outlaw" alternative practices that differed from its recommendations. [See the AICPA Wheat Report (1972, pp. 17-18)]. Most CAP bulletins have been subsequently amended or superseded.
3. The APB published 31 opinions and 4 recommendations, most of which are still in effect today.
4. Other reasons for the downfall of CAP and APB include their lack of credibility due principally to the lack of independence of the accountants serving on those bodies. On the other hand, the members of the FASB have been independent of all other organizations.
5. The FASB has promulgated 88 standards to date as well as the Conceptual Framework of Financial Reporting.
6. This idea was not new. Paton [1949, p. 2] observed that the "essential purpose of accounting may be said to be that of compiling and interpreting the financial data . . . to provide a sound guide to action by management, investor and other interested parties. . . . "The key word in Paton's statement is "action," which implies decision making. In addition, A Statement of Basic Accounting Theory [1966, p. 1] describes accounting as "the process of identifying, measuring, and communicating economic information to permit the informed judgments and decisions by users of the information." Similarly APB Statement No. 4 [1970, Chapter 2, par. 21] says: "The basic purpose of accounting . . . is to provide quantitative financial information about a business enterprise that is useful . . . in making economic decisions."
7. There are some, though not many, antecedent works that call for forecasts in financial reports. See, for example, Cooper, Dopuch, and Keller [1968], who advocate such forecasts in the form of budgeted information that users could compare with actual results. Also Ronen and Sorter [1972], both members of the Trueblood Committee's research staff, argue for the inclusion in financial statements of information which may be used to develop forecasts as well as direct forecasts. The information would presumably be useful to readers in helping them to predict their own cash flows and the risks associated with those flows.
8. This idea is also not new. For example, as Gordon [1964, p. 225] states: "The word profit is subject to many interpretations, and the objective of a firm's owner is more precisely defined as the maximization of the present value of the firm's actual future receipts." Additionally, the American Accounting Association's Statement of Basic Accounting Theory [1966] emphasizes the significance of cash flows.
9. No previous authoritative American accounting statement has emphasized the uncertainty associated with accounting. Nonetheless, A Statement of Basic Accounting Theory [1966, p. 177] recommended the reporting of probabilistic accounting data.
10. The concept of stewardship or accountability has long been cited as an objective, if not the basic objective, of accounting. For example, Churchill and Stedry [1966, p. 29] identify stewardship as the "historical role" of accounting: ". . . the prevention of fraud, waste and gross inefficiency. The owner's assets are to be protected against the unscrupulous or incapable manager. . . ." While some accounting writers regard stewardship and facilitating decision making as compatible goals, others view these objectives in a different light. As a case in point, May [1943, p. 21] observes ". . . [the] conflicting objectives of those who would continue to regard financial statements as reports of progress or of stewardship, and those who would treat them as being in the nature of prospectuses."

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B. La Rochelle  
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## BURDENS OF PROOF IN THE CICA HANDBOOK

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### Introduction

The nature of financial accounting is the subject of much debate. Recent Canadian writers have analogised it with law,<sup>1</sup> whereby a conceptual framework for accounting may be seen as its necessary constitution<sup>2</sup>. Accounting principles are but partially codified in the CICA Handbook. However, various legislatures have seen fit to incorporate by reference the financial accounting provisions of the Handbook as required disclosure<sup>3</sup>. It is generally agreed that the financial accounting provisions of the CICA Handbook provide but minimum standards of non-comprehensive disclosure and depend for their application on the extensive use of professional judgment<sup>4</sup>. Given the legislative nature of the Handbook provisions and judicial aspects in the application of such provisions by an accountant, the purpose of this paper is to discuss how the burdens of proof specified in the CICA Handbook assist in or are detrimental to precise judicial application.

### The System of Precedent

In law, the burden of proof is on the party seeking to establish his case before an independent tribunal. The tribunal is responsible for making findings of fact relative to the case presented, and for determining the law which is applicable to those facts.<sup>5</sup> A party which is dissatisfied with the decision may appeal to a higher court. On appeal, the higher court may substitute its conclusion as to the law for that of the lower tribunal, but will not generally disturb findings of fact. In a common law system, (existing in all provinces of Canada except Quebec), the tribunal at first instance will rely for its guidance as to the applicable law on decisions of higher courts. The common law system involves a lower court or tribunal being bound by decisions of a higher court of the same province, and decisions of the Supreme Court of Canada on the same facts. Decisions of higher courts in another province are influential but not binding. For example, a decision of the Supreme Court of Ontario binds lower courts in Ontario; a decision of the Supreme Court of Manitoba has no binding effect in any Ontario Court. Persons dissatisfied with a decision of the highest court in a province (the appellate division of a provincial Supreme Court) will seek leave to appeal to the Supreme Court of Canada. The basis of the appeal will be a question of law, and will be heard by the court if the matter is viewed as one of national significance. The fact that there are conflicting Supreme Court decisions in several provinces will not be grounds for an automatic hearing by the Supreme Court of Canada, if no national significance is perceived.

The system of precedent found in common law is advocated on the basis that it is simultaneously precise and fluid. Previous decisions provide guidance; however, the binding effect of such decisions is tempered by the fact that no two situations are exactly alike. This means that rules may be modified to suit different circumstances. To the extent that anomalies in the law result, the legislature is able to pass laws to amend, reverse or expand previous court decisions. In addition, the legislature may choose to codify existing jurisprudence.<sup>6</sup>

A civil law system, found in Quebec, is premised on the codification of legal principles, with the major judicial function being the interpretation of the codification, rather than the development of principles independent of the code. Since the judicial function is interpretive, previous decisions of a higher court are influential, rather than binding. The responsibility for developing new law rests with the legislature.<sup>7</sup>

### Burdens of Proof

In law, there are two main burdens of proof to which an advocate of a position might be subject. Both burdens of proof relate to the establishment of facts. A conclusion as to the legal consequences resulting from such facts is a matter of judicial determination or, in the case a civil code, a matter of judicial application of the relevant legislative provisions. A conclusion as to the successful establishment of facts, relative to the burden of proof in a particular case, may be established by either a judge or jury. However, the conclusion as to the resulting legal consequences is the responsibility of the judge or an appellate court. The two burdens of proof surround the establishment of the facts of one's case either (1) beyond a reasonable doubt or (2) on the balance of probabilities. In some cases, the establishment of certain facts may give rise to a presumption which, if left unanswered, will result in the case being established without more.<sup>8</sup>

A dispute is litigated by two parties before a judge and possibly a jury. It is not a matter of one party simply presenting a case and the judge or jury deciding whether the facts have been successfully established. However, the opposition need not dispute the facts established. Rather, the opposition may simply contend that the facts established do not, taken together, establish the essential elements of a case. For example, an essential element to the establishment of a case of fraudulent misrepresentation is a party's knowledge that a representation was false or that a party demonstrated reckless disregard as to whether a representation was true or false.<sup>9</sup> For example, a plaintiff, in a lawsuit against a professional advisor establishes that statements made by the advisor, were untrue and, through the testimony of experts, that most advisors in the position of the defendant advisor would have recognized the falsity of the statements made. Counsel for the defendant advisor has two choices: she can challenge the evidence presented by the plaintiff to establish a statement's falsity or challenge the assertions of the expert witnesses. Such challenges are with a view to demonstrating that the burden of proof has not been met. Alternatively, the defendant's counsel may not challenge the facts, but instead point out that the

essential elements of a case of fraud have not been established. Her contention will be that the facts as established may be elements of a case of negligent, rather than fraudulent misrepresentation; however, the action by the plaintiff alleges fraud, rather than negligence, and hence the plaintiff's action must fail. The defendant's counsel would also argue that testimony as to the actions which would have been taken by most advisors and the establishment of the fact that the defendant advisor did not act similarly do not establish "reckless disregard" for the truth. Rather, what has been established is that the advisor was less competent than the norm. The defendant's counsel would argue that as a matter of law, incompetence is not recklessness. To the extent that this contention was not supported by previous precedents, the judge would be obliged to decide whether to accept the contention and to hereby establish this principle of law in the case at hand.

The burden of proof of establishing facts beyond a reasonable doubt is found in more serious matters, primarily criminal, with the facts in other cases being established on the balance of probabilities.<sup>10</sup> The establishment of a case beyond reasonable doubt means that the defendant may defeat the plaintiff's case by simply raising a doubt through, for example, challenging the quality of evidence presented. A doubt may be raised without the defendant's counsel bringing forward opposing evidence. It is for this reason that, in trials concerning alleged criminal conduct, counsel for the defendant will often build a defence by the "isn't it possible that ..." approach. In our previous business advisor example, let us assume that there is testimony that the business advisor said "I know that this is a lie, but let's keep it between ourselves." A defence contention could be "Isn't it possible that he was joking? After all, you've already had your experts testify that, relative to most business advisors, my client isn't that bright. How could you possibly have taken him seriously?"

In non-criminal matters, the burden of proof is the balance of probabilities. "If the more probable conclusion is that for which (the plaintiff) contends, and there is anything pointing to it, then there is evidence for a court to act upon."<sup>11</sup> How this burden is met will depend on the facts of the case.

### Presumptions

In certain cases the establishment of certain facts results in certain inferences being drawn or presumptions being made. There exist both presumptions of law and presumptions of fact. Presumptions may also be either conclusive or rebuttable. An example of a presumption of law is a presumption that a negotiable instrument has been given for value or that a person who is missing for a period of years is dead.

Presumptions of fact are inferences which the mind naturally and logically draw from given facts,<sup>12</sup> in the absence of evidence to the contrary. Evidence of the contrary results in a new combination of facts which must be assessed independently of any presumption. However, the finder of fact is still able to consider the special evidentiary value of those facts which, standing alone would have given rise to the presumption.<sup>13</sup>



### Handbook Burden of Proof

Specific burdens of proof relating to financial accounting are found in the Handbook and are summarized in Exhibit 1. It should be noted that there is no general burden of proof specified for Handbook recommendations. Of the burdens of proof identified, the most common is "reasonable assurance". The burdens of proof are found in both italicised and non-italicised sections of the Handbook, the significance of which relates to the statutory incorporation by reference of the Handbook provisions. That which constitute the "law of financial disclosure" under the Canada Business Corporations Act are the italicised recommendations, rather than the explanations leading up to them. Specially, "the financial statements shall ...be prepared in accordance with the standards, as they exist from time to time of the Canadian Institute of Chartered Accountants set out in the C.I.C.A. Handbook."<sup>14</sup> Therefore, one could argue that while satisfaction of the italicised sections of the Handbook is mandatory (for example, with respect to a determination to exclude a subsidiary from consolidation) satisfaction of non-italicised burdens of proof (such as with respect to writing down a long term investment due to a permanent impairment of value) is discretionary.

### Is the Handbook a Code?

While within the accounting profession the Handbook is regarded as but one source of generally accepted accounting principles, legislative adoption of the Handbook provisions has resulted in the Handbook having a legal effect which is more like a criminal code or book of rules. It is specified in the Handbook that the standards therein are minimum standards<sup>15</sup> and that the exercise of professional judgment ultimately determines what is fair presentation.<sup>16</sup> However, nowhere is the reader specifically directed to other sources of generally accepted accounting principles. Indeed, the reader of the Handbook receives contradictory messages. While it is implied that there may be circumstances where a Handbook recommendation is inappropriate, there is specified a presumption that fair presentation requires compliance with Handbook recommendations or disclosure of the effects on financial presentation had the Handbook been complied with.<sup>17</sup>

### A Common Law Approach to the Application of Handbook Recommendations

In his study, Corporate Reporting: Its Future Evolution (1980), Stamp proposed what he termed an "evolutionary" approach to standard setting, which involved a common law, case by case approach to the application of such standards. This was based on his view that accounting standards were more like laws.<sup>18</sup> Abdel-Khalik has demonstrated that the practice of accounting, including the application of accounting standards, involves short-term, situation-specific decisions which are defended on the bases of reasonableness and workability, while generally not being made public.<sup>19</sup> Standard setting, on the other hand, involves the establishment of more generalized rules applicable to the longer term.<sup>20</sup> Stamp's "common law approach" involves the elevation of situation-specific decisions to the status of precedents, through general dissemination. In addition, he advocated

the establishment of an appeal mechanism through a board of review.<sup>21</sup> Amernic and Lemon<sup>22</sup> point out that while these suggestions are significant, they are not supported by substantive research.

Confusing Burdens of Proof: Why the Concern?  
A Court of Law as an Enforcement Mechanism

One major drawback of Stamp's suggested "accounting court of appeal" is that an appearance before it by a practising accountant would be voluntary, and the rulings of such a "court" would be advisory in nature.<sup>23</sup> For accounting to be most similar in nature to law, Stamp acknowledged that an enforcement mechanism system was required.<sup>24</sup> In law, the potential for imposition of a statutory provision or case precedent through litigation is itself an enforcement mechanism; in short, one obeys the law to avoid prosecution or a lawsuit. For example, under the Canada Business Corporations Act, it is an offence to contravene any provision of the act or regulations for which no punishment is otherwise specifically provided; one such regulation is that requiring Handbook compliance.

When one asks "How can the Handbook or other GAAP compel disclosure?" the answer is often that the threat of a qualified auditor's report will compel compliance. The auditor is inclined to qualify his report due to threats of litigation against himself, should an unqualified report be judicially determined to be a fraudulent or negligent misrepresentation. However, while the auditor's report involves a representation as to GAAP compliance, the financial statements and the information contained therein are equally the representations of management and its agents. One such agent is the accountant charged with preparing the information for external users. Being also subject to a lawsuit, his representations in the financial statement will be assessed from the perspective of the conduct of a reasonably prudent practitioner in similar circumstances. While the Special Committee on Standard Setting adopted the view that the Handbook should be established on the basis of broad principles that leave room for the exercise of professional judgment,<sup>25</sup> there is no Canadian jurisprudence which has taken that view or, for that matter, which has yet determined the legal effect of the Handbook recommendations.

The accountant or auditor is therefore faced with several dilemmas. It has been judicially determined that the court is at liberty to assess professional standards as being inadequate. This is more so in the case of accounting standards than in the case of auditing standards. Compliance with generally accepted accounting principles, wherever formulated, is not necessarily sufficient for an accountant to discharge his public obligation, since the court may not regard compliance with GAAP to be a guarantee of fair presentation.<sup>26</sup> It may be argued that where the legislature has incorporated the Handbook provisions as required disclosure, the court is not at liberty to question standards which represent the will of the legislature.

However, apart from the judicial controversy over whether GAAP equals fair presentation, any legislative pronouncement may be challenged and interpreted by the court, based on the pronouncement's

imprecision. As has been pointed out, apart from issues relating to the awarding of specific Handbook sections, its very application is subject to contradictory messages.

Another dilemma concerns the mandatory application of the Handbook. It is stipulated in the Handbook that its recommendations apply to all profit-oriented enterprises except, at present, banks or life insurance companies.<sup>27</sup> Both exclusions are currently under review. However, profit-oriented entities are not necessarily corporate entities. In a non-corporate context, Handbook disclosure is not legislatively mandated.

In addition, a legislature is at liberty to override or add to the provisions of the Handbook. However, this uncertainty for the accountant or auditor is tempered by the fact that negative political consequences of overriding Handbook standards have caused legislatures to be reluctant to do so.<sup>28</sup>

#### A Suggested Approach

Exhibit 1 demonstrates that the burdens of proof found in the Handbook appear to be, intentionally or otherwise, approximations of legal burdens of proof. The most common burden of proof is "reasonable assurance," which is analogous to a balance of probabilities burden. It is unclear why the same burden will be italicised as a rule or non-italicised as a guideline. There is a non-italicised "beyond reasonable doubt" burden, with respect to the recognition of a tax benefit of tax loss carry forwards. It is unclear why this has been isolated for a higher burden of proof. If it is because one must have an increased degree of certainty when recognizing tax benefits which will increase net income, this view is inconsistent with the non-italized reasonable assurance burden as to tax benefits increasing income from direct financing leases.<sup>29</sup> Another "beyond reasonable doubt" burden exists with respect to contingent consideration recognized as part of the purchase price of the acquirer in a business combination. To recognize such consideration at the time of purchase, an italicised Handbook section requires that the resolution of the contingency be established beyond reasonable doubt. This section is the only Handbook section permitting the recognition of a contingent asset. It is in conflict with the general contingency rules in the Handbook, which permit the recognition of a contingent loss where the resolution of the contingency is likely, rather than capable of proof beyond a reasonable doubt, and do not permit the recognition of contingent gains in any event.<sup>30</sup>

Exhibit 2 illustrates the current litigation model and how the Handbook would fit in such a model. Exhibit 3 illustrates Stamp's "common law approach". It may be seen that Stamp's approach is not able to be superimposed on a legal model, due to the fact that the appellate function does not involve the setting of precedents; the "judicial" aspect of the application of standards rests with the accountant. There is also no advocacy before a party opposed in interest.

Given that Stamp's model would not easily assist an accountant in a court of law, I suggest that problems with the justification of Handbook burdens of proof be dealt with as follows:

- (1) As opposed to the views expressed by the Special Committee on Standard Setting and others, one must recognize the legislative reality that the Handbook is legally something more than generalized first principles. That being the case, the Handbook should adopt wording which is legally comprehensible. If "reasonable assurance" means "on the balance of probabilities", it should be so stated.
- (2) A general burden of proof for Handbook provisions should be specified; presumably "on the balance of probabilities". The establishment of a general "balance of probabilities" burden of proof will not limit the exercise of professional judgment, since "(i)t is impossible to lay down in words any scale or standard by which you can measure the degree of proof which will suffice to support a particular conclusion of fact"<sup>31</sup> (my emphasis). Ambiguity about scales of measurement does not obviate a need to clarify what the measurement criterion is.
- (3) Consideration should be given to when, if at all, a "beyond reasonable doubt" burden of proof is appropriate. The current isolated instances of such burdens are open to question.
- (4) To the extent that (1)-(3) are not generally acceptable, specific burdens might well be eliminated, allowing professional judgment to be exercised in an unfettered fashion.
- (5) However one views the legal significance of the Handbook, it is evident that a legislative provision incorporating the Handbook as the sole source of financial disclosure is badly worded and should be amended.
- (6) In the interest of consistency as to its effect, consideration should be given to seeking a legislative requirement of Handbook compliance (as amended in (5)), for non-corporate, profit-oriented entities, such as partnerships and proprietorships.

This paper does not deal with the issues concerning the "expectation gap" in accounting. However, it is submitted that adoption of the foregoing suggestions would at least partially assist in closing that gap, providing a lesser degree of ambiguity to legislators, the courts, the profession and the public.

## ENDNOTES

- 1 E. Stamp, Corporate Reporting: Its Future Evolution (Toronto, 1980), pp. 78, 93-96
- 2 J. Amernic and W. Lemon, "Do We Need a Canadian Conceptual Framework?", CA Magazine, July, 1984, at pp. 22-27 at p. 22.
- 3 See, for example, the Canada Business Corporations Act, S.C. 1974-75 as amended; Regulation 44.
- 4 See, for example, the Report of the Special Committee on Standard Setting (1981).
- 5 See, generally, R. Cross and C. Tapper, Cross on Evidence (London, 6th edition, 1985), Chapter 5.
- 6 For example, the Sale of Goods Act, a statute found in most common law jurisdictions, is an adoption of a codification of English commercial practice and jurisprudence as found in the late 19th century.
- 7 See R. David, English Law and French Law (London, 1980), pp. 21-26, A. Watson, The Making of Court Law, (Cambridge, Mass., 1981), pp. 171-174.
- 8 See Cross, ante endnote 5, chapter 4.
- 9 See, for example, the leading case of Derry vs Peek (1889), 14 Appeal Cases 337 (House of Lords).
- 10 See J.H. Buzzard, R. May and M.N. Howard, Phipson on Evidence, (London, 13th edition, 1984), paras 4-31, 4-37.
- 11 Evans and Astley 1911., Appeal Cases 674 at 678. It was also stated in this case that "(a)ny conclusion short of certainty may be misalled conjecture or surmise, but courts, like individuals, habitually act upon the balance of probabilities".
- 12 Phipson on Evidence, ante endnote 10, para. 1-09.
- 13 Northern Ontario Power Corp. v and Lake Ontario Mines Ltd. 1947, Ontario Reports 83 at 105 (Court of Appeal).
- 14 S.C. 1974-75, as amended; Regulation 44.
- 15 Handbook, s. 1500, paras .02, .07
- 16 Ibid., para .06
- 17 Ibid.
- 18 Stamp, ante, endnote 1, at p. 78.

- 19 See, among his several publications on this subject, "Accounting Research and Practice: Incompatible Twins?" CA Magazine, March, 1983, pp. 28-34 at p. 33.
- 20 Ibid. at p. 32.
- 21 Ante, endnote 1, at pp. 93-94.
- 22 Ante, endnote 2 at pp. 25, 27.
- 23 Ante, endnote 1 at p. 95.
- 24 Ante, endnote 1 at p. 78.
- 25 Ante, endnote 4, Recommendation 5; as found in "SCOSS Highlights", CA Magazine, June, 1981, at p. 37
- 26 See J. Sherman, "Third Party Liability, Part II", CA Magazine, September, 1983, pp. 76-80 and the discussion of the Herzfeld v. Laventhol case at p. 79.
- 27 Handbook, Introduction to Accounting Recommendations, "Application".
- 28 See, for example, R. Crandall, "Government Intervention - The PIP Grant Accounting Controversy", Cost and Management, September-October 1983, pp. 55-59.
- 29 Handbook s. 3065, paras .65, .67 (direct financing leases); cf. s. 3770, para .43 (tax loss carry forwards)
- 30 Handbook, p. 1580, para .33 (contingent consideration in business combinations); p. 3290, para .12 (recognition of contingent losses).
- 31 Evans v. Astley, ante, endnote 11 at p. 678.

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Abdel-Khalik, R. "Accounting Research and Practice: Incompatible Twins?". CA Magazine, March, 1983, pp. 28-34.

Amernic, J. and W. Lemon. "Do We Need a Canadian Conceptual Framework?". CA Magazine, July, 1984, pp. 22-27.

Buzzard, J.H., R. May and M.N. Howard. Phipson on Evidence. London; Sweet and Maxwell, 13th edition, 1985.

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Stamp, E. Corporate Reporting: Its Future Evolution. Toronto; Canadian Institute of Chartered Accountants, 1980.

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-----, Report of the Special Committee on Standard Setting. Toronto; Canadian Institute of Chartered Accountants, 1981.

# Exhibit 1

## Burdens of Proof - CICA Handbook

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 1500 para .06	Deviations from Handbook Recommendations and full disclosure	None; issue is disclosure	It is presumed that adequate disclosure requires an "indication" of the effect on financial statements of the practice followed as compared with the recommended practice, unless the recommended practice is "not appropriate"	no
s. 1506 para .11	Retroactive application of change in accounting policy	The existence of financial data to make retroactive adjustment	The financial data must be necessary and reasonably determinable	yes
s. 1580 paras .14, .15	Business combinations - identification of the acquirer	The shareholders of one company in the combination hold more than 50% of the voting share of the combined company	Rebuttable presumption exists, on proof of facts, that one company is the acquirer; rebutted by the shareholders of one of the combined companies holding more, but not significantly more than 50% of the voting shares of the resultant combined company	no Comment: Examples provided of situations rebutting presumption (e.g. reverse takeover)
s. 1580 para .33	Business combinations - recording contingent consideration as part of the purchase cost	Amount of the contingent consideration	Capable of reasonable estimation	yes



<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 1580 para .33	Business combina- tions - recording contingent consi- deration as part of the purchase cost	Outcome of the contingency giving rise to the contin- gent consideration	Beyond reasonable doubt	yes
s. 1580 para .35	Business combina- tions - recording as part of the purchase cost addi- tional consideration payable based on maintaining or achieving specified earnings levels by acquired company	Maintaining or achieving specified earnings levels by acquired company	When determinable	yes
s. 1580 para .50	Business combinations - recognition by acquirer of tax bene- fits of loss carry- forwards of acquired company	Realization of benefits of tax loss carry-forwards	Reasonable assurance	yes
s. 1650 para .51	Hedging of foreign currency transaction	The enterprise will purchase or sell goods in a foreign country	Reasonable assurance	no
s.3050 para .08	Exclusion of sub- sidiaries from consolidation	Increases in the equity of the subsidiary not accruing to the parent	Likelihood	yes
s. 3050 para .08	Exclusion of sub- sidiaries from consolidation	Lack of control over sub- sidiary's assets or oper- ations	Serious impairment	yes

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 3050 para .21	Use of the equity method - long-term investment	Significant influence on investee	Establishment of voting interest by investor in investee of 20% or more, supplemented by other (unspecified) minimum facts demonstrating significant influence.	no Comment: Examples of facts possibly indicating significant influence are provided.
s. 3050 para .21	Use of the cost method - long-term investments	No significant influence on investee	Establishment of voting interest by investor in investee of less than 20% results in a presumption of no significant influence; rebutted by significant influence being clearly demonstrated.	no
s. 3050 para. 31	Permanent impairment of value - long-term investment	Any one of: (1) A prolonged period during which the quoted market value of the investment to less than its carrying value; (2) Severe losses by the investee in the current year or in current and prior years; (3) Continued losses by the investee for a period of years; (4) Suspension of trading in securities; (5) Liquidity or going concern problems of the investee; (con't)	Establishment of the existence of any one condition "persisting" for a period of three or four years results in a general presumption that the loss in value is permanent; the presumption may be rebutted by persuasive evidence to the contrary.	no Comment: The meaning of the terms "prolonged", "severe", "continued", "persisting" and "persuasive" not discussed.

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
		(6) The current fair value of the investment (an appraisal) is less than its carrying value.		
s. 3055 para .11	Investor accounting for investment in joint venture by equity or proportionate consolidation method	Investor's activities carried out through joint ventures	The joint venture activities carried out by the investor are a "significant" portion of the investor's total activities	yes
s. 3055 para .13	Investment in joint venture - use of cost method	Earnings of joint venture not accruing to venturer	Likely	yes
s. 3065 para .06	Capitalization of lease by lessee	Terms of the lease result in the transfer of ownership of the leased property to the lessee at the end of the lease term	Unspecified; establishment of the fact results in reasonable assurance that the lessee will obtain ownership of the leased property at the end of the lease term.	no
s. 3065 .03 (e), .06	Capitalization of lease by lessor	Option in lease is a bargain purchase option	Establishment that lease permits purchase of leased property for a price which is "sufficiently" lower than the expected fair value of the property at the date the option becomes exercisable; results in an apparently irrefutable presumption of reasonable assurance that option will be exercised.	no Comment: "Sufficiently" not discussed.

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 3065, paras .03 (f), .03 (o)	Extension of lease term for capitalization considerations	Existence of bargain renewal option	See bargain purchase option.	no
s. 3065 para .03(o)	Non-cancellable term of lease for capitalization considerations	Lack of cancellability, due to the remoteness of conditions giving use to cancellation	Lack of likelihood; that any condition giving use to cancellation is unlikely.	no
s. 3065, paras .36, .37	Tax shield effects on income from direct financing leases	Capital cost allowance is a permissible deduction and will be utilized	Reasonable assurance	no
s. 3290 paras .12, .15	Provision for a contingency	Confirming future event as to asset impairment or liability incurrence	Likely	yes
s. 3290 paras .12, .15	Provision for a contingency	Amount of loss	Capable of reasonable estimation	yes
s.3400 para .06	Revenue from sales and service transactions	Ultimate collection	Reasonable assurance	yes
s. 3400 paras .07, .18	Revenue from sale of goods	Measurement of consideration to be received and the extent of returns	Reasonable assurance	yes Comment: Consignment sale provided as an example of where consideration is not determinable "within reasonable limits"

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 3400 para .08	Revenue from the sale of services or under long term contracts	Measurement of the consideration to be received	Reasonable assurance	yes
s. 3400 para .09	Revenue from interest, royalties and dividends	Measurement and collectability	Reasonable assurance	yes
s. 3470 para .43	Corporate income taxes - recognizing the benefits of loss carry-forward - income losses	Future taxable income will be sufficient to offset the loss carry-forward and will be used during the carry-forward period prescribed by tax laws (one of three conditions; see <u>post</u> )	Assurance beyond any reasonable doubt	no
s. 3470 para. 43	Corporate income taxes - recognizing the benefits of loss carry-forwards - income losses	See <u>ante</u> ; (1) Establishment beyond any reasonable doubt that future income will be sufficient to offset the loss carry forward, plus (2) The losses result from an identifiable and non-recurring cause and (3) A record of profitability has been established	None specified apart from burden for condition (1). Establishment of all 3 conditions results in an apparently irrebuttable presumption ("virtual certainty") that the tax benefits will be realized	no
s. 3470 para .44	Corporate income taxes - recognizing the benefits of loss carry-forwards - capital losses	An intent to dispose of particular assets in the foreseeable future and thus realize the potential capital gain (one of three conditions; see <u>post</u> )	Satisfactory evidence	no

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 3470 para .44	Corporate income taxes - recognizing the benefits of loss carry-forwards - capital losses	See ante; (1) Establishment by satisfactory evidence of an intent to dispose of particular assets in the foreseeable future and thus realize the potential capital gain, plus (2) A potential capital gain is present in unrealized form and in assets which are not essential to the future operations of the corporation and (3) The balance of the unrealized capital gain, after allowance for possible decline before disposal, is sufficient to offset the loss in question	None specified apart from burden for condition (1). Establishment of all 3 conditions results in an apparently irrebuttable presumption ("virtual certainty") that the tax benefits will be realized	no
s. 3470 para .46	Corporate income taxes - recognizing the benefits of loss carry-forwards - income and capital losses	Tax benefits will be realized	Virtual certainty (as defined in non-italicised paras .43, .44, s. 3470)	yes
s. 3470 para .52	Recognition of deferred tax debits in a loss period.	Timing differences will reverse (and hence deferred tax debits will be eliminated)	Reasonable assurance	yes
s. 3470 para .57	Use of taxes payable basis for regulated and similar enterprises	All taxes payable in future years will be recoverable from the customer and included in the regulated formula for reimbursement	Reasonable expectation	yes

<u>Handbook Reference</u>	<u>Subject</u>	<u>Facts Requiring Proof</u>	<u>Burden of Proof</u>	<u>Italicised Section</u>
s. 3800 para .22	Accrual of government assistance	The enterprise has complied with and will continue to comply with conditions entitling it to government assistance	Reasonable assurance	yes
s. 3805 para .21	Accrual of investment tax credits	Investment tax credits will be realized.	Reasonable assurance	yes
s. 3840 para .14	Disclosure of economic dependence	Ongoing operations of the entity issuing financial statements depend on volume of business with another party	Volume must be significant	yes

EXHIBIT 2  
LEGAL MODEL

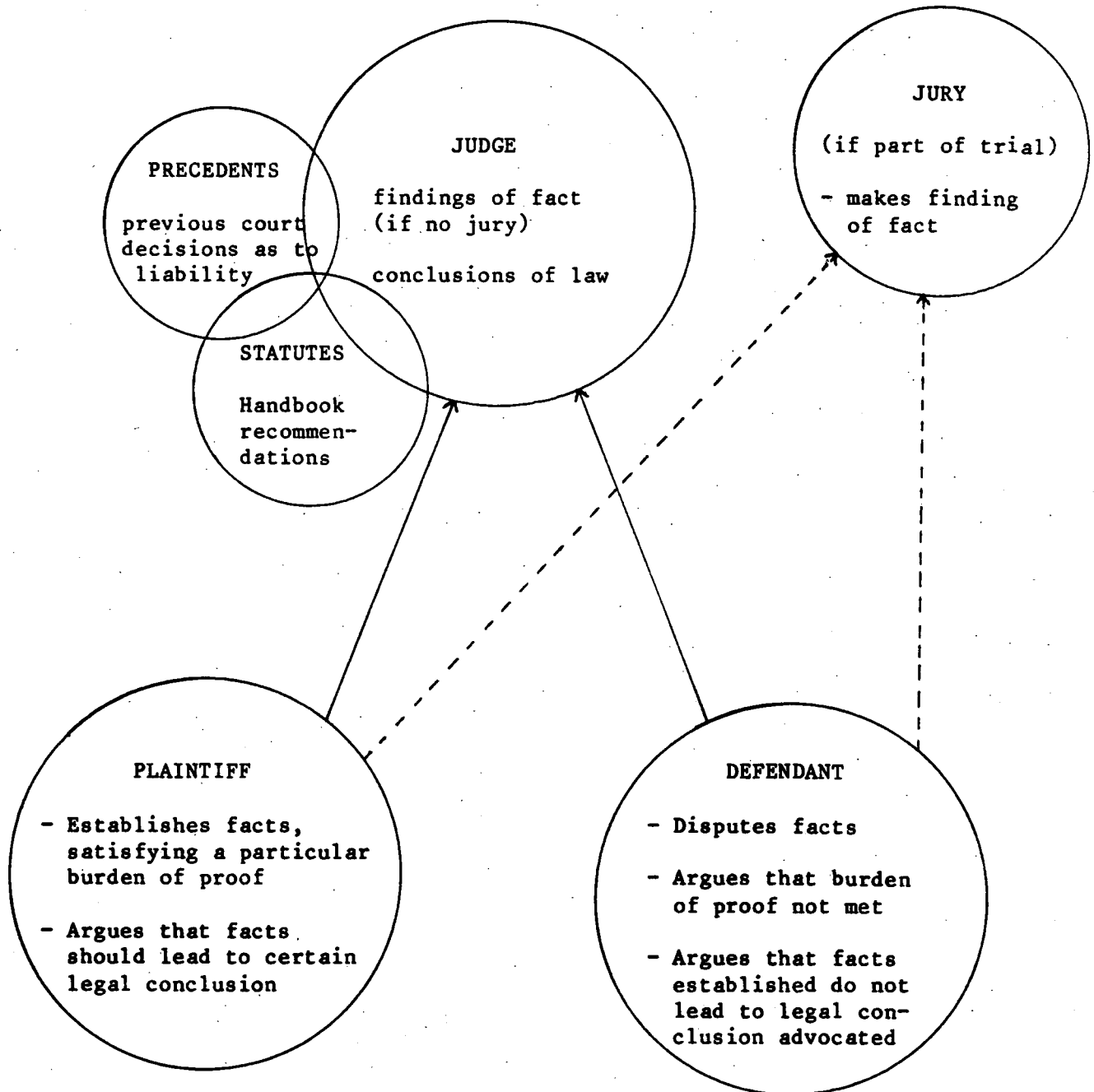
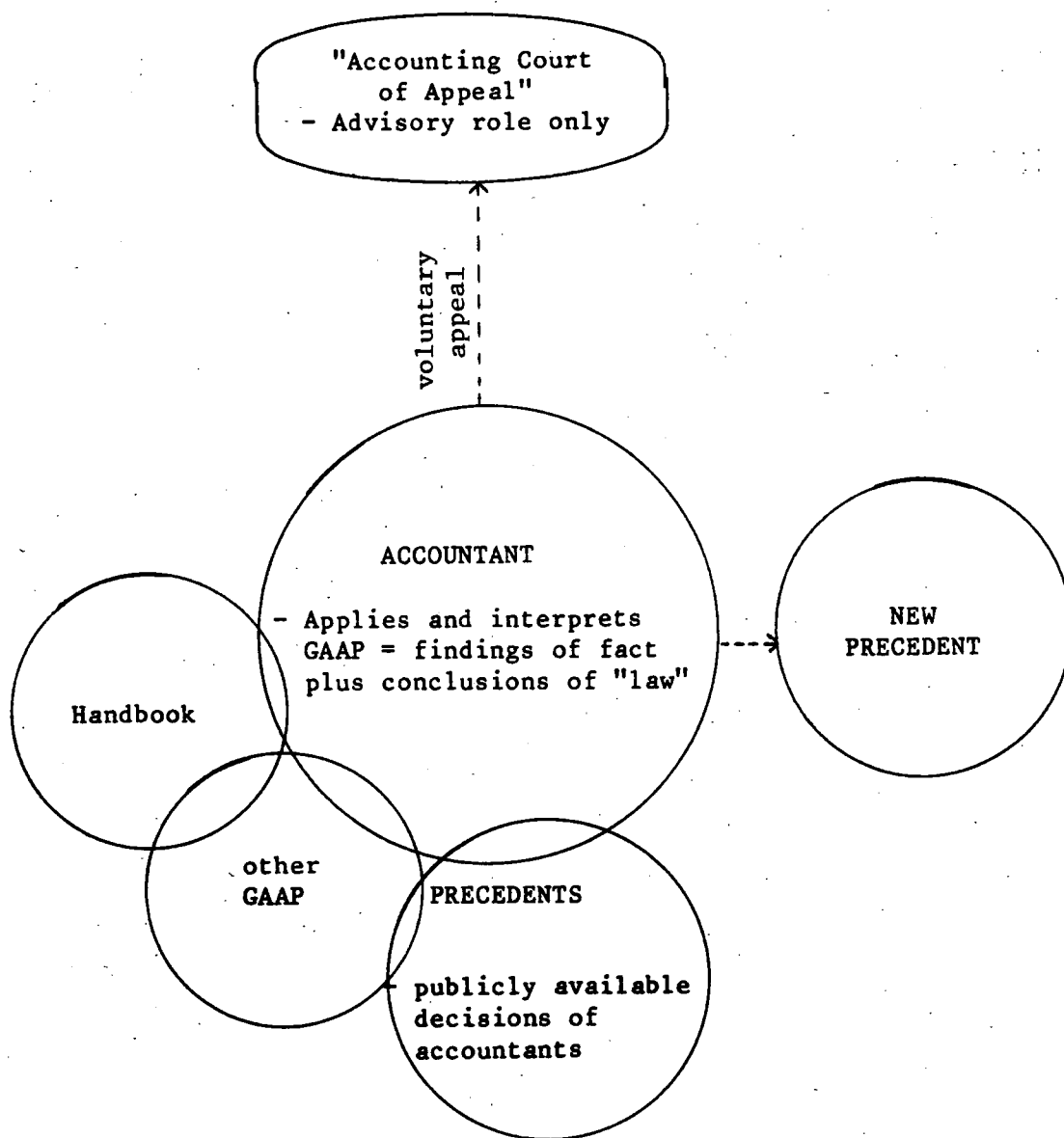




EXHIBIT 3STAMP'S COMMON LAW  
MODEL FOR STANDARD SETTING

**Control Issues and Managerial Attitudes towards Telecommuting:  
An Application of Partial Least Squares to an Exploratory Study (1)**

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**T.P. Dimnik**

**Doctoral Candidate in Management Accounting and Control,  
School of Business Administration,  
University of Western Ontario**

Telecommuting, remote work, and flexiplace are terms used to describe situations where workers use computers or terminals to work at home. Forecasters predict that 15 to 20 per cent of the North American workforce will telecommute by the end of this century (Franckling 1986, Cordell 1985).

Notwithstanding these bullish predictions, and despite its many apparent advantages, telecommuting has diffused very slowly. The problem is not with technology; there is no lack of hardware for distributed information processing (Macintosh 1985). A more likely reason for a slow rate of adoption is the lack of social software appropriate to telecommuting.(2)

A recent study has shown that managers have a negative attitude towards work-at-home (Higgins et al. 1987, Duxbury et al. 1986). This paper analyzes data from that study. Assuming managerial attitudes impact on the adoption of telecommuting, then it would be of interest to examine the factors contributing to those attitudes.(3)

**Data Collection**

To study attitudes towards telecommuting (TELCOMAT), questionnaires were sent to 308 people known to have access to personal computers. It was reasoned that work-at-home issues would be more relevant to computer users and that this population would be more likely to have formed attitudes towards telecommuting. To ensure as broad a representation of PC users as possible, names were obtained from several sources:

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- 1 I thank Chris Higgins and Don Barclay of the University of Western Ontario for their helpful comments, and two anonymous reviewers for their perceptive criticisms. This research was supported by a grant from the Social Sciences and Humanities Research Council of Canada and the Plan for Excellence, School of Business Administration, University of Western Ontario.
  - 2 Macintosh (1985) coined the phrases "social software" to refer to human behavior as opposed to technical and technological issues of accounting and information systems.
  - 3 This paper will not explore the relationship between attitudes and innovation. This relationship is discussed in the innovation literature. As well, attitude-innovation models based on the work of Ajzen and Fishbein (1980) have recently been applied to the adoption of accounting standards and use of personal computers.

- 35% came from a Canadian division of a large multinational manufacturing firm,
- 30% came from an IBM PC-users group,
- 25% came from telephone solicitations of local companies known to be using IBM PCs,
- 10% came from a list of managers and professionals provided by MBA students.

A reminder notice was sent to all subjects one week after the initial mailing resulting in 204 responses and a response rate of 66%.

Respondents answered 97 questions on telecommuting and personal demographics. The telecommuting items were selected from a review of the literature (Duxbury et al. 1986).

This paper reports on the analysis of a subset of the respondents: managers with families. Managers were defined as respondents responsible for evaluating the performance of one or more employees. It was reasoned that attitudes of managers would be more relevant to the adoption of telecommuting than attitudes of their employees.

Only those managers "currently living with a spouse or near-spouse" were included because the analysis considered how concerns about the effects of telecommuting on family life might affect TELCOMAT.

The sample was further reduced by making a list-wise deletion of cases with missing values on any of the variables ultimately included in the analysis. Table 1 summarizes the successive steps in obtaining the subsample of 108 respondents.

.....

Table 1  
Selection of the Subsample

308 questionnaires sent out  
|  
204 useable questionnaires returned  
|  
131 managers  
|  
119 managers with families  
|  
108 managers with families and who answered all questions

.....

### Data Analysis

SPSSX procedures FACTOR and PEARSON CORR were used iteratively to reduce the data to manageable proportions. Further refinements were made by the application of Lohmoller's 1981 version of Partial Least Squares (PLS). This resulted in a model with 8 factors (latent variables) and 21 measured variables (Table 2).

Using the literature, the data reduction analyses, and logic as guides, the variables and factors were then structured in a causal model (Figure 1). The model building process will not be defended in this paper. The focus

**Table 2**  
**Results of Data Reduction**

Factor ID	Description of Factor	Factor Items (Measured or Observed Variables)
SELFDISC	Lack of self-discipline needed for telecommuting	X1 I don't have personality to telecommute X2 I would rather work in office than home X3 I don't have self-discipline to telecommute
CONTRCON	Concern telecommuting lessens managerial control	Y1 Telecommuting employees would be less loyal Y2 Telecommuters difficult to supervise Y3 Managers lose control over telecommuters
FAMILCON	Concern that telecommuting would hurt family life	Y4 Spouse prefers you work at office or home (Range: 1=Prefers home to 4=Prefers office) Y5 Family life would suffer if I telecommuted Y6 Telecommuting invasion of my home life
CONTPAN	Respondent's span of control	X4 Number of employees evaluated by respondent (Range: 1 to 167)
EXPERIEN	Respondent's age and tenure with company	X5 Age in years (Range: 27 to 61) X6 Years with present company (Range: 1 to 35)
EDUCATIO	Respondent's level of education	X7 Highest level of education (Range: 1=High school to 4=Grad degree)
COMPEXPR	Self-rated computer expertise	Y7 Months used PC (Range: 1 to 84) Y8 How would you rate your computer skills (Range 1=Novice to 7=Expert) Y9 How well can you type on computer keyboard (Range 1=Very poorly to 7=Very well)
TELCOMAT	Attitude towards telecommuting	Y10 Does telecommuting appeal to you (Range 1=Not appealing to 7=Very appealing) Y11 Telecommuting increases productivity Y12 Telecommuting increases morale Y13 Telecommuting improves quality of work life Y14 Telecommuting increases job satisfaction

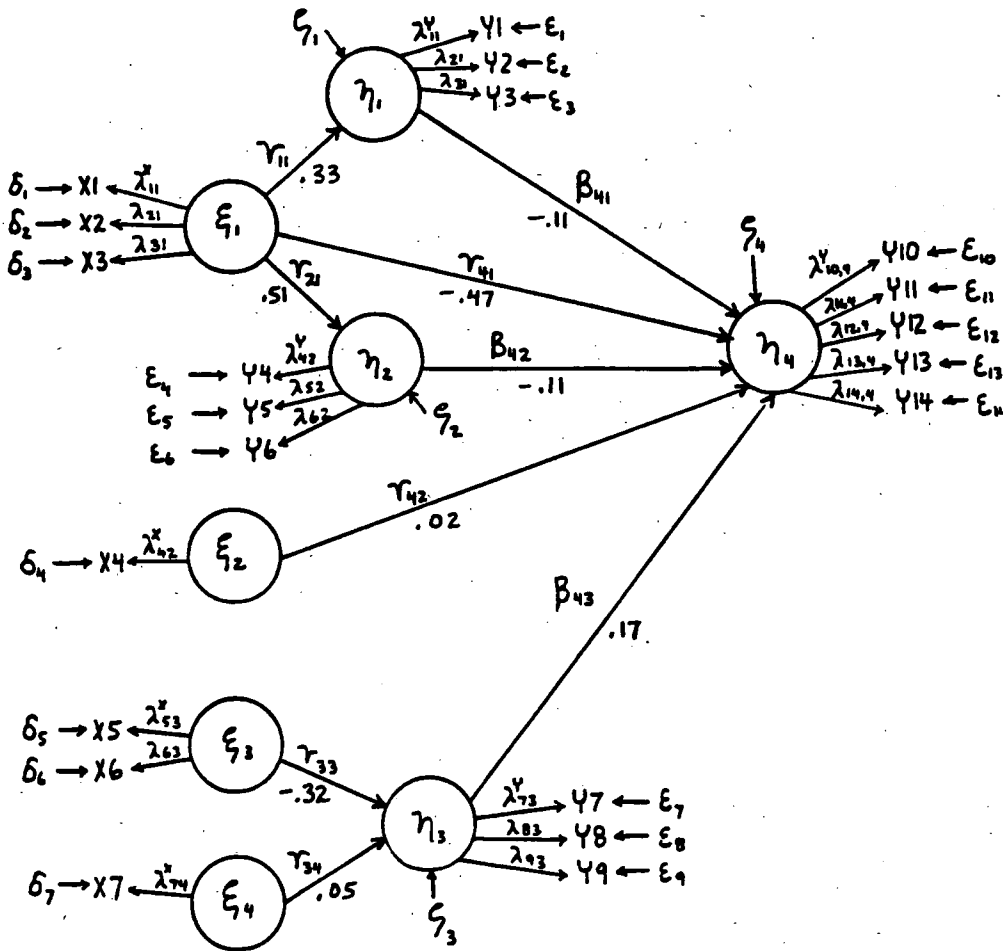
\* Unless otherwise noted, responses range from  
1=Strongly disagree to 7=Strongly agree

.....

here is on assessing whether or not the model "works" (ie. are the measures valid and the relationships statistically significant)?

Traditionally, a researcher would test the Figure 1 model by aggregating the measured variables into the 8 factors and then examining the relationships among the factors by applying a regression technique (eg. multiple regression or path analysis.) The variables would be aggregated by summing item scores to form scales or by weighting items to form factor

**Figure 1**  
**A Model of Managerial Attitudes Towards Telecommuting**



$\xi_1$  = SELDISC

$\eta_1$  = CONTRCON

$\xi_2$  = CONTSPAN

$\eta_2$  = FAMILCON

$\xi_3$  = EXPERIEN

$\eta_3$  = COMPEXPR

$\xi_4$  = EDUCATIO

$\eta_4$  = TELCOMAT

.....

scores, using for example, factor loadings. The factor TELCOMAT would then be regressed on the 7 other factors and the regression coefficients (or path weights) tested against the hypotheses that each coefficient is 0. Measurement errors for variable aggregations would be estimated by calculating coefficient alphas or from factor loadings.

This traditional approach has several shortcomings:

1. The statistical tests of the regression coefficients (and the use of procedures like stepwise regression) make assumptions of the data that

- may not hold (eg. sufficient sample size, multivariate normal distributions etc.)
2. The two step process of aggregating variables and then testing their relationships presumes that aggregated scores are portable (ie. that these "artificial" variables have meaning outside a nomological network). This may not be a valid assumption (Fornell 1984, Winne 1983).
  3. All measurements are made with error, and though error may be estimated using the traditional methods described above, these error estimates do not explicitly figure in a regression analysis nor are they estimated in the context of the theoretical and regression models (Fornell 1984).
  4. In using a data driven method like regression, the researcher assumes the method "knows best." Experience and theory may give the researcher information about the relationships between factors and measured variables, about measurement error, or about the relationships among factors, but this a priori knowledge cannot be used in the regression procedure (Fornell 1984).

### Partial Least Squares

PLS is a technique that avoids these shortcomings. Like LISREL and other second generation multivariate statistical techniques, PLS allows a flexible interplay between theory and data:

When theoretical knowledge is well developed, it is possible to let this knowledge have a greater bearing on the analysis. When one has less confidence in theory, it is possible to let the data play a larger role...Specifically, second generation methods combine theoretical and empirical knowledge by (1) modeling errors in observation, (2) incorporating both theoretical (unobservable) and empirical (observable) variables into the analysis, (3) confronting theory with data (hypothesis testing), and by (4) combining theory and data (theory building). (page 4, Fornell 1984)

Figure 1 shows a model with both a measurement and a theoretical structure. Each observed exogenous variable ( $X$ ) is expressed as a linear combination of a latent exogenous variable ( $\xi$ ) and measurement error ( $\delta$ ):

$$X = \lambda^x \xi + \delta$$

Similarly, each observed endogenous variable ( $Y$ ) is expressed as a linear combination of a latent endogenous variable ( $\eta$ ) and measurement error ( $\epsilon$ ):

$$Y = \lambda^y \eta + \epsilon$$

In turn, each endogenous latent variable is related to other latent variables by the equation:

$$\eta = \beta \eta + \gamma \xi + \zeta$$

where  $\beta$  and  $\gamma$  are matrices of (regression) coefficients and  $\eta$  and  $\xi$  are vectors of endogenous and exogenous latent variables, and  $\zeta$  is a vector representing errors in equations.

PLS uses Ordinary Least Squares in an iterative procedure that estimates the  $\beta$ ,  $\gamma$ ,  $\lambda^x$ , and  $\lambda^y$  parameters in such a way as to maximize the

explained variance of the endogenous variables ( $\eta$ ). (4) The PLS algorithm is described in Fornell and Bookstein (1982).

PLS makes minimum demands on data: data need not be multivariate normal or measured on interval scales, and small sample sizes are appropriate. A rule of thumb for minimum sample size is  $10 \cdot V$  where  $V$  is the largest number of measured variables associated with any latent variable (Barclay 1986). In this case, TELCOMAT is manifest in 5 variables and so at least 50 cases are required.

PLS is an excellent tool for exploratory analysis because it makes few assumptions about data and because it allows data and theory to interact (Barclay 1986). However, use of PLS has been limited because standard statistical tests could not be applied to PLS parameter estimates. Several alternatives have been suggested to overcome this problem. The analysis reported in this paper used a recently developed application of Tukey's jackknife to calculate estimates, errors and t-values for the parameters of the Figure 1 model (Fornell and Barclay 1983).

In jackknifing, a number of subsamples are created by removing one or more cases from the total data set. PLS is used to estimate the parameters ( $P$ ) of each subsample and the results compared to the PLS estimates based on the total data set. The subsample estimates are averaged to form jackknife estimates of the parameters ( $P^*$ ) and the differences between subsample and total sample estimates are used to form the standard error of the jackknife estimates ( $e^*$ ). The ratio  $P^*/e^*$  is a Student-t value with  $n-1$  degrees of freedom, where  $n$  is the number of subsamples used in the jackknifing procedure. In this analysis, one case was removed from the total data set for each jackknife iteration, and so there are  $n-1=107$  degrees of freedom for the reported t-values (ie. the probability that  $P=0$  is less than .005 when  $t > 2.58$ ).

### PLS Results

Tables 3 to 5 report the results of the PLS analysis of the model of managerial attitudes towards telecommuting. Table 3 shows that all but one of the hypothesized relationships were highly significant: a manager's span of control has no effect on his or her attitude towards telecommuting ( $\gamma_{42} = .019$ ,  $t = .53$ ).

Table 4 shows the relationships between latent and measured variables. The correlations between measured and latent variables ( $\lambda$ ) may be squared to give an estimate of measurement error ( $1 - \lambda^2$ ). For example, Table 4 shows SELFDISC explains 83%, 68% and 72% of the variances of X1, X2 and X3. Y1, Y4, Y7 and Y14 are poor reflections of their respective underlying latent variables given that error should account for less than 50% of observed variance. See Fornell et al. (1982) for a more complete discussion of how PLS may be used to assess measurement validity.

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4 Depending on model specification, PLS may simultaneously maximize the explained variances of endogenous latent variables and the explained variances of observed variables. Such is the case in this analysis where all latent variables are reflective.

**Table 3**  
**Path Coefficients**

Coefficient	T-Value
$\gamma_{11} = .33$	24.5
$\gamma_{21} = .51$	44.9
$\gamma_{31} = -.32$	-24.9
$\gamma_{34} = .05$	5.8
$\gamma_{41} = -.47$	-24.0
$\gamma_{42} = .02$	.5
$\beta_{41} = -.11$	-6.7
$\beta_{42} = -.11$	-6.2
$\beta_{43} = .17$	8.8

**Table 4**  
**Measurement Errors**

Latent Variable	Observed Variable	Correlation Between Latent and Observed	Error ( $1-\lambda^2$ )
SELFDISC	X1	$\lambda_{11} = .90$	$\delta_1 = .17$
	X2	$\lambda_{21} = .83$	$\delta_2 = .32$
	X3	$\lambda_{31} = .85$	$\delta_3 = .28$
CONTRCON	Y1	$\lambda_{11} = .65$	$\epsilon_1 = .58$
	Y2	$\lambda_{21} = .79$	$\epsilon_2 = .38$
	Y3	$\lambda_{31} = .88$	$\epsilon_3 = .23$
FAMILCON	Y4	$\lambda_{42} = .62$	$\epsilon_4 = .62$
	Y5	$\lambda_{52} = .79$	$\epsilon_5 = .37$
	Y6	$\lambda_{62} = .82$	$\epsilon_6 = .33$
CONTPAN	X4	$\lambda_{42} = 1$	$\delta_4 = 0$
EXPERIEN	X5	$\lambda_{53} = .94$	$\delta_5 = .12$
	X6	$\lambda_{63} = .88$	$\delta_6 = .22$
EDUCATIO	X7	$\lambda_{74} = 1$	$\delta_7 = 0$
COMPEXPR	Y7	$\lambda_{73} = .59$	$\epsilon_7 = .65$
	Y8	$\lambda_{83} = .88$	$\epsilon_8 = .22$
	Y9	$\lambda_{93} = .83$	$\epsilon_9 = .31$
TELCOMAT	Y10	$\lambda_{10,4} = .71$	$\epsilon_{10} = .49$
	Y11	$\lambda_{11,4} = .74$	$\epsilon_{11} = .45$
	Y12	$\lambda_{12,4} = .73$	$\epsilon_{12} = .47$
	Y13	$\lambda_{13,4} = .79$	$\epsilon_{13} = .37$
	Y14	$\lambda_{14,4} = .67$	$\epsilon_{14} = .55$

**Table 5**  
**Explained Variances**

CONTRCON	11%
FAMILCON	26%
COMPEXPR	11%
TELCOMAT	42%

.....

Table 5 shows explained variances for the endogenous variables ( $\eta$ ). The Figure 1 model explains 42% of the variance in TELCOMAT.



## Discussion of Results

The PLS analysis shows that the greater a manager's concern that telecommuting means loss of control and harm to family, the more negative the manager's attitude towards telecommuting. This is not an unexpected result. More surprising is the role of the factor SELFDISC. A manager's concern that he or she does not have the self-discipline needed for telecommuting is the dominant factor in determining TELCOMAT. SELFDISC also drives CONTRCON and FAMILCON (11% and 26% of explained variance).

There is a literature that suggests that the more indeterminate the outputs and inputs, the more important the role of decision premise controls (Hill 1985). Managers and knowledge workers are most likely to participate in work-at-home programs (Franckling 1986). These groups have hard to measure outputs so they are typically controlled by input or behavioral controls. Taking these groups off-site would mean an almost total reliance on decision premise controls. And decision premise controls depend on individual self-control or self-discipline (Galbraith 1977, Thomas 1983, McKenna 1983). The managers in this study were concerned they didn't have the self-discipline needed for telecommuting. This concern clearly transferred to their fears of loss of control.

The behavior of COMEXPR indirectly supports the conclusions about self-control. A manager's age and job tenure are negatively related to his or her computer expertise, but computer expertise is positively related to the manager's attitudes towards telecommuting. One of the PLS outputs is a correlation table of the latent variables. The correlation between SELFDISC and COMEXPR is shown to be  $-.26$ . This suggests that one way of mitigating concerns about self-discipline may be improving managers' computer skills. Computer training and education may be thought of as decision premise controls.

## Conclusions

Histories of accounting suggest that the adoption of administrative and technological innovations has depended on the development of new accounting and control methods (eg. Chatfield 1977, Kaplan 1984). Management accounting research has focused mainly on output and input controls but the study of decision premise controls may not be an inappropriate extension of the discipline.

In any case, some interesting work has already been done in this area by researchers from other disciplines. For example, see Dawson and McLoughlin (1986) for a study that shows how a computer application increased an organization's "total control" as that term is used by Tannenbaum (1968). The Dawson and McLoughlin article also begins to answer a question posed by Macintosh (1985): do computer applications lead to more centralized or decentralized controls?

An obvious follow-up to the research reported in this paper would be to study the managerial attitudes and the control systems of matching pairs of firms:

1. Pair One (Adoption of Telecommuting)
  - a. A firm that recently considered and rejected a telecommuting program.
  - b. A firm that recently considered and accepted a telecommuting program.
2. Pair Two (Implementation of Telecommuting)
  - a. A firm with an unsuccessful telecommuting program.
  - b. A firm with a successful telecommuting program.

Intensive case studies of firms in each matched set could lead to a better understanding of how controls impact on the adoption and the successful implementation of telecommuting programs. These studies should pay special attention to decision premise controls and issues of self-control.

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CAAA 1987 Conference

M. Grosh  
Assistant Professor  
School of Business  
and Economics  
Wilfrid Laurier University

E. Roumi  
Assistant Professor  
Wilfrid Laurier University

### **TAX EDUCATION: AN EMPIRICAL ANALYSIS**

Tax Education has been somewhat of a non-issue in the hallowed halls of educational institutions in Canada. Taxation, although a major issue in private enterprise, is one of minor consideration in most educational institutions. It is time that this discipline be given its proper seat of importance. This study looks at the problem of what should be taught in such a program and how it should be taught.

## Introduction

In Canada, education in taxation has been associated with that of accounting. In fact, the view of taxation by outsiders (being those not teaching tax - including those teaching accounting) has been as a specialized area within accounting, that has been made a necessary evil by the governing bodies (C.I.C.A., C.M.A., C.G.A.) of the profession. Evidence of this fact stems from the status of Taxation courses at most Canadian universities. Very few universities view it as requiring more than one course to enable the student to become knowledgeable. If one looks at the treatment of taxation by the private sector (private enterprise), it represents a very important consideration which is of growing importance. In light of the many changes over the past decade in tax laws, many companies are anticipating a drastic expansion of the field. This is evidenced by the increasing number of ads in professional magazines indicating the desire to take anyone with accounting experience (and no tax experience) with the intention of developing a larger taxation department. In light of these developments, others have looked at the issue (Kirzner and Laiken 1983) in relation to coverage of material. This study has gone one step further into the problem. Recognizing that there is a need for a more specialized program of study in taxation, the question arises as to what should be studied and what techniques would be best utilized. This paper addresses these issues with the intention of developing a set of recommendations for the future of tax education in Canada.

## Tradition

Traditionally, the approach to teaching taxation has changed very little in most institutions. The approach taken has been mechanical in nature, dealing with the application of provisions or rules of the income tax act to a limited depth of understanding. The student has been faced with a large volume of laws that need to be squeezed into a single course to provide the minimum requirements of the governing accounting bodies. Kirzner and Laiken, in their 1983 study, broke down the various specific topics with the intent of comparing these to C.I.C.A. uniform final exam (U.F.E.) syllabus requirements. They refer to three approaches being:

- (i) Technical approach - through application of specific provision of the legislation to taxation problems
- (ii) Conceptual approach - interpretation of legislation in relation to concepts and principles
- (iii) Policy approach - economic analysis.

Conclusions reached were that a one-term course in taxation meant that many areas could not be covered and others were done only superficially. In general, there were many varied approaches taken but no consensus among the parties involved.

This study was designed to obtain the opinions of those involved in taxation from the educator to the practitioner. It is based on the premise

that we need to revamp our thinking to the point where we must go back to the basics of education in Taxation. That is, instead of analyzing what we have done right or wrong at this stage or previous stages, we should analyze what we think should be taught in a Tax Program and how this should be taught. From this analysis we can look at our own individual institutions and try to move towards these specified goals. The intention of the exercise is therefore to derive some standard basis of agreement among those involved and work from that point. This approach is taken in sports and many other disciplines. A strong base will usually produce a strong program.

### **Research Method**

A preliminary pilot study was conducted by interview to determine what issues need to be analyzed as a basis. Discussions were conducted on an ad hoc basis with various academics as well as a host of tax lawyers and accountants. A questionnaire was put together to test the opinions on the various issues derived. Circularization was done on a random basis among educational institutions in Canada and the U.S., the intention being to be able to run a comparison of opinions of those in the U.S. with those of Canada. Although the laws are different, the concept of taxation is common in both countries. In addition to a circularization of Academics on the subject, tax practitioners at the Canadian Tax Foundation's annual conference were also asked to respond to the questionnaire. The intention being to attempt to derive an overall consensus on issues to establish a strong mutually agreeable basis among academics and practitioners. 900 practitioners were circularized on a random basis, resulting in 182 returned questionnaires - a response rate of 20.22%. Of the 182 questionnaires returned, 75 (41.21%) provided comments for further analysis and possible additional insight into perceived problems.

In addition to the circularization of Canadian professionals in Taxation, the following were sent to academic institutions on a random basis.

In Canada, 21 colleges were sent questionnaires as well as 30 universities. The questionnaires were directed to those people teaching taxation at their institution. Of these 51 institutions, 28 responses were received (27 being useful for analysis). In addition to Canadian institutions, a total of 200 American Universities were also sent questionnaires. It was felt that although the Tax Laws are different in the two countries, there was a good possibility that we could learn from the experience of the American schools. That is, Taxation as a discipline in accounting programs has progressed to a much strong position in the U.S. Many schools had specific majors in Taxation and/or a Master's degree in Taxation (Table 1).

**Table 1**  
**Basic Demographics**

Description	Canadian Academic Institutions	American Academic Institutions	Canadian Tax Professionals*	Total
Total Circularized	51	200	900	1151
Number of Responses	28	133	182	343
Useful Responses	27	128	182	337
Response Rate	54.9%	66.5%	20.2%	29.8%
Useful Response Rate	52.9%	64.0%	20.3%	29.3%
	(27/337)	(128/337)	(182/337)	
% of Total	8.0%	38.0%	54.0%	

\* Some of these Tax Professionals are also teaching at academic institutions.

#### **Analysis of Data on Respondents**

Various demographics were analyzed in relation to responses to determine whether there was a correlation between conditions like:

- (i) Profession
- (ii) Country
- (iii) Size of Firm
- (iv) Institution
- (v) Level of Courses Offered in Taxation

and their responses to the given questions.

Table 2 gives a basic cross section of respondents in relation to the indicated demographics.



**Table 2**  
**Response Rates by Specific Criteria**

	Number of Useful Responses	% of Total (in this category)
(i) Profession		
Lawyers	45	13.35%
Accountants	121	35.90%
Other	8	2.38%
Educators	163	48.37%
(ii) Country		
Canada	209	62%
U.S.	128	38%
(iii) Size of Firm		
Educational Institution	158	46.89%
Sole Proprietorship	8	2.37%
Small Partnership	40	11.87%
Large Partnership	97	28.78%
Corporation	28	8.31%
Government	6	1.78%
(iv) Institution		
University	137	40.65%
College	21	6.23%
Profession	179	53.12%

\* For this category only educational institutions are included in the statistics (i.e. universities).

Responses by practitioner showed 13% by lawyers, 36% by accountants and the remaining 50% by educators and others.

As can be expected, 62% of the answers were from Canadian sources and 38% from American. Since more questionnaire's were sent to Canadians, this is to be expected. Looking at these on a relative basis, 128 of a possible 200 replies were received from U.S. institutions (64%) while 209 of a possible 951 (21.98%) were received from Canadian Institutions. The statistics are closer if we strictly look at educators responses from both countries.

Viewing the issue of size in relation to responses, educational institutions represent 47%, while large partnerships were the next highest at 29%. The nature of the tax profession dictates that it be unincorporated. Within the unincorporated businesses it was expected that the smaller firms could not afford the luxury of a tax specialist. This seems to be confirmed by the number of respondents, although this inference is not one based on sound testing since the study did not use this criteria as a specifically important piece of information for analysis.

Finally, 53% of responses were from the professions and 47% were from educational institutions. This facilitates a good sampling for comparative purposes.

### Analysis of Questionnaire Responses

The questionnaire is broken down into two main categories for analysis (see Tables 3 and 4 for this breakdown). These categories look at the basic tools for Taxation. The question posed is what types of information should be taught to students in Taxation. That is, should we be spending more time on problem identification, etc.? The questionnaire was pretested using respondents from academia and practice.

The main topic in this section was to get a consensus on the types of topics that would be most beneficial for students and others to learn in Taxation courses.

The second section poses the question: given that we know what should be taught, how should we teach it? The point being made is whether there is a right and wrong way to teach the material and furthermore, whether there is a good, better, or best approach to teaching the material. One can argue that it depends on the specific items that are being taught. This study is trying to establish what acceptable approaches are available, in general. Then the problem of matching techniques to information can be handled.

Table 3 is an analysis of responses to specific questions on what tools should be taught. Most respondents agree that "Familiarization with the Tax Act" is very important. The responses show a unanimous agreement as to its acceptability. The topic of "Use of Interpretation Bulletins and Information Circulars" did not receive the same strong affirmative vote, but a majority of respondents felt it should be taught. The use of court cases in tax analysis also received a strong affirmative vote ( $60.67 + 26.97 = 87.64$ ) although not quite as strong as question (i).

Other areas felt to be of major importance for the student to learn were "Problem Identification" and the basic knowledge of how to "Research a Tax Problem". These areas received definite positive answers from at least 85% of respondents, with at least 65% strongly agreeing with their use.

The next or intermediate category of responses contains the results of three more questions. This category represents the situation where approximately 30% of respondents strongly agree and at least another 30% moderately agree with teaching these tools to students. These questions are:

- (iv) Teaching the use of a Professional Tax Service (i.e. DeBoo, or C.C.H. or Prentice-Hall)
- (vi) The analysis of specific tax provisions
- (vii) The use of tax provisions in Tax Planning.

T 3  
Response Rate (%)  
Re: Tools that should be taught

Question	Strongly Agree (5)	Moderately Agree (4)	Neutral (3)	Moderately Disagree (2)	Strongly Disagree (1)	Other	Mean	Median
Tools that should be taught in university are:								
(i) Familiarization with the Act	82.22	15.56	0.0	0.0	2.2	0.0	4.76	5.0
(ii) Use of I.T. and I.C. Bulletins	51.11	33.33	4.44	7.78	3.33	0.0	4.21	5.0
(iii) Use of Court Cases	60.67	26.97	3.37	4.49	3.37	1.12	4.40	5.0
(iv) Use of Professional Tax Service	47.19	32.58	7.87	5.62	6.74	0.0	4.08	4.0
(v) Problem I.D.	64.04	25.84	2.25	5.62	2.25	0.0	4.44	5.0
(vi) Specific Provisions	37.08	35.96	14.61	7.87	4.49	0.0	3.93	4.0
(vii) Use of Provisions in Tax Planning	29.21	48.31	11.24	5.62	4.49	1.12	3.96	4.0
(viii) Tax Avoidance Techniques	12.36	26.97	23.60	20.22	16.85	0.0	2.98	3.0
(ix) Tax Shelters	15.56	30.00	23.33	17.78	13.33	0.0	3.17	3.0
(x) Completion of Personal Returns	30.00	24.44	14.44	13.33	17.78	0.0	3.36	4.0
(xi) Completion of Corporate Returns	27.78	26.67	14.44	12.22	18.89	0.0	3.32	4.0
(xii) Tax Research Techniques	66.67	25.56	1.11	3.33	3.33	0.0	4.49	5.0

Interestingly enough responses were mixed for these questions between "strongly agree" and "moderately agree", indicating that respondents had mixed emotions whether these elements should be given major attention when taught. Of special note is the fact that question (vi) relating to the teaching of specific tax provisions was not given an overwhelming stamp of approval. That is, most Tax courses in Canada and the U.S. for decades have emphasized the teaching of specific tax laws.

All respondents felt that familiarization with the Tax Act was of major importance in learning Taxation skills. In conjunction with traditional material taught in Tax courses in the past and present the responses to questions (ii), (x) and (xi) are important. These questions look at traditional teaching material like the use of Interpretation Bulletins, etc. produced by the Government, the completion of a basic personal tax return and the completion of corporate tax returns. In recent discussions with various C.G.A. graduates and C.M.A. graduates, it was noted that they found their in-house tax programs too subjective with not enough practical application (i.e. specifically completion of required returns). This of course could reflect the way they were taught. The responses in this questionnaire although not opposed to this view indicate a somewhat apprehensive attitude as to the overall benefits of emphasizing these areas.

The final two questions on tax material to be taught relate to the teaching of "Tax Avoidance Techniques" and the "Use of Tax Shelters". These areas were given moderate if not neutral acceptability. Since these are areas of specialized knowledge and understanding it appears to be mixed whether these should be taught at the university level of learned through experience in practice.

Table 4 is an analysis of responses to questions on Teaching Techniques. Seven main questions were given in this part dealing with the issue of how the material should be presented. The main objective of this part being that once we can determine what should be taught the question becomes what methods are best.

Of the seven questions on teaching techniques, only the identification of tax problems was given strong approval. Respondents felt that the main goal of teaching taxation is to develop the student's skills in identification of the existence of a tax problem and its main issues.

Question (i), (iv) and (vi) are next in similarity of response rate. Question (i) shows that respondents moderately agree to the study and discussion of specific provisions. In contrast, in the previous section there was overall strong approval to the study of specific provisions. A slight contrast in opinions. Questions (iv) and (vi) refer to the use of tax problem situations and cases. These two techniques are only slightly different in their characteristics. Both refer to the development of special situations for analysis and evaluation.

**Table 4**  
**Response Rate (%)**  
**Re: Teaching Techniques**

Question	Strongly Agree (5)	Moderately Agree (4)	Neutral (3)	Moderately Disagree (2)	Strongly Disagree (1)	Other	Mean	Median
Teaching Techniques that should be used:								
(i) Analysis of Specific Provisions	57.78	28.89	5.56	4.44	2.22	1.11	4.39	5.0
(ii) Analysis of Court Proceedings	14.44	31.11	14.44	27.78	12.22	0.0	3.08	3.0
(iii) Analysis of Court Decisions	38.89	45.56	7.78	3.33	4.44	0.0	4.11	4.0
(iv) Analysis of Tax Problem Situations	58.43	31.46	4.49	2.25	3.37	0.0	4.39	5.0
(v) Identification of Tax Problems	72.22	21.11	2.22	2.22	2.22	0.0	4.59	5.0
(vi) Case Approach for Decision Making	53.33	28.89	8.89	5.56	1.11	2.22	4.34	5.0
(vii) Specific Problem Calculations	34.44	23.33	17.78	14.44	8.89	1.11	3.63	4.0

The use of specific problems with basic calculations was given moderate acceptance. That is, one must give the standard time to ensure that the basic calculations are known by students. Finally, the study of course decisions in tax education (Question (iii)) was considered to be important although the study of court proceedings (Question ii)) was not considered relevant. This comparison indicates that respondents feel the results of cases and judges' comments were of importance to students in the understanding of laws whereas the analysis of course proceedings were not considered important.

### Summary and Conclusions

The analysis given in this paper represents a preliminary analysis of information obtained in the study. More detailed statistical results and inferences will be derived later. Table 5 represents a summary of the responses discussed in the previous section on questions posed to respondents. Of special importance is the corresponding median and mode response to each question. These two indicate the concentration of responses. In Part A there were two questions of neutral median indicating some ambivalence as far as whether these tools should be taught or not. In general, there were no significant negative responses to questions. This appears to indicate that all areas suggested are worthy of consideration. Unfortunately, this adds some difficulty to the decision as to what should and what shouldn't be taught.

On preliminary analysis, respondents as a group seemed to indicate that the following should be taught in Taxation:

- (i) Familiarization with the Act
  - (ii) Use of IT's and IC's
  - (iii) Use of court cases
  - (v) Problem Identification
- and (xii) Knowledge of tax research techniques

Others were of lesser importance, including questions (iv), (vi), (vii), (x), and (xi).

The analysis is a basis to start from in developing material for a Tax program in the future. It is apparent that for each area, more needs to be done in developing specifics.

In part B an analysis of Teaching Techniques is made to address the question of what the most effective method would be to present these materials. Respondents felt that the following teaching techniques should be used:

- (i) Study of specific provisions of the Act
- (iii) Study of court proceedings
- (iv) Solution of tax problem situations
- (v) Identification of tax problems
- (vi) General case approach to decision making

**Table 5**  
**Summary Analysis of Responses**

Question	Opposing %	Favoring %	Median	Mode
<b>a: Tools taught:</b>				
(i) Familiarization with the Act	2.22	97.78	Strongly Agree	Strongly Agree
(ii) Use of I.T. and I.C. Bulletins	11.11	84.44	Strongly Agree	Strongly Agree
(iii) Use of Court Cases	7.87	87.64	Strongly Agree	Strongly Agree
(iv) Use of Professional Tax Service	12.36	79.78	Moderately Agree	Strongly Agree
(v) Problem I.D.	7.87	89.89	Strongly Agree	Strongly Agree
(vi) Knowledge of Specific Laws	12.36	73.03	Moderately Agree	Strongly Agree
(vii) Use of Laws in	10.11	77.53	Moderately Agree	Moderately Agree
(viii) Tax Avoidance Techniques	37.08	39.33	Neutral	Moderately Agree
(ix) Tax Shelters	31.11	45.56	Neutral	Moderately Agree
(x) Completion of Personal Returns	31.11	54.44	Moderately Agree	Strongly Agree
(xi) Completion of Corporate Returns	31.11	54.44	Moderately Agree	Strongly Agree
(xii) Tax Research Techniques	6.67	92.22	Strongly Agree	Strongly Agree
<b>b: Teaching Techniques:</b>				
(i) Study of Specific Provisions	6.67	86.67	Strongly Agree	Strongly Agree
(ii) Study of Court Proceedings	40.00	45.56	Neutral	Moderately Agree
(iii) Study of Court Decisions	7.78	84.44	Moderately Agree	Moderately Agree
(iv) Solution of Tax Problem Situations	5.62	89.89	Strongly Agree	Strongly Agree
(v) Identification of Tax Problems	4.44	93.33	Strongly Agree	Strongly Agree
(vi) Case Approach for Decision Making	6.67	82.22	Strongly Agree	Strongly Agree
(vii) Specific Problem Calculations	23.33	57.78	Moderately Agree	Strongly Agree

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**A COMMENTARY ON**

**HOW MANY COST SYSTEMS DO YOU NEED?**

**BY**

**ROBERT S. KAPLAN**

**Prepared for:**

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Hamilton, Ontario**

**Revised**

**Anthony A. Atkinson  
School of Business Administration  
Dalhousie University  
Halifax, Nova Scotia  
B3H 1Z5**

**SUMMARY:**

The purpose of **HOW MANY COST SYSTEMS DO YOU NEED?** is to argue that there are three distinct roles for cost systems and that a single cost system, particularly a cost system designed primarily to provide inventory valuations for financial accounting, cannot serve all three purposes.

After describing the nature of the conflicting demands that each of the uses of cost information place on costing systems, as well as the consequences of these demands, the paper goes on to describe the basic nature of the cost systems that will be required to satisfy these demands.

The paper begins by arguing that there are three roles<sup>1</sup> for cost systems in organizations

- (1) to provide inventory valuations for financial accounting purposes,
- (2) to provide for performance measurements as part of the firm's ongoing control process, and
- (3) to provide cost estimates for the purpose of determining the economic efficacy of individual products.

The process of argument is as follows:

since

- (1) the attributes of costing for financial accounting purposes are fundamentally different from the attributes of costing for performance evaluation and product costing purposes

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<sup>1</sup> Elsewhere, (in **Relevance Lost: The Rise and Fall of Management Accounting**, Harvard Business School Press, Boston, 1987) Bob, with H.T. Johnson, has argued that there is a fourth role for costing systems, which is to support special cost studies. Perhaps since the demands that special cost studies place on costing systems are so unpredictable, Bob has ignored this demand in this paper. This is most unfortunate since, in my experience, it has been these special studies that often highlight the failings of contemporary costing systems.

and since

- (2) for various reasons (which are primarily financial, computational, and behavioural) firms inevitably insist on using only one costing system,

and since

- (3) when trade-offs between the needs of the various users of a single costing system are made, the needs of financial accounting will always dominate

therefore

- (4) costing systems that are in place are designed to serve financial accounting purposes

and therefore

- (5) costing systems will not adequately serve the performance evaluation and product costing demands of organizations.

The balance of the paper is concerned with supporting this line of argument, and particularly with establishing point (1) (that the attributes of the alternative costing needs are fundamentally different).

The line of reasoning that is used to establish the conflicting natures of the three demands on costing systems is to argue that the needs of inventory valuation, performance evaluation, and product costing differ substantially along the lines of:

- (1) the timeliness cycle,
- (2) the scope of the required costing system,
- (3) the requirement to understand the nature of the underlying cost behaviour, and
- (4) the objectivity required to be built into the costing system.

The paper is indecisive in specifying the consequence of these differences. On the one hand, page 24 states that "no single (costing) system will likely be adequate." On the other hand, there is an implication, throughout the paper, that perhaps a general purpose database, reflecting the lowest common

denominator requirement of each of these three systems, can be designed that, with embellishments, can serve the three different demands for costing by providing different reports reflecting the perspectives and requirements of each demand.

## COMMENTARY

I have two sets of comments on this paper. One set relates to the nature of the argument that is used in the paper and the other set relates to other considerations that are not dealt with specifically in the paper.

### I. The Nature of the Argument Presented

Bob has put most of the effort in this paper into supporting premise 1 of his argument. I think that this is reasonable. I also believe that given items 1, 2, and 3, items 4 and 5 follow directly. The issue, then, is whether items 1, 2, and 3 are presented with a force that is persuasive.

Since Bob has ignored 2 and 3, let me comment on these briefly. I have found item 2 to be true and its truth continues to amaze me. Given the widespread use of computers in planning and financial analysis, process control computers that can (and do) capture production data, practical database systems, and the training in general management, to which the designers of costing systems have been exposed, it is puzzling that I have yet<sup>2</sup> to encounter a single company that uses more than one formal costing system. The argument that is usually used is that cost systems used for performance evaluation and product costing may, in the case of performance evaluation systems, contain non-financial data (particularly production statistics such as yields, setups, and quality measures) or, in the case of product costing systems, require joint cost allocations that are either arbitrary or that include non-financial costs (particularly opportunity costs). The argument is, implicitly, that people only trust, even for internal purposes, the firm's formal financial accounting system (which is said to contain only hard numbers). This functional fixation with the process of financial accounting, and the mistaken belief that this information is economically relevant, is a burden that continues to suppress and inhibit developments in management accounting.

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<sup>2</sup> In every company that I have visited in the last five years, the production personnel maintained their own production reporting system, which operated independently of the formal costing system, and which they actually used to control the production operations.

Item 3, the assertion that, when trade-offs are made, the needs of financial accounting will dominate the choice of a costing system, is an assertion I regard as true on the basis of my experiences doing case studies. I think that there are a number of reasons for this, the most important reason being that it is usually the financial accountants who design the costing systems. In addition, the statutory requirements for external reporting will naturally dominate any situation where individual choice or preference would otherwise be exercised in the design of a costing system.

So we return to item 1, which I believe is the key in the argument. The question is; Is it realistic to believe that the primary uses (inventory valuation, performance evaluation, and product costing) of costing systems are so fundamentally different that we require three different costing systems to serve their needs? I believe this assertion, and for that matter, this point of view is not new in the management accounting literature.<sup>3</sup> What is incredible to me is that it has taken so long for the truth of this statement to be recognized more generally and practice adjusted accordingly. The fault that I find with this paper is that it does not press this conclusion further. I will return to this issue later after the points made in this paper have been considered.

Table 1 contains a summary of the conflicts between the three alternative uses of costing systems that are discussed in this paper. The implication of the paper is that these attributes of the three alternative uses of costing systems are so fundamentally different that they require different costing systems.

The contribution of this paper is that it summarizes, in a convenient way, some points that have been made piece-meal elsewhere, as well as introducing new considerations. For example, Robert Anthony has advocated that the evaluation of managerial performance be separated from the evaluation of the economic efficacy of an organization unit. This perspective is isomorphic to the issues drawn in this paper between the performance evaluation uses of costing systems and product costing uses of costing systems.

I do not feel that timeliness is a major difficulty. With some effort, the data capture and recording cycle could match the need of the lowest common denominator use of the costing system, which, as Bob has indicated, is inevitably the performance evaluation cycle. Similarly, an understanding of the underlying

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<sup>3</sup> A particularly articulate statement of this point of view can be found in *Managerial Accounting* by William J. Vatter (Prentice-Hall, 1950).

behaviour of costs, which is required for performance of evaluation and product costing, is not an anathema to inventory valuation. Most jurisdictions suggest that the reported cost should reflect, in some way, the underlying cost nature of the product. Once again, the manufacturing cost recorded for financial accounting purposes can reflect the underlying cost structure.

It is in the area of system objectivity and system scope that substantial, and possibly intractable, differences between the three alternative uses of costing systems arise. In fact, I believe that these two attributes are closely related since it is the non-financial measures (particularly production data such as yields, number of setups, and production rates and non-financial costs, such as opportunity costs) required in support of performance evaluation and product costing that conflict with the standardization and objectivity required for external reporting. However, here again it would seem that these various demands could be met from a single data base that records physical data and then aggregates this data in alternative ways to produce the reports required for the three alternative uses. This might be accomplished along the lines suggested in Table 2.

But the question of how many costing systems are required is really a question of semantics that is suggested by the title of the paper. Whether we consider a complex data base that can satisfy the needs of alternative users using a single system or whether we consider three costing systems, I feel that the point has been made that a costing system, designed exclusively to satisfy the minimal needs of inventory valuation for financial accounting, will fail to satisfy the performance evaluation and product costing demands for cost data.

## II. Considerations Not Discussed in the Paper

In contrast to my agreement with the argument in support of the conclusion that a system designed exclusively to serve the inventory costing needs of financial accounting will fail to serve the performance evaluation and product costing needs of the firm, I am concerned about some of the other issues introduced in this paper. In particular, I am concerned about:

- (a) the feasibility of the transactions based costing system implied in the paper,
- (b) whether the design and interpretation of performance evaluation systems will continue to remain within the competence of the practicing management accountant, and
- (c) whether the concept of product cost exists within the

context of a multi-product firm employing multi-purpose facilities.

**(a) The Feasibility of a Transactions Based Accounting System**

At the heart of the proposal for product costing in this paper is the concept of a transactions based costing system. This type of costing system begins by identifying all the cost drivers<sup>4</sup> (these are the factors that affect costs), both short-run and long-run, in the firm and then determines how each cost varies with each of the respective cost drivers. Once every factor affecting costs, and the behaviour of that factor's costs, has been identified, the building blocks of the costing system are in place. The product costing sequence would identify all the cost drivers (or factors) that are related to placing the product in the consumer's hands.<sup>5</sup> The individual costs required to produce the product would then be accumulated to determine the product's total cost.

I suspect that this effort may reflect a level of computational cost and analytical expertise that is beyond the capability of most firms. In fact, if we want to be very charitable about the rationale of current practice, we might argue that the seemingly ad hoc allocations of full costs (including administrative costs) that we often encounter in practice are attempts at developing cost-effective approximations of the more accurate system being recommended in this paper.

**(b) The Organizational Responsibility for the Performance Evaluation System**

My observation is that the management accountant may have already been eclipsed in the matter relating to the design and interpretation of performance evaluation systems. I suspect that, in the future, as the ratio of fixed cost to total product cost continues to increase and most production is machine, rather than labour, paced, there will be decreasing interest in the traditional flexible budget variances produced by management

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<sup>4</sup> These cost drivers would include ordering costs, freight-in costs, receiving costs, storage costs, handling costs, set-up costs, quality assurance costs, packing costs, and so on.

<sup>5</sup> Again, these cost drivers relate to all attributes of the product's delivery including: planning, manufacturing, storing, distribution, and post-sale support.

accounting.<sup>6</sup> Instead, the focus of control will be on the effective use of the capacity provided by the fixed costs of the firm. Increasing attention will be given to designing production systems and production plans. This will mean that the product costs will reflect the equipment that was used to produce the product and the production plan that scheduled the product (for example, the opportunity cost, the setup cost, and the learning effects will be determined by the production schedule).<sup>7</sup> In fact, as computer aided manufacturing (CAM) algorithms are developed to schedule multi-purpose machines in the most effective way, the systems required to control these processes may be designed simultaneously.<sup>8</sup> As a result, as production technologies and production scheduling become more complex and as relevant physical production control data, such as through-put and yield, are captured directly by machines, I wonder if management accountants will even be involved in the performance evaluation process.

We can see the leading edges of this change today if we go into any factory. As I mentioned earlier, in all of the firms that I visited in the last five years, the production personnel maintained their own production data.<sup>9</sup> The message that I got in each of these firms was virtually the same and can be summarized by the following:

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<sup>6</sup> In fact, I believe that, in most firms, the fundamental, and crucial, control points will be the capacity planning, acquisition, and utilization stages rather than the planning, acquisition, and utilization of the short-run factors of production, such as raw materials and labour.

<sup>7</sup> A subset of this idea is that many overhead costs are driven by the complexity of the production process itself. This notion is developed in "How Cost Accounting Systematically Distorts Product Costs", by R. Cooper and R.S. Kaplan, Chapter 8 in Bruns, William J. and R.S. Kaplan (editors), *Accounting and Management: Field Study Perspectives*, Boston: Harvard Business School Press, 1987. This article also points out that, by ignoring the underlying cost structure and by restricting the scope of the costs considered, product costs are often seriously mis-estimated by conventional costing systems. For example, the authors argue that cost allocations based in traditional volume measures, such as labour hours, consistently under-cost low volume products and over-cost high volume products.

<sup>8</sup> This is analogous to the computer systems that both fly, and are required to control, complex aircraft and space vehicles.

<sup>9</sup> The storage medium used varied from computers, that were operated by the production personnel, to hand posted ledgers.



"We gather our own data and operate our own production control and performance evaluation systems because the accounting people will not do it for us. The reason they usually give for not accommodating us is that what we want will not fit into the accounting system. Even if they did try to respond to our needs, they probably would not do it the way we would want it done because they usually have trouble understanding the source and nature of our requirements."

This, to me, is evidence of the serious technological gap that is opening up between the management accountant and the production people (s)he is serving. I have serious reservations whether it will be within the expertise of the management accountant to design systems to serve the needs<sup>10</sup> of production personnel in complex production environments. I believe that it is very likely that the performance evaluation use of management accounting systems will gradually be taken over by the CAM systems that design the production systems and schedule actual production.

**(c) The Nature of Cost in an Environment of Multiple Products Produced by Multi-Purpose Equipment**

A crucial component of the concept of a transactions based costing system is the idea that it is both reasonable and possible to attribute joint costs to products. Economists have been telling accountants for many years that the allocation of joint costs is a useless and arbitrary undertaking. Nevertheless, the practice continues unabated.

I agree that practitioners are interested in determining the total cost of bringing a product to the consumer and I agree that this interest may explain the preoccupation in practice with cost allocation. However, I wonder about the nature of a total cost. For example, according to the definition of product cost that is developed in the paper, product cost will depend, amongst other things, on the time that the product was produced and the production schedule itself. This means that the cost of the product can vary literally from instant to instant. As a practical matter, there is no concept of standard cost in such an environment since the production combinations affecting costs could be infinite. This is a very difficult practical

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<sup>10</sup> Continuing the illustration mentioned in footnote 8, consider the consequences of a management accountant evaluating and correcting the trajectory computed by the on-board computers of a sophisticated aircraft.

consideration.

But beyond this, there is the deeper issue of the nature of cost in a multi-product environment. The history of management accounting suggests very clearly that difficulties in management accounting began at the time that firms began to internalize externalities and the multi-function, multi-product firm evolved. To the best of my knowledge, there has never been a satisfactory costing system developed for a multi-product firm. I do not think that developing a better understanding of cost drivers will solve this problem since the heart of the problem is the enigma of jointness.

Regulators in the public utility profession have been dealing with the problem of jointness for at least all of this century. For example, in an electrical utility, we can regard the electricity that is produced at off-peak and peak as being two different, but joint, products. The economic principle is clear, the off-peak electricity should be priced at short-run variable cost in order to encourage demand, and to maximize total welfare. However, this solution is consistently viewed as unfair, since it requires that the people who use electricity at the peak to pay all the fixed generating costs (called the demand costs). In at least eighty years of working on this problem there has been no solution relating to the problem of how to allocate the joint cost of the generating capacity to the peak and off-peak users of electricity in a way that is both meaningful and defensible.

An important concept in the analysis of product cost is what Bob calls his Rule of 1. As I understand it, this rule says that if there is more than one unit of an input factor used in the production process, then the total cost of that input factor is a variable cost. Even if the Rule of 1 is true, its truth not necessarily sufficient to determine a product cost since the ability to compute a variable cost is not always sufficient to determine product cost. For example, we can compute the total cost of acquiring and refining a batch of crude oil. Most of this total cost is probably variable with respect to the number of barrels of crude oil refined, which is what the Rule of 1 predicts. But this result does not allow us to compute the cost of a litre of aviation fuel, a litre of gasoline, a litre of kerosene, or the cost of any of the other joint products that are produced when a barrel of crude oil is refined. The Rule of 1 certainly helps with the attribution of costs to cost pools but, as suggested by this example and the example of costing peak and off-peak electricity, the Rule of 1 does not solve the problem of distributing joint costs from the cost pools to the individual products. The key is the nature of the variability of the product cost. If the application of the Rule of 1 identifies a cost as being variable with respect to the number of units of a particular product being produced, then we can compute the

product cost. However, if the Rule of 1 identifies a cost as being variable with respect to the number of batches of joint products being produced, we cannot compute the product cost until we deal with the problem of the variable cost that is joint to several different products.

This is a deep and important issue. If the allocation of joint cost is arbitrary, then we have accomplished nothing in computing the total product cost. Any allocation will do since all allocations are equally arbitrary. So a full cost system requires that we come up with some rational and persuasive means to allocate joint costs. If this cannot be done, the notion of full cost fails the test of legitimacy and we are left to discover some alternative method of evaluating product profitability.

I do not believe that a satisfactory means to allocate joint costs to individual products will be found. In fact, I do not believe that the concept of the cost of an individual product is either definable, or relevant, in any situation involving joint products. As a result, I do believe in the concept of full product cost that is developed in this paper. Therefore, I do not believe that a decision-maker can make any product decision, in a multi-product firm, on a stand-alone basis<sup>11</sup>. That is, the cost of a product must always be computed relative to the production possibilities of other products. On other words, we cannot evaluate the profitability of a single product in a joint cost firm. We can only evaluate the profitability of a set of products.

On the other hand, the concept of full product cost that is considered in this paper does not necessarily require the allocation of joint costs as this paper seems to imply. Full cost in a product costing environment may mean short-run out-of-pocket costs plus an opportunity cost to reflect the cost of using long-run capacity. However, this does mean that the concept of a single long-run marginal cost for a product is meaningless. Since the total product cost can change constantly, the notion of a varying long-run marginal cost has important implications for planning. For example, this phenomenon may

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<sup>11</sup> Note that the problem of dealing with a joint cost appears in situations where production is: in fixed proportions (as in the case of processing a chicken), in variable proportions (as in the case of refining a barrel of crude oil), and in the case where the same equipment is used to produce different products (as in the case where a multi-purpose packaging line is used to package different products). A special instance of the last case, occurs when capacity is acquired to produce products over several years. This is the depreciation problem, which is the quintessential joint cost problem.

explain why many products are never dropped and are carried from year to year in a company's catalog of products.

## CONCLUSION

I am delighted to see such a well organized attack on the myth that financial accounting can, with suitable accommodation, serve the managerial needs for performance evaluation and product costing data. The idea that financial accounting, which is organized to serve outside reporting interests, can, coincidentally, satisfy the information needs of operating managers has been responsible for the systematic irrelevance of so-called management accounting reports for many years. In fact, I am somewhat disappointed that the paper did not express Bob's proposal, which he has expressed elsewhere, that the management accounting and financial accounting functions in firms be divorced entirely. Therefore, I agree with the major conclusion of the paper that separate systems will be required for financial accounting, performance evaluation, and product costing.

My differences with the paper relate to the commonality of these systems. Bob has expressed a much closer commonality than I believe exists. I feel that the design and interpretation of performance evaluation systems have been de facto, and will soon be formally, removed from the responsibility of the management accountant. I believe that, in the future, performance standards will be so intimately related to the production process and the production schedule itself that the notion of standards and third party interpretation will no longer be relevant. I agree with the conclusion that the performance evaluation demand for cost information is not well served by a costing system that reflects the biases of financial accounting. However, I do not share the confidence expressed in the paper, that the management accountant will bear the primary responsibility for designing performance evaluation systems, even if management accountants recognize that they cannot serve the performance evaluation demand for costing systems with a system that is designed to provide inventory total for financial accounting.

I do not believe in the notion of a stand alone product cost in a multi-product firm. I believe that the cost to the firm of producing a product reflects both out-of-pocket and opportunity costs. As a result, I believe there is no such concept of a single long-run marginal cost. Therefore, I believe that it is not reasonable to evaluate the profitability of a single product without reference to the set of products produced by the firm. However, this observation does not diminish the point of this paper which is that the product costing decision cannot be served by a costing system designed primarily to serve financial accounting needs.

TABLE 1

## A SUMMARY OF THE ATTRIBUTES OF ALTERNATIVE USES OF COSTING SYSTEMS

Costing System Attribute -----	Inventory Valuation -----	Performance Evaluation -----	Product Costing -----
timeliness cycle	annual	timed to production control cycle which may be any interval	periodic, usually annual
system scope	includes only manufacturing costs	includes all costs directly attributable to the responsibility unit and may include non- financial items and non- historical costs	includes all costs, both attributable and joint, and historical and non-historical (opportunity costs) that are deemed to relate to the product
understanding of underlying cost behaviour (the cost drivers)	not essential but implied as desirable (see, section 3030 of the CICA handbook and the CASB's pre-occupation with causality)	yes, usually required by the process of attribution and to facilitate control	yes
required system objectivity	yes, in the sense of being easy to use and capable of being replicated by an outsider	yes, particularly in the sense of being perceived as fair	no

TABLE 2

## A COMPONENT MULTI-PURPOSE COSTING SYSTEM

Cost driver (causality based) cost accounting system with a cycle time based on the requirements of the performance evaluation system. Out of the total product cost, which includes both short-run and long-run manufacturing and non-manufacturing costs, the system would segregate short-run variable manufacturing cost.

short-run variable manufacturing costs of producing the product	short-run variable manufacturing costs of producing the product	short-run variable manufacturing costs of producing the product
+	+	+
allocations of the joint manufacturing cost deemed to relate to the product (these are not required in a direct costing system)	short-run attributable and controllable fixed costs associated with the responsibility unit	short-run variable non-manufacturing costs of producing the product
-	+	+
financial accounting inventory cost	other non-financial indicators relating to performance (such as yields, number of setups, number of products produced, product quality measures, production timeliness, and production rates)	separable fixed costs, both short and long-run attributable to the product (this may include opportunity costs)
	+	+
	budgets, standards and performance targets	allocated joint costs, including manufacturing, marketing, distribution, administrative, financial, and other deemed related costs attributable to the product (this may include opportunity costs)
	-	-
	performance evaluation report	
		product cost report

Teaching Accounting Theory In An Intermediate Accounting Course

Presentation By

Carol E. Dilworth

To The

Canadian Academic Accounting Association

On June 4, 1987

A year ago one of my colleagues and I were given the opportunity to redesign the University of Toronto's undergraduate intermediate financial accounting course. This is an eight-month course given in the third year; students have one full year of introductory financial accounting as background. The introductory course has been (until this year) a very traditional one - instruction in bookkeeping followed by a chapter per week on individual assets, liabilities, revenues and expenses, with one chapter or less devoted to concepts. The course enrolment traditionally starts at 350, with 275 writing the final exam. According to the student opinion survey, all the students are taking this course to fulfill the requirements of a professional accounting body. We have 7 sections taught at 2 campuses, meeting for 2 hours per week.

If each person here today were to outline his/her objectives for an intermediate accounting course we would probably have at least as many opinions as there are bodies, and all would be valid. What I would like to do this morning is to briefly describe what we decided our particular objectives were, how

we set about fulfilling them, and how we feel a year later.

We started by identifying a group of skills we would like our students to feel they could use with some degree of confidence by the end of the course. This included the ability to analyze a situation rather than take what was presented at face value, to apply judgement to the analysis, to make a firm selection among alternatives, and to communicate the analysis and conclusions clearly. We also wanted students to feel comfortable doing library research and we wanted them to be able to teach themselves. The acquisition of technical knowledge is important but given our time constraints, we felt that this was an aspect we could delegate to the students. This would leave more class time for the analytical/judgemental skill development.

The teaching materials we used were a text, the C.I.C.A. Handbook and a package of readings from current literature, as well as cases developed by ourselves. The students were required to hand in a total of 16 technical and case assignments and an essay. There were 2 midterms and a final exam.

We were concerned that many students complete an introductory financial accounting course thinking that there is one "correct" set of financial statements so during the very first class we



introduced current cost and general price level alternatives. By the end of the third week our hope was the students realized that their first-year work was done only after choices made by them (historic cost, money, financial capital maintenance) even though they might not have been aware of it at the time.

Having introduced the idea that the financial picture presented was selected from numerous valid alternatives, we spent the next 6 weeks on accounting policy determination. We covered areas included in the Handbook (eg. inventory and fixed assets), areas which are not as clearly set out (eg. treatment of software development costs) and areas which are evolving (eg. swaps). There was virtually no lecturing done during these weeks; class time was spent on case discussion (2 or 3 per class), tying in theory and pronouncements to situations where there was bias in the choice and conflict among objectives or parties. The move from less in-class instruction to more case discussion was initiated by us because of the feedback we were getting from fourth year instructors, from our graduates and from the public accounting firms which indicated that students finishing our course were weak in case analysis. Previously cases had been scattered throughout the course and it appeared that they weren't having sufficient impact.

We then exposed students even more to the complexities represented by financial statements by having them prepare very difficult statements of changes in financial position to dig out the cash impact of a transaction.

By this point it was the end of January and the classes had had very little technical leaning. Some technical areas are difficult enough that we felt some class time should be devoted to them, and we spent the rest of the course covering intercorporate investments, foreign currency translation, pensions, leases and tax allocation. We continued to use case discussion, although to a lesser extent, and we presented alternatives (eg. push-down accounting, partial allocation).

So what was the outcome? Well, we had 275 successful candidates whose case writing skills, we feel, were stronger from the first midterm (in November) than we had seen in previous years. The librarians and our discussions with students indicated that they did substantial research for the essay. On the negative side, we may have been a little too ambitious in our expectations of what the students could/would absorb through self-study. The assignments and test revealed some weakness in understanding of the theory and awareness of G.A.A.P. The in-class experience was more difficult for all of us compared to lecturing, especially with classes of 50. And it was a very heavy course for the students.

Our plan is to retain our method of teaching the course but to reduce our expectations of the amount of technical material students should acquire. For example, we plan to leave foreign

currency translation to the advanced course and to reduce the detail on consolidations. We just tried to do a little too much a little too fast. We will be anxious to hear from our colleagues and our former students how they subsequently performed and felt about the course. We are also most anxious to receive suggestions from you. Thank you.

## University of Toronto

Commerce 320Y  
Financial Accounting Theory and Policy  
1986-1987

Course Coordinators: J.E.D. Conrod  
C.E. Dilworth

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Objectives

The main objective of Com 320 is to provide the student with an understanding of the framework of corporate financial reporting. In order to achieve this objective, it is necessary to develop technical competence and an understanding of the theoretical issues underlying a given area. It is also necessary to understand the implicit interrelationships between various issues. Generally Accepted Accounting Principles (GAAP) are reviewed, critically, as authoritative guidelines which must be responsive to the financial accounting environment and potential changes in it.

Required Course Material

Intermediate Accounting Crandall, Robert H. and Cohrs, Joan W., Prentice-Hall Canada Inc. (1986) (CC)

CICA Handbook The Canadian Institute of Chartered Accountants, Toronto (CICA)

COM 320Y Case Book (1986-1987) (CB)

The textbook is available in the University Bookstore; the CICA Handbook and COM 320 Case Book will be sold through the Commerce Students Association/Commerce Association of Students at Erindale.

Supplementary Readings

Students wishing extra reading material will find Accounting Principles: A Canadian Viewpoint (R.M. Skinner, Canadian Institute of Chartered Accountants) helpful for theoretical issues. Supplementary reading for other areas can be found in Intermediate Accounting, Fourth Canadian Edition (Mosich, Larsen, Lam & Johnston, McGraw Hill Ryerson).

### Reference Material

Many journals are published by professional and academic accounting groups. Many of these, as well as books on accounting theory and practice, and copies of annual reports, are located in the University libraries, including Sigmund Samuel, Robarts and the Faculty of Management Studies. The public library at Yonge and Bloor and the City Hall Library both have useful collections.

Good reference sources are: The Accountants Index, the Business Periodicals Index and Financial Reporting in Canada, CICA, Toronto

### Format

The theory, objectives, uses and limitations of corporate financial accounting are examined by use of readings, lectures, technical problems, cases, and a term paper. Required readings are to be completed before the session to which they relate.

The classroom approach to the material depends on the nature of the topic under consideration, and thus class activities will change from session to session. Some of the material is best presented by lecture, some by solving technical problems, and some by class discussion of case material. Students are expected to adapt accordingly.

### Mark Allocation

Final examination	30%
Term tests, 2 @ 15%	30%
Cases (7)	17%
Term paper	15%
Technical assignments (best 8 of 9)	8%
	<u>100%</u>

### Final Examination

The final examination is held in the scheduled examination period following the end of classes and will be three hours long. Forty percent of the value will be allocated to material covered since the second term test, the remainder will be on material covered previously. The focus will be on integration of common themes and concepts.

### Term Tests

The first term test will be held on Monday, November 10, 1986, 6:30 - 8:30 p.m.; the second on Monday, February 2, 1987, 6:30-8:30 p.m. All sections will write the same test. The results will be reported at the next class session. The first test covers material from weeks 1 - 8; the second covers material from

weeks 10 -17. Students are reminded that some degree of overlap is inevitable on the second test as common themes run through the course. The tests will reflect the nature of the material coverage; for example, it would be logical to expect case material on Term Test #1, since material in the Accounting Policy area is heavily case oriented.

### Cases

Cases are relatively unstructured and nondirective simulations of real world problems. They are intended to develop skills in applying theory to practice and in communication. Students are required to hand in an analysis of 7 cases, as indicated in the outline. Cases are due the week after they are listed on the outline. Responses are limited to a maximum of three pages of typed, double spaced material, with normal margins, plus any relevant exhibits. Economy of thought will be necessary to deal with issues in the required space restrictions.

Certain topics in the course lend themselves better to case analysis than others. Accordingly, the cases are not evenly spaced over the year. Students are advised to note case due dates and plan their time accordingly. Late assignments will not be accepted.

### Technical Assignments

Assignments, 9 in total, are due the week after they are listed in the detailed course outline. The best 8 will be used in calculating an assignment grade. Late assignments will not be accepted.

### Term Paper

The Term Paper is due Friday, March 20, by 5:00 pm.

### Required

Discuss the major measurement and disclosure issues of a given topic. Include a discussion of the historical and current positions taken on the issue by the various accounting bodies, as well as your opinion on the issues.

It is intended that this paper demonstrate your ability to do research in academic journals and other sources; references to the sources from which you quote or to which you have referred should be included. The paper should also demonstrate university level literacy, and part of the grade assigned will reflect this expectation.

Each section will have a topic assigned to it by its instructor during the week of October 20.

Late papers will not be accepted. Papers will be available in the instructor's office by the end of study week following the last week of classes.

DETAILED COURSE OUTLINEWeek of:September 8

Introduction to the course; Accounting Measurement Models: Introduction

Readings:CC

Chapter 20: Price Change Accounting

September 15

Accounting Measurement Models: Asset Valuation and Income Recognition, General Price Level and Current Value Models

Readings:CB

Milburn, 'Discussion'

Discussion:CC

Question 5 page 719, Question 16 page 720, Question 18 page 721, Exercise 6 page 723

TechnicalAssignment:CC

Exercise 5, page 723

ReviewProblem:CC

Problem 1-3, Page 40 (Solution to be posted)

September 22

Accounting Measurement Models: Historical Cost Comparison and Critique

Readings:CC

Chapter 1: Review of Basic Concepts

Discussion:CC

Financial Statements of Bathurst Power and Paper Company Limited and Subsidiary Companies

Pages 81-106

CC

Problem 2 page 725

TechnicalAssignment:CC

Problems 4 and 5, pages 727-728



September 29

## Standard Setting

Readings:        CC Chapter 2: Accounting Standards  
                      CB Solomons: "The Politicization of Accounting"  
                              Zeff: "The Rise of Economic Consequences"  
                              Gibbins: "Easing the Tension Between  
    Professional Judgement and Standards"

Discussion:    CC Problem 2-5, page 76  
                      CB Pip Grants Case

Technical  
Assignment:   CC Problem 2-1, page 76

October 6

## Accounting Policy Issues

Readings:        CC Chapter 1, Review of Basic Concepts  
                              Chapter 4, Income Statements  
                      CB Accounting Theory, Skinner, No. 5,6,7  
                              CICA, Exposure Draft, "Revenue"  
                              FASB, Statement of Concepts No. 5

Discussion:    CB Plastics Ontario  
                              (concentrate on revenue recognition issues)  
                              CCB

October 13

## Accounting Policy Issues

Thanksgiving week; Monday classes will be rescheduled.

Readings:        CB Accounting Theory, Skinner, No. 8,9,10, (#9  
    and #10, summary only)  
                              Chapter 6, Inventory and Cost of Goods Sold  
                              Chapter 7, Land, Buildings and Equipment  
                              Chapter 8, Depreciation, Depletion and  
    Amortization  
                              Note: these chapters are for background and  
    review purposes only.  
                      CICA Sections 3030, 3060

Discussion        CB Printech  
                              Stafford Manufacturing Ltd.

Case  
Assignment:    CB Dennison Mills Ltd.

October 20

## Accounting Policy Issues

Readings:

<u>CB</u>	Thomas, "The FASB and the Allocation Fallacy" Amernic, "Accounting Practices in the Canadian Petroleum Industry" McCallion & Ray, "Computer Software...."
<u>CICA</u>	Section 3450

**Discussion:**      **CB**      Azzip  
Software Co. (Handout)  
Calgroup Graphics \*Optional\*

Case  
Assignment:    CB    "Oil Companies"

October 27

## Accounting Policy Issues

**Readings:**      **CB**    Wishon & Chevalier "Interest Rate Swaps: Your  
   Rate or Mine?"  
   **CC**    Chapter 12, Long Term Liabilities

**Discussion:**      **CB**      **Marvel Corporation**  
**Nova Scotia Timber Resources (Review Case)**

**Self Study:**     **CB**    Majic Corporation    (Solution will be posted)

**Case**  
**Assignment:    CB    Quiet Rest Corporation**

November 3

## Accounting Policy Issues

**Readings:**      **CICA**    Sections 3480, 3600, 1506  
                         **CB**      Note on Extraordinary Items + PPA's  
                         **CC**      Chapter 3, Balance Sheets

Discussion:      CB      BCRIC/Cons-Bathurst/TCPL  
Steep Rock Iron Mines \*Optional\*  
Atlantic Limited

**November 10**

## Test #1

November 17

## The GAAP Framework, revisited

Readings:CB

Solomons, "The FASB's Conceptual Framework:  
An Evaluation"  
Rubin, "The House of GAAP"  
Dhaliwal & Schepanski, "On the Use of  
Positive Economic Theory..."

Cash Flow Information: Introduction (to be  
continued in week 12)

Readings:CC

Chapter 18, Statement of Changes in Financial  
Position

CICA

Section 1540

Discussion:CB

Newbold Company, Working Capital and Cash  
Basis

CC

Problem 18-4

Note: Use new section 1540 format for these  
problems.

November 24

## Cash Flow Information: Complex Transactions

Readings:CC

Chapter 12, Long-Term Liabilities  
Chapter 16, Owners' Equity

Note: These chapters are assigned for  
background and review only.

Discussion:CB

Anderson Corporation  
Plainview Corporation

Note: Use new section 1540 format and the  
cash basis.

TechnicalAssignment:CB

Sodium Corporation

December 1

## Cash Flow Information (Concluded)

Continuation of November 24 material

## Disclosure Issues

Readings:     CC   Chapter 17, Earnings Per Share  
                   CB   Financial Statements of Bathurst Power  
                           FRIC, "Earnings Per Share"

Discussion:   CC   Problems 17-5 and 17-7, p. 610, 611

Case  
Assignment:   CB   Maritime Tel. and Tel.

January 5

## Disclosure Issues, (Continued)

Readings:     CB   FRIC, "Related Party Transactions"  
                           FRIC, "Segmented Information"  
                           FRIC, "Forecasts"  
                           FRIC, "Reporting the Effects of Changing  
                                   Prices"

January 12Intercorporate Investments: Valuation and  
Income Recognition

Readings:     CC   Chapter 10: Long-Term Investments

CICA   Section 3050

Discussion:   CC   Problem 5, page 391  
                   CB   Magnet Ltd.

January 19 Intercorporate Investments: Unresolved Issues

Readings: CICA Sections 1580, 3080  
CB Rosenfield and Rubin, "Minority Interest:  
 Opposing Views"  
 Sylph, "Push-Down Accounting: Is the US Lead  
 Worth Following?"

Discussion: CC Problem 6, page 392  
CB Ontario Electric Company

Case  
Assignment: CB Music Case

January 26 Intercorporate Investments: Consolidation

Readings: CC Chapter 19: Consolidated Financial Statements  
CICA Section 1600

Discussion: CB Troll Ltd.

Technical  
Assignment: CB Albatross Company

February 2 Test #2

February 9 Foreign Currency Translation

Readings: CICA Section 1650  
CB Nobes, "A Review of the Translation Debate"  
 Revsine, "The Rationale Underlying the  
 Functional Currency Choice"

Discussion: CB Adams Company  
 Data Share Ltd.

Case  
Assignment: CB Diamond Mining Ltd.

February 16 Reading Week

February 23

## Corporate Taxes: Valuation and Expense Recognition

Readings:CC  
CICA  
CB

Chapter 13: Corporate Income Taxes

Section 3470

Beechy, "Partial Allocations: Variations on a Theme"

Drummond and Wigle, "Let's Stop Taking Comprehensive Tax Allocation for Granted"

Milburn, "Comprehensive Tax Allocation: Let's Stop Taking Some Misconceptions for Granted"

Discussion:CC

Question 4, page 470

Exercise 4, page 473

Problem 12, page 480 (use Lotus 1-2-3)

Problem 13, page 480

TechnicalAssignment:CC

Problem 4, page 476

March 2

## Corporate Taxes: The Impact of Discounting

Readings:CB

Stepp, "Deferred Taxes: The Discounting Controversy"

Discussion:CC

Problem 5, page 477

Question 14, page 471

Question 18, page 472

TechnicalAssignment:CC

Problem 8, page 478

CaseAssignment:CB

Trans Union Corporation

March 9

## Pensions: Introduction

Readings:CC

Chapter 15, Pensions

CB

Lucas &amp; Hollowel, "Pension Accounting: The Liability Question"

Discussion:CCQuestion 16, Exercises 1 and 2 (p. 545, 547)  
Problem 7 (p. 552)TechnicalAssignment:CC

Problem 9 (p. 553)

March 16

## Pensions: The Canadian Position

Readings:CICA

Section 3460

CBClare, "What's New on the Menu for Pensions?"  
Santora, "Canadian vs US Pension Reporting Requirements"DiscussionCB

Nielson Ltd.

March 23

## Accounting for Leases

Readings:CC

Chapter 14, Leases pp. 483-496, 501-505

CICA

Section 3065

Discussion:CCProblem 4, page 512  
Problem 2, page 511March 30

## Accounting for Leases

DiscussionCB

Lease Problems

TechnicalAssignmentCC

Problem 10, page 514

April 6

## Course Review

CANADIAN ACADEMIC ACCOUNTING ASSOCIATION  
ANNUAL CONFERENCE, 1987  
HAMILTON, ONTARIO

J. FISHER AND E. ROUMI  
WILFRID LAURIER UNIVERSITY  
WATERLOO

The Impact of Size on the Management of and  
Accounting for Research and Development Activities

Accountability and the Size Criterion

The duty of a company to be accountable to its members has not been seriously challenged in the literature, in fact much has been written both by individuals and by professional bodies as to how the accountability mechanism can be made more effective. The CICA study Corporate Reporting: Its Future Evolution<sup>1</sup> opines that "a considerable amount of dissatisfaction has been building up in Canada about the adequacy of Canadian accounting standards. Many people in the profession, and outside it, believe that there is insufficient financial disclosure by public companies in many areas ... Many people believe that the measurement standards that have been developed to deal with matters such as deferred taxes, and foreign currency translation are unsatisfactory."

The U.K. authors of The Corporate Report<sup>2</sup> also consider that "there is an implicit responsibility to report (whether or not required by law or regulation) incumbent on every economic entity whose size or format renders it significant."

In the United States the SEC in their Staff Report on Corporate Accountability (1980) expressed the view that "there is a breakdown in the corporate accountability process. The corporate accountability system as a whole needs strengthening."<sup>3</sup>

The above quotations would suggest that there is perhaps some confusion between the ideas of the disclosure of information, corporate social responsibility, and corporate accountability.

Tricker in his article "Corporate Responsibility, Institutional Governance, and the Roles of Accounting Standards"<sup>4</sup> describes the disclosure of information as being essentially an ex-gratia act by those with knowledge to convey information to others. The intention may be to orientate, motivate, or create a climate of understanding, acceptance or involvement, or to reach a consensus between conflicting views but it is not an act of accountability. Similarly although corporate social responsibility involves the exercise of good practice it too is essentially discretionary. The concept of accountability is a broad one which involves a requirement to give an account of actions taken, and one which embraces the notion of legitimacy. It is not discretionary, and involves more than a reporting of what has been done, it includes a requirement to say why it has been done, and to give an account of the actions taken.

<sup>1</sup> CICA. Corporate Reporting: Its Future Evolution. CICA Toronto 1980.

<sup>2</sup> Accounting Standards Committee (U.K.) The Corporate Report, ASC, 1976.

<sup>3</sup> SEC - Staff Report on Corporate Accountability - SEC, 1980.

<sup>4</sup> Tricker, R.I. "Corporate Responsibility, Institutional and Roles of Accounting Standards", Accounting Standards Setting: An International Perspective, Bromwich and Hopwood (Eds.), Pitman, London 1983.



The accountability that a company owes to any party must therefore be based on a clear relationship involving the right to demand accountability on the one hand and the duty to be held accountable on the other. If corporate accountability is to be more precise and meaningful we must consider such questions as: To whom is the company accountable? For what? By what mechanisms can corporate accountability be satisfied? and, Does accountability vary according to type or other dimension such as size, of the company concerned?

Since any standard cannot apply to all enterprises and all situations with equal relevance, some degree of dysfunctional accounting must occur, and it should be recognized that there may be situations in which for justifiable reasons accounting standard practices are not strictly applicable. In addition certain standard practices have been on the books for many years, and inevitably modifications to these practices are becoming necessary as we become more aware of the accountability requirements of users, and of the various managerial procedures applied. It follows, therefore, that corporate accountability should perhaps be defined in terms of accountability that is specific and bounded, and this in turn raises such questions as should there be different standards of accountability for particular industrial classification and should standards of accountability apply to only certain classes or size of enterprise.

There is already evidence of discrimination in disclosure based on size in the CICA Handbook Section 4510 when companies are required to make certain minimum disclosures whilst Reporting the Effects of Changing Prices. In this case the size criterion deals with inventories, and total assets and are applied to enterprises with publicly traded debt or equity securities. On the international scene further examples of discrimination based on size include the EEC 4th Directive which limits the amount of financial information to be given by medium and small companies. In the UK the standard on earnings per share applies only to listed companies, the standard on source and application of funds applies only to enterprises with sales of more than £25,000, and the standard on current cost accounting was only to apply to listed and larger undertakings. A similar pattern of discrimination can be observed in the USA where FAS 33 on changing prices applies only to large listed companies. At first glance such size discriminations appear to be concerned merely with disclosure and have little reference to measurement standards. This however is not entirely the case and the furor in the United States concerning FASB Standards for Oil & Gas Accounting, and Foreign Currency Translation emphasized the concern also with standards of measurement, not just disclosure.

As a practical matter though the laws in society pertaining to companies and standard practices already discriminate between business invariably on the basis of size, and that this discrimination can logically be expected to extend more and more to measurement standards in accounting. If we accept that we live in an increasingly aggressive and questioning society then there will be further calls for a review of corporate accountability. It is therefore possible that certain accounting standards in the future will discriminate between enterprises on the grounds of accountability with some measurement standards being confined to large enterprises and others directed towards small and medium sized entities.

## Research and Development Activities

Against this background let us look at the question of the management of and accounting for Research and Development activities. The research and development that is conducted by a company is often viewed by management as a form of long-term investment decision, which commits a business to a course of action that limits the scope of future decisions just as much as does an investment in plant machinery and equipment. Because of the measurement problem arising from the uncertainty of the outcome of research expenditures, most accounting techniques are directed towards efforts to plan and control research costs. There is a tendency to accept the proposition that it is not possible to defer research costs and that it is acceptable procedure to charge them to expense at the time incurred. This assumption however may be questioned on the grounds that broadly research costs are directed to different objectives, and the risk and uncertainty of different objectives vary.

For some activities deferral may be appropriate. In the case of fundamental research uncertainty may indeed be so great that an immediate charge of these expenditures may be appropriate. When the research effort is directed to the development of new products and new processes, however, uncertainty of outcome is considerably reduced, as such expenditures are expected to benefit future periods rather than only the current one. Because future periods are expected to be benefited, the knowledge gained is either an asset or an increase in the value of the firm as a whole. Therefore according to the matching concept the research and development costs should be capitalized and amortized over the period benefited.

The alternative to capitalization is the requirement that all research costs be expensed immediately, and this approach is consistent with traditional accounting and based somewhat on the observation that there is no causal relationship between research expenditures, and future benefits. Defendants of immediate expensing contend that from the standpoint of the income statement the amount of R&D costs charged in each accounting period would be about the same whether there is immediate expensing or capitalization accompanied by regular amortization because of the continuous nature of most companies' research activities. To counter this argument supporters of the capitalization approach suggest that the balance sheet should report an asset. Because of these uncertainties, the accounting profession, in attempting to standardize and simplify accounting practice in this area, has had to make tradeoffs amongst relevance, reliability and benefit cost considerations.

To differentiate research and development costs from each other and from other similar costs, the Canadian Institute of Chartered Accountants issued the following definitions. (Section 3450)<sup>5</sup>

Research is planned investigation undertaken with the hope of gaining new scientific or technical knowledge and understanding. Such investigation may or may not be directed towards a specific practical aim or application.

Development is the translation of research findings or other knowledge into a plan or design for new or substantially improved materials, devices, products, processes, systems, or services prior to the commencement of commercial production or use.

<sup>5</sup> CICA. "Research and Development Costs", Accounting Recommendations Section 3450, September 1985.

Although the classification of an expenditure as either research or development often depends on the type of business, its organization, and the type of project undertaken, a 1984 analysis of the annual reports of 325 Canadian companies in Financial Reporting in Canada<sup>6</sup> showed 18 percent of those responding referred to their accounting policy on research and development expenses to income as incurred. If the conceptual question is raised of whether all such costs should have been expensed in the periods incurred regardless of any future benefits, one would suggest that management perspectives should be taken into account. Clearly management expects to generate positive returns from R&D, and research exists in which the findings support the hypothesis that research and development does generate considerable future benefits for the firm.

Furthermore, because R&D expenditures have the characteristics of an investment, many firms when viewing such projects financially, deem it appropriate to consider a group of projects in the same terms as a portfolio of tangible investments, and to apply the tools of financial management in dealing with these projects. Investing in innovation is only one of several ways to use resources to generate wealth. As a consequence the research division must compete for a fair share of resources, and must like any other competing proposal be prepared to evaluate projects according to their product life cycles and costs, selection and evaluation, as well as budgetary control, and to be fully accountable for their decisions and actions. Conceptually then it is suggested here that if R&D expenditures have the characteristics of an asset, if they are selected, evaluated and controlled as an investment asset, and if they benefit future periods, then in economic reality they are assets in the current period.

Based on the literature review and against this background an informal a priori hypothesis can be formulated 'that in order to be accountable the management of and accounting for research and development activities may vary according to the size of the firm.'

The remainder of this paper reports part of the findings of a larger 1985-86 study of how firms based in Ontario manage, select, evaluate and account for research and development activities, and which examined the impact of size, ownership, industrial sector and product market on research and development activities. This paper will consider only the impact of size on the management and accounting for R&D.

#### Data Collection and Analysis

A mail survey of Chief Executive Officers of 300 companies in Ontario randomly selected from the population of Research and Development establishments listed in the Directory of Industrial Research and Development facilities in Canada 1985 was undertaken 25 percent of which were also listed in the Financial Post 500. The questionnaire was pre-tested and mailed together with a prepaid reply envelope, and an unmarked post card for separate return intimating that the questionnaire had been completed. Four weeks later a second mailing was carried out. A total of 80 usable questionnaires were returned (26.67%) which was adjudged to be adequate considering the nature of the questionnaire and the various demands for information that are placed upon such firms by governmental agencies and professional and academic researchers. The companies represented a cross section in terms of sales, assets, industry, research and development

<sup>6</sup> CICA. Financial Reporting in Canada, 1984. CICA Toronto 1984.

## 1. Impact of Size

The amount that an organization can afford to spend on R&D is up to a point a function of its size which can be categorized either accordingly to revenues/sales or the number of employees. In this paper it is intended to concentrate on revenues, as it was felt that it was more reliable to obtain satisfactory data on revenues than on personnel. Analysis of the data based on the categorizations of Table 2, brought forth the following results of hypothesis tests regarding the size of the firm.

As mentioned earlier t-tests and non-parametric chi-square tests were used and the significant tests are reported in the following Tables 3 through 5. Factors not included in these tables are deemed to be independent of firm size. The hypothesis tested (i.e. null hypothesis) is that size has no effect on the management of and accounting for research and development activities. That is that there is no difference between large, small and medium sized firms.

The general form of hypothesis is:

Null hypothesis:

$H_0: \mu_1 = \mu_2$ ; the means of the populations are equal  
 $H_0$ : Firms of different sizes behave similarly

The alternative hypothesis being:

$H_A: \mu_1 \neq \mu_2$ , the means of the populations are different,  
 $H_A$ : Firms of different sizes behave differently.

### (a) Small to Large (Table 3)

From the responses to Question 1.6 it would appear that there is a strong direct relationship between firm size and research and development categorization, with 75 percent of small firms describing their R&D efforts as being innovative, whereas no large companies responded in this way. On the other hand 62.5 percent of the large firms described their R&D efforts as being non-innovative and only 16.7 percent of small firms considered their projects to be in this category. Overall it would appear that the larger the firm, the higher the percentage of non-innovative R&D projects.

One accepts that it is possible that the small respondent might view the same activity as being more fundamental than does the large respondent, but the economic reality for each respondent is that for one it is highly innovative and for the other it is not.

Question 2.5 identifies a significant difference in that large firms consider last year's budget to be a very important factor in determining the size of the total R&D budget (mean 3.3750) whereas somewhat surprisingly small firms rank this factor of very low importance (mean 1.6667). When we examine Question 3.2(b) all 100 percent of the small firms look at their

activity and included a significant proportion of small and medium sized. As most firms perform their research and development activities in one province and as about 60 percent of all research and development activity takes place in Ontario, it was decided at this stage to limit the survey to firms with Ontario locations.

Since non-response bias is always a concern in mail surveys, the respondents were divided into two groups (i) early respondents and (ii) late respondents. Analysis of early respondents versus late respondents on the variables revealed that only four variables showed statistically significant differences ( $p < .05$ ) and that none of these were of major importance. Consequently non-response bias is not believed to be a major problem.

The standard measure of statistically significant differences ( $p < .05$ ) was used, and in order to determine the appropriate probability distribution when the sample size  $n$  is 30 or less the  $t$ -distribution was used, by way of the Pooled Variance Estimate to compare means of populations with a common variance, and the separate Variance Estimate where there were populations with unequal variances. In cases where there existed means from more than two populations or where the data scale was not an interval scale the chi-square test was used.

Table 1 - categorizes the respondents by the legal status of the company.

Table - 1  
Legal Status of Respondents

<u>Status</u>	<u>Number of Respondents</u>	<u>Percentage of Respondents</u>
Canadian Owned: Private Company	38	47.5
Canadian Owned: Public Company	12	15.0
Canadian Federal Crown Corporation	1	1.2
Subsidiary of Foreign Owned Company	(29)	(36.3)
: Headquarters in USA	25	31.3
: Headquarters in UK	4	5.0
	<u>80</u>	<u>100.0</u>

Table 2 - identifies the respondents according to gross revenues.

Table - 2

<u>Gross Revenues</u>	<u>Category</u>	<u>Number of Respondents</u>	<u>Percentage of Respondents</u>
< \$5 million	Small	24	30.0
\$5.01 million to \$20 million	Medium	27	33.8
> \$20.01 million	Large	29	36.2
		<u>80</u>	<u>100.0</u>

R&D projects one at a time whereas only 75 percent of large firms do so. Question 4.7(b) points to small companies on average reactivating 1.68 projects in the previous year with large companies reactivating 1.25 projects in the same period.

(b) Small to Medium (Table 4)

When we examine the responses to Question 1.6 a weak direct relationship is observed in that 75 percent of R&D projects of small firms are regarded as being highly innovative, and only 47.4 percent of R&D projects of medium firms are so ranked. Conversely only 9 percent of small firm projects are regarded as middle of the road, whereas 42.14 percent of those projects of medium sized firms are in this category. Finally 16 percent of small firm projects are deemed to be non-innovative with 10.5 percent of medium firm projects in the same category.

From Question 2.5 although both groups of respondents give importance to last year's budget as a factor which typically affects the size of the total R&D budget medium sized respondents rank this factor more highly (mean 2.5556) than do small firms (mean 1.6667). Question 2.6(a) (i) identifies a significant difference in the use of R&D support funds from provincial government sources, with 52.63 percent of small firms using such resources, whereas only 12.50 percent of medium sized firms access such support funds. In Question 3.1 89.47 percent of medium sized firms have R&D project selection techniques, compared to 58.33 percent of small firms. Similarly in Question 3.2(a) a large number of the medium sized firms (71.43%) select R&D projects from multiple proposals, whereas very few of the small firms (9.09%) do so. In Question 3.3(b) both groups consider that the availability of R&D resources is an important criterion in selecting R&D projects but this factor is given a higher importance rating by medium sized forms (means 3.8947; 3.2632).

The only aspect of the accounting and reporting treatment of R&D activities that created any significant difference concerned the identification of bases of write off of Deferred Development Costs, where 37.5 percent of small firms stated that such bases were disclosed whereas no medium sized firm made such disclosures.

(c) Medium to Large (Table 5)

Again question 1.6 identifies a strong direct relationship in that 47.4 percent of medium sized firms describe their R&D projects as being highly innovative type whereas none of the large firms does so. On the other hand 62.5 percent of the large firms consider their R&D projects as being non-innovative with 10.5 percent of the medium sized firms in the same category. Finally 37.5 percent of large firms' projects are deemed to be middle of the road, with 42.1 percent of medium firms' projects similarly categorized. When analyzing Question 3.5 it would appear that 60 percent of large firms R&D budgets are devoted to maintaining market positions, whereas only 44.4 percent of medium sized firms budgets are so devoted to this factor. The respondents to Question 4.5 points to a strong direct relationship between the size of the firm and the involvement of the research and development group in final abandonment decisions. In this

Table 3

Question No.	Question	Respondents Small-Large	Mean	Standard Deviation	Standard Error	Pooled Variance Estimate 2-tail Prob- ability	Separate Variance Estimate 2-tail Prob- ability
Section 2.5	Please rate the importance of the following factors which typically affect the size of the total R&D budget (a) Last year's budget	15 8	1.6667 3.375	.617 1.408	.159 .498	.001	.001*
Section 3.2	Are specific R&D projects selected from multiple proposals, or are they looked at one at a time? (b) One at a time (Yes/No)?	23 8	1.0000 1.2500	.000 .463	.000 .164	.012*	.170
Section 4.7	(a) Have previously shut down projects been re-activated Yes/No?	22 8	1.6818 1.25	.477 .463	.102 .164	.035*	.043
Section 1.6	Which of the following three broad categories of R&D efforts best describes your company? (a) Highly Innovative (2) Middle of the Road (3) Non-innovative	24 8	a)Significance b)Gamma Value .0010 .85542				

Table 4

Question No.	Question	Respondents Small-Medium	Mean	Standard Deviation	Standard Error	Pooled Variance Estimate 2-tail Prob- ability	Separate Variance Estimate 2-tail Prob- ability
Section 2.5	Please rate the importance of the following factors which typically affect the size of the total R&D budget (a) Last year's budget	15 18	1.6667 2.5556	.617 .856	.159 .202	.002*	.002
Section 2.6	Does your company use other R&D support funds from (a) Provincial government	19 16	1.4737 1.8750	.513 .342	.118 .085	.012*	.010
Section 3.1	Does your firm use R&D project selection techniques? (Yes/No)?	24 19	1.4167 1.1053	.504 .315	.103 .072	.024	.018*
Section 3.2	Are specific R&D projects selected from multiple proposals or are they looked at one at a time? (a) Multiple Proposals	11 14	1.9091 1.2857	.302 .469	.091 .125	.001*	.001
Section 3.3	Please rate the importance of the following criteria for selecting R&D projects in your company (b) Availability of R&D resources	19 19	3.2632 3.8947	.806 .658	.185 .151	.012*	.012
Section 5.9	(b) Does the section of the financial statements dealing with Accounting Policies disclose the basis on which amortization of Deferred Development Costs has been calculated?	16 12	1.6250 2.0000	.500 .000	.125 .000	.016*	.009
Section 1.6	Which of the following three broad categories of R&D efforts best describes your company? (a) Highly Innovative (2) Middle of the Road (3) Non-innovative	24 19	a)Significance b)Gamma Value .0338 .36296				

Table 5

Question No.	Question	Respondents Medium-Large	Mean	Standard Deviation	Standard Error	Pooled Variance Estimate 2-tail Prob- ability	Separate Variance Estimate 2-tail Prob- ability
Section 3.5	What percentage of total R&D activities is devoted to:- (a) Maintaining market positions	18 8	44.4444 60.0000	16.440 16.036	3.875 5.669	.034*	.040
Section 5.9	Does the section of the financial statements dealing with the Accounting Policies disclose: (a) The fact that amortization has been deducted in determining carrying value? (b) The basis on which amortization has been calculated?	12 3 12 3	2.0000 1.6667 2.0000 1.6667	.000 .577 .000 .577	.000 .333 .000 .333	.040* .040*	.423 .423
Section 1.6	Which of the following three broad categories of R&D efforts best describes your company? (a) Highly Innovative (2) Middle of the Road (3) Non-innovative	19 8	a)Significance b)Gamma Value .0079 .89831				
Section 4.5	Please indicate the involvement of individuals representing the following activities in the decision to (g) projects (g) R&D and Development	19 8	.0180 .87234				

case 62.5 percent of final abandonment decisions are made by representatives of the R&D function, whereas as against only 10.5 percent of medium firms. As has been found in the earlier size analyses the only significant differences in accounting treatment arose in the disclosure of accounting policies. In this area none of the medium sized firms disclosed amortization bases for deferred development costs or inclusion in carrying values whereas 33 percent of large firms did so disclose in both instances.

In concluding this analysis on size based on a revenue categorization it should be emphasized that the respondents were also categorized according to total personnel employed in Canada resulting in the following breakdown.

<u>Total Number of Employees in Canada</u>	<u>Category</u>	<u>Number of Respondents</u>	<u>Percentage</u>
< 50	Small	26	32.5
51 - 500	Medium	27	33.75
> 500	Large	27	33.75
		<u>80</u>	<u>100.00</u>

Comparisons of small to large; small to medium; and medium to large were carried out with somewhat similar results as those obtained when examining size differences based on revenues. The analysis was further extended to incorporate the crosstabulation subroutine of the Revenues and Personnel. This resulted in a highly significant (.0001) high correlation of the categorizations (Gamma Value .81567), and supports the assumption that the higher the gross revenues the higher the total personnel employed in Canada.

#### Summary and Conclusions

From this initial examination of the impact of size on the management of and accounting for R&D the findings broadly suggest that although research and development projects are selected, budgeted, evaluated, and abandoned differently by small and large companies, little variation appears in the accounting treatment and reporting of such activities in the annual report. It would appear that the accounting treatments currently in use may be ignoring both the rationale and results of R&D expenditures, and in addition fail to account for economic reality.

#### Limitations

Caution must be used in generalizing results beyond the companies included in the study. Their experiences however, can serve as a guide as to possible responses, from other companies, especially when we bear in mind that the sample was in the main randomly selected from the population of Research and Development establishments listed in the Directory of Industrial Research and Development Facilities in Canada, represented a cross section in terms of sales, assets, industry, research and development activity.

It is perhaps worth noting at this juncture the arguments of the media, politicians and Science Council that the sacrifices of Canadian taxpayers to encourage the creation and diffusion of innovation in Canada have been of little avail, and have not resulted in the expected further investment on the part of the recipients. From the data of the major study, a



regression model was developed which related net R&D expenditure to the sales of the firm, type of industry, government R&D support, and ownership. The model was tested for the years 1983, 1984 and 1985, and very tentative

and preliminary findings show that the higher the government R&D support the greater is the net R&D expenditure by the firm (i.e. Total R&D expenditure - Government Support). Holding the influence of other variables constant an increase in government assistance in turn results in an increase in the contribution made by the recipients. It would therefore appear that for the participants in this study, government assistance to industry does act as seed money, stimulating investment in innovation. Although much more analysis requires to be done the findings tend to point towards the respondents viewing their increased contribution to R&D as further investment in innovation in the expectation of future benefits.

### Implications

Based on the findings of this study it would seem that the requirement that all research costs be expensed immediately may be unduly conservative and not entirely in keeping with the management philosophy surrounding the planning and control of research and development projects especially when we compare small firms with medium and large. To treat R&D as an operating expense is to minimize its importance, and to ignore the time, effort and planning that goes into the selection, budgeting, and evaluation of research and development of projects. Investing in R&D is only one of several ways that an organization can use its funds, and therefore research management must compete for a fair share of the financial resources. In addition they must then apply the tools of financial management in monitoring and controlling the investment, and finally are held accountable for their actions. In many companies the only reason R&D expenditures take place is to benefit future time periods by generating revenues. To preclude the capitalization of all research expenditures not only removes from the balance sheet what may be the company's most valuable asset, it also fails to respond to the demands for specific accountability of economic reality.

**USE OF ACCOUNTING RATIOS ON MEASURING SUCCESS:  
THE HIGH-TECH ENTREPRENEURIAL FIRMS IN CANADA**

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by:

Farhad Simyar, Ph.D., C.P.A., C.G.A.  
Professor and Chairman of Accountancy  
Concordia University  
Montreal, Canada

and

Jérôme Doutriaux, Ph.D.  
Associate Professor of Management Science  
University of Ottawa  
Ottawa, Canada

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\* Winner of CAAA Best Paper Award for 1987.

**ABSTRACT**

High-tech companies are subject to a higher risk than other technology based firms resulting from shorter product life cycles, highly uncertain environments and severe competition due to little barriers to entry. Entrepreneurial high-tech firms are at even greater risks owing to limited or no managerial expertise. Most high-tech entrepreneurs possess technical background and have limited knowledge of accounting information system and the aids it could provide in the managerial decision process. The lack of appropriate accounting information system leads to inadequate accumulation of data, and inappropriate measurement and reporting of the results of operations used as decision aids in the managerial process. This paper investigates the qualitative and quantitative criterion, used by leading authors in the field, to measure success, particularly that of the high-tech entrepreneurial firms. The paper then proposes the use of certain accounting ratios in order to measure success and the degree of it, for a high-tech entrepreneurial firm at its early stage in life. This paper is a part of a major investigation by authors, in search of trendsetting factors which effect the success of high-tech entrepreneurial firms within the first eight years of incorporation.

One of the major findings is that profitability measures and any ratios associated with them are not reliable and do not represent a true measure of performance and has little or no correlation with other ratios. The paper also identifies whether some or all of the selected ratios explain the same or different dimension of success. The findings of this study may be used later in the project to measure and identify the impact of various element in the first eight years of operations of the firms under study in the research project.<sup>1</sup>

## INTRODUCTION

One of the strategic objectives of the Canadian government has been the development and expansion of a "High-Technology" base in Canada in order to shift the country's orientation from a natural resource base to a technology base. To this end, billions of dollars have been invested in the high-tech sector in various forms, such as research and development grants, subsidies, investment incentives, tax credits, etc. However, these investments have not been seriously followed up by researchers in order to identify the potential common elements of success and/or failure of such enterprises nor have the methods or techniques of measurement and reporting of the results been established.

High-technology based industries have not behaved according to commonly known and previously established characteristics of other classical industries developed through decades of studies and research. The short product life cycle, little or no financial entry barriers, strong and increasing competition in the international arena and the vast sums of funds spent on innovativeness and leadership in the field by the multinationals and their parent countries, have produced a highly volatile, competitive and turbulent environment for the industry. Every year hundreds of companies go into business and many others go out in the high-technology sector. It is not only the products developed in the sector which are characterized by a short life cycle, but the life of most organizations themselves are often short as well, though a few develop into corporate giants. The added salt to the injury of the complex high-tech environment is the entrepreneurship dimension.

Intensifying the complexities stated above, is the fact that often entrepreneurs lack management expertise, are poorly financed and ill equipped with strategies, do not possess clear objectives, have little or no market know-how, and last but not least, do not maintain appropriate and accurate financial records.

This paper reports the results of a preliminary analysis of a study conducted of Canadian high-tech entrepreneurial companies in an attempt to identify accounting ratios which may measure and explain the relative success of such firms during the first eight years of their start up.

## RESEARCH DESIGN

### Objectives and Literature Review

The purpose of this study is to examine the major factors influencing the success of Canadian entrepreneurial firms in "high-technology" industries. This paper will attempt to establish criterion for success through the employment of accounting tools and techniques which tends to measure success. The primary focus is on companies operating in the **micro-electronics and communications** segments in Canada which are classified as **entrepreneurial** firms.

This research project stems from a pilot study conducted by Jérôme Doutriaux (1984) in order to identify the evolution of the organization structure and growth patterns of high-tech firms in Ottawa, Canada. This study was limited in scope and sample size and involved personal interviews with a sample of 14 companies in the Ottawa area. The intention was to get enough information to design and implement a more extensive research project with broader scope and a larger sample size. The approach used in the present research is based on the findings of the pilot study and utilizes the experience gained from that experiment.

The literature on start-up and operational factors which influence the growth and development of high-tech entrepreneurial firms is relatively abundant. Rather than doing an exhaustive survey of the work done in that domain in the last decade, we summarize the findings of a few representative studies.

In a 1982 study of six Canadian firms, Litvack and Maule established that successful Canadian entrepreneurial firms concentrated their marketing efforts in those areas where they could maintain a competitive advantage. They also discovered that among the common characteristic of successful firms was: growth through acquisition, emphasis on efficiency, in-house R&D, development of products with immediate effect on sales, export marketing and financing the growth through public offering of share capital.

In a 1977 study of 250 San Francisco based companies, Cooper and Bruno established that successful entrepreneurial high-tech firms had multiple founders who's skills were complementary and provided each other with psychological support. They also found that the founders of successful firms entered markets and utilized technologies similar to their previous ones. In addition, the larger the size of founders' previous organization, the higher their success in the new organization would be.

On the other hand, Tyebjee and Bruno (1982), in their analysis of 185 California high-tech entrepreneurship companies concluded that the successful of such firms were characterized by such factors as higher degree of leverage, lower current ratio, greater number of customer accounts, and increased productivity in terms of sales per employee ratio.

Leo Weiss (1981), in his study, which was an extension of Biggadike's work (1979), compared the performance of new businesses started by entrepreneurs with those started by large corporations (i.e. Fortune 500), over their first eight years of operations. Weiss concluded that the entrepreneurial firms were significantly more successful than those started by large corporations. He suggested that the main causes of such differences are poor initial entry strategy, less effective corrective measures and poorer "weeding out", on the part of large corporations.

Dunkelberg and Cooper (1982), assessed the effect of owners background, experience and objectives of the business on the success of firms they studied. In addition they examined other factors such as initial size of the firm, its age, type of product or service, similarity of current business to owner's previous jobs, experience and education of owners and their relationship to success.

In our earlier study of 73 Canadian high-tech entrepreneurial firms, we examined the effect of background education and experience of founders and its impact on the success of such firms (Simyar and Doutriaux: 1986). The preliminary findings were that firms who had founders with financial and managerial background and education did significantly better than firms whose founders had technical and engineering background only. However, the better performance was limited to the earlier years of operation and such advantage disappeared as firms matured. (Doutriaux and Simyar: 1987).

#### Definition of Population

The companies included in this study are relatively young entrepreneurial firms which were established between 1965 and 1980.

Earlier studies have proven that entrepreneurial high-tech firms which survive the first five years of operations, are likely to survive thereafter (Roberts: 1970; Litvack and Maule: 1972; Weiss: 1981). As a result of such studies, this research has explored the performance of sample firms within the first eight years of operations. These companies were high-tech firms originated by a single or group of individual entrepreneurs as an independent new venture and not legally associated with, or equity financed by another corporation. The sample population was chosen to be firms operating in the fields of microelectronics and communications, which were involved in some degree of manufacturing activity. This study only examines the firms which were surviving in 1985. The firms which have disappeared for one or other reason are not included in the study.

#### Sample Selection and Research Methodology

A total of 508 Canadian high-tech firms from Canadian high technology, electronics, communications and R and D directories were invited to participate in the initial phase of the study by completing the short questionnaire with selected information concerning the company's origins and its current operations. Approximately 11% of the questionnaires were returned by Canada Post. Of the remaining 449 companies, 163 returned the completed questionnaire, allowing for a response rate of 32.1%.

A large percentage (67.5%) of the responding companies originated as entrepreneurial ventures. An additional 9 firms were founded as independent new ventures, but with the assistance and the financial sponsorship of another company or companies.



**Seventy-three** of these 110 entrepreneurial firms, or 66.4%, were founded between 1965 and 1980 and are currently involved in some degree of manufacturing activity. These firms therefore met the sample criteria established for the major study and were asked to participate in Stage 2 of the data collection process. The second stage attempted to gain more comprehensive and detailed information regarding the early years of the firms in this sample. Together with the data obtained in the preliminary survey, this information was used to help identify some of the variables which, alone or together, affect the dynamics of growth and prospects for success and survival of Canadian entrepreneurial high-technology firms.

#### Research Instruments

The research instrument was an 18 page questionnaire composed of 42 detailed questions and tables to be answered by the participating companies, aided by an interviewer (researchers or research assistants). The questionnaire covered the following areas, with several questions in each section for year one through year eight of operation:<sup>2</sup>

- origins and status of founders at start-up
- products and markets
- line of activity
- export activity
- personnel
- strategy
- evolution
- financial information
- critical events (mergers, major discovery, etc.)

### Characteristics of Sample

Of the 73 firms that meet the criteria for the major study, the majority (73.96%) are located in Central Canada (44 in Ontario, 10 in Quebec). Whereas 18 companies represent the Western provinces, only one is located in the Maritime region.

The average age of the entrepreneurial firms established between 1965 and 1980 is 10.84 years. One half of the companies have been in operation for at least ten years. The 6 youngest high-tech firms were established in 1980, with the 2 oldest companies starting operations in 1966.

As required by the selection criteria, all of the firms in the sample are currently involved in some degree of manufacturing activity. It is of interest to note, however, that slightly more than half of these companies manufactured during their first year of operation and that only 4 originated as strictly manufacturing firms. Designing was the most common activity of the sample firms during their first year of operation, followed by manufacturing, research and development, assembly and provision of services.

In many cases, the entrepreneurs felt that the initial product or service offered by their new venture was relatively innovative in comparison with others available on the market at the time. Forty-five percent of the sample rated their product or service as a unique innovation, while 16% classified their's as identical or very similar to existing products or services.

Over half of the firms originally entered markets that were occupied by three or fewer competitors and 20% of the total sample faced virtually no competition for their major product or service line in the company's first year of operation.

### WHAT IS SUCCESS

Earlier in this paper, we have explored various causes of success explored by researchers without defining what success means. The literature on definition of success of entrepreneurial small firms in the high-technology innovations sector is very rich and at the same time, very diversified. Success to researchers has meant various variables, each indicating a different dimension of quantitative and qualitative yardsticks of performance. Litvack and Maule (1972) view the success of an entrepreneurial high-tech firm merely as its survival after the initial five years of operations. E.B. Roberts (1970:22) states that "survival is not the same as success", he describes success as growth, sales, profitability and the like. Cooper and Bruno (1977) distinguish successful firms from the unsuccessful ones, on the basis of sales growth rate. Tyebjee and Bruno (1982) and Doutriaux (1984,1986), used the level of sales achieved as a measure of success. Leo Weiss (1981), considered four ratios to measure success. These were year-by-year comparison of sales growth ratio, profit to sales ratio, return on investment ratio and investment intensity ratios. On the other hand Dunkelberg (1982) used the growth rate in employment as a measure of success. It is apparent from the above survey that most such yardsticks of success are simple dimensional or at best non exhaustive of potential success measures. None of these researchers have gone through the trouble of using accounting ratios in a systematic and exhaustive manner to evaluate various dimensions of effectiveness and efficiency. Stuart and Abetti (1986), in their study of 24 newly created technical US ventures, have tackled the question of success in a more comprehensive

manner. They use the following four different dimensions to view success:

- 1- Subjective versus objective, i.e. judgement versus cash flow.
- 2- Bimodal, multimodal versus continuous, i.e. a yes or no category versus relative category such as return on investment.
- 3- Financial versus non-financial, i.e. profitability ratios versus contribution to society.
- 4- Meeting or not meeting expectations, i.e. expectation and goals set by management whether conservative or challenging.

In our attempt to measure "success", we have systematically and exhaustively searched for various ratios which are used in accounting and finance to measure the effectiveness and efficiency of the management of a company's balance sheet and income statement.

Financial ratios in different forms, have widely been used to judge the efficiency and effectiveness of organizations. Each ratio or a group of them tend to measure the ability of management in efficient and effective handling of resources and obligations of the organizations, therefore influencing the performance and the market value of the firm. With all the differences among the various authors of ratio analysis (for example, Sanzo: 1977, Bernstein: 1983, Gibson & Frishkoff: 1983, Foster: 1986, Whittington: 1980, Chambers: 1984, etc.), on the format, presentation and calculation of ratios, they agree on a few general categories of financial ratios. The following categories are examined here.

- 1- Short Term Liquidity Ratios; such as current ratios, turnover ratios, working capital ratios, etc.

- 2- Long Term Solvency Ratios; such as debt ratios, times fixed charges earned, etc.
- 3- Performance Ratios; such as return on investment, profitability, efficiency ratios, etc.
- 4- Asset Utilization Ratios; such as sales to assets, sales to working capital, etc.
- 5- Market Performance Measure; such as price earning ratio, yield ratio, etc.

#### PRELIMINARY FINDINGS

As mentioned in the last section, several dimensions of operations of the sample population was studied to discover their impact on the "success". Such variables are viewed as independent variables, while "success" factors, are considered dependent variables. In an earlier paper the correlation of founders background, experience and education (independent variable) with sales growth (dependent variable) was examined and reported (Simyar and Doutriaux: 1986). However, the objective of this study is to establish "success" yardsticks using accounting ratios. Future studies will measure the impact of various other dimensions of operations on the success criteria established in this paper.

We have examined the possibility of employing the traditional ratios cited above to measure the success in our study of high-tech manufacturing entrepreneurial firms. We have concluded that some of the above ratios are not suitable measures for our study, while some additional non accounting ratios are desired to better portray the performance of the companies being studied.

- 1- Short Term Liquidity Ratios. We find these ratios not useful for our purpose. The objective of the study is to measure the over all performance of the firms over span of first eight years of start-up. Thus requiring longer term performance analysis. Also lack of accounting records in early stages make it difficult to establish accurate account of current assets and liabilities.
- 2- Profitability and Performance Ratios. Profit and profitability figures are often used to measure the performance. However, in our study profit figures available to us proved to be inaccurate and we consider them unreliable. The majority of companies in our sample were not public and did not have to publish financial information and often did not keep formal accounting records. Those who had maintained financial records, did not employ generally accepted methods and most of them had inconsistent methods of handling owners' salaries, depreciation, R&D, dividends, inventories, etc. As a result we found profit and any profitability ratios to be misleading, if used for analysis and comparison. Our analysis of data also proved our hypothesis to be correct. The profit figures showed no significant correlation with other success ratios (see Table 4).
- 3- Market Performance Ratios. This set of ratios are not used in analysis for the obvious reason that most of the firms we studied, were privately owned in the first eight years of their operations.

Therefore, the only ratios from the traditional accounting ratios that we were able to use, were the long term solvency and asset utilization ratios. In addition to these sets of ratios we chose to use two employee related ratios, i.e. number of employees and their rate of growth. The model employed for our selection and analysis of the ratios to measure the efficiency and effectiveness, is presented in Exhibit One. These ratios are in terms of absolute amounts and growth percentages. Due to space limitations, we have only produced the amounts and annual growth rates of sales in Tables 1 and 2 below. The same reasons apply to the number of employees and their annual growth rates as well as total assets and their average growth rates for years 1 through 8 and from year 1 and year 2 to year 8 (defined as GSA and GSB). In the summary, this paper only reports Ratio(1) from Exhibit One (i.e. Growth in Sales: \$ and %) and the other six ratios will be reported at a later date and in a separate work. However, in Table 3, we have provided an analysis of correlation of most ratios listed in Exhibit One, at 5% and 10% significance level.

#### Sales Growth Ratios

It was hypothesized earlier that growth in sales (GS) is a dependent variable which may be a function of a number of independent variables. Among various success factors discussed earlier, such as sales per employee, asset turn over, etc., (see Exhibit One) in this analysis, the percentage growth in sales is chosen as one illustrative measure of success. To test the relationship of the independent variables with sales growth, the following variables are examined and

will be tested later against a selection of the independent variables collected in our research project.

- 1- growth in sales from year one to year two =  $GS2 = [LN(\text{year 2 sales}) - LN(\text{year 1 sales})] \times 100$
- 2- growth in sales from year 2 to year 3 =  $GS3 = [LN(\text{year 3 sales}) - LN(\text{year 2 sales})] \times 100$
- 3- growth in sales for year 3 to year 8, in the same manner as above ( $GS4, GS5, GS6, GS7, GS8$ )
- 4- growth in sales from year 1 to year 8 =  $CSA = [LN(\text{last year sales}) - LN(\text{first year sales}) / (\text{Age} - 1)] \times 100$
- 5- growth in sales from 2nd year to year 8 =  $CSB = [LN(\text{last year sales}) - LN(\text{2nd year sales}) / (\text{Age} - 2)] \times 100$

Since the data from first year may be distorted due to low sales, zero investment or late start in the year, therefore, growth in sales over year 2 ( $GSB$ ) is also calculated, which portrays a less distorted growth rate. The above format is also used for growth in assets ( $GA$ ) and growth in Employees ( $GE$ ), other measures of success indicated in Exhibit One.

#### Correlation Study of "Success" Factors

A number of measures of success have been proposed in previous sections of this paper: sales, employment and asset levels, growth in sales, employment and their ratios. These measures do not all gauge the same characteristics of the firm: volume of output, size, and manpower. A correlation analysis was performed to evaluate the similarities and differences between the proposed success criteria and assess their usefulness.



As shown in Table 3, there is a significant relationship between the annual level of sales and the level of employment, assets, and sales turnover ratios. The high level of correlation between sales and number of employees and assets is remarkable. Even if these variables do not measure exactly the same characteristics of the firm, they could be used as proxy for one another. It is interesting to note the consistently negative correlation between sales and "annual growth rate of sales per employee", an indication of diminishing returns of the manpower as the firms get larger. The lack of correlation between sales and the growth in sales per assets is difficult to interpret. It may result from the increasing differences between sample firms as they get older.

However, as the correlations of profits figures with the other proposed success measures was tested, as hypothesized earlier, very little correlation was found (see Table 4). This test, once again, proved that profit and profit related ratios are not appropriate measures of success for the type of firms under study. The reasons for shortcomings of profits figure, were cited earlier in this paper.

### SUMMARY AND CONCLUSION

The objective of this paper has been to establish a model to measure the effectiveness and efficiency of operations of Canadian entrepreneurial high-tech firms within the first eight years of their operations. Various authors have used different criteria to measure success. The model that we propose here is a comprehensive one but at the same time may not be a complete model. We find that the profit figures are not a reliable measure of success, and market value of shares and dividend information are not relevant in the case of our sample firms. Therefore, our model only includes ratios which could be calculated from sales, employee numbers and asset size. However, if other researchers find reliable profit figures, our proposed model could be easily expanded to suit their needs in the measurement of success. In our continuous efforts to measure the performance of the Canadian high-tech firms, we will complete all the ratios stated in the model and use them as criterion for measurement of success in order to investigate the variables which are cause of success. We will measure the relationship of various start-up and operational variables to the success criterion established in this paper.

**FOOTNOTES**

- 1 This research project is funded by grant from the Social Science and Humanities Research Council of Canada. The views and opinions expressed in this paper are those of the authors and not necessarily endorsed by the granting agency.

This study owes much to the hard work and dedication of Colleen Bigelow, B.A., M.B.A.

- 2 If a company was in operation for less than eight years, the questions were to be answered for year one through current year.

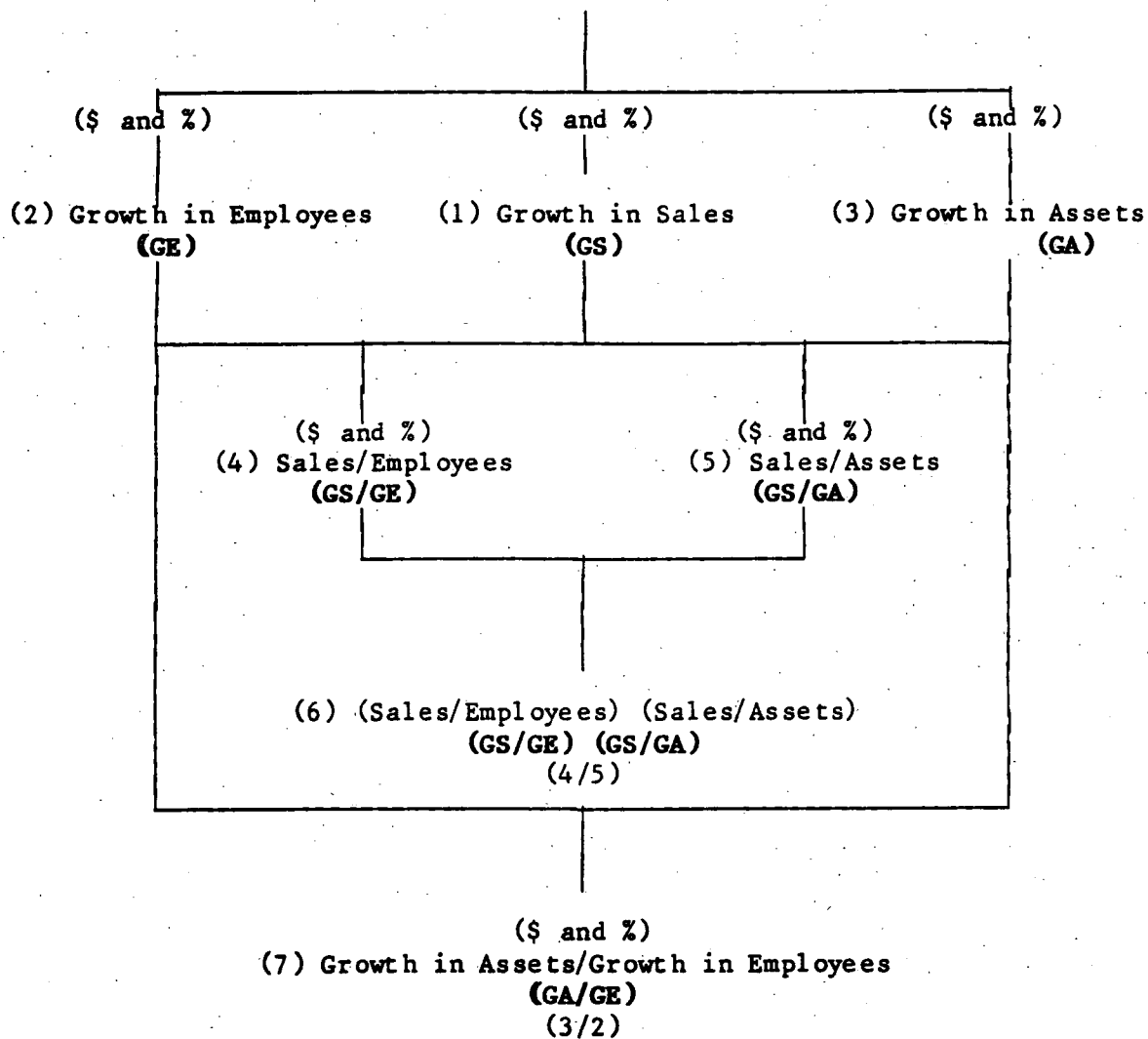
EXHIBIT ONERATIOS AS MEASURE OF SUCCESSEFFECTIVENESS RATIOSEFFICIENCY RATIOS

TABLE 1

Annual Sales Revenues of High-Tech Firms (\$000)

YEARS	Mean	Median	Std. Dev.	Sales Range	No. of Observations
1	121	55	181	0-1025	62
2	204	117	259	0-1090	58
3	347	200	398	10-1741	57
4	457	281	492	10-2013	49
5	591	379	639	10-2812	51
6	862	547	985	22-4960	50
7	1088	586	1182	15-4585	47
8	1035	586	1194	22-5060	32

TABLE 2

Annual Sales Growth Rate of High-Tech Firms (\$000)

YEARS	Mean	Median	Std. Dev.	Range of Change(%)	No. of Observations
1	--	--	--	--	--
2	67	57	60	- 69-242	54
3	57	54	69	- 106-382	55
4	44	43	39	- 35-137	45
5	39	29	47	- 58-237	47
6	18	22	51	- 153-214	48
7	24	21	42	- 56-136	41
8	17	18	32	- 69 -77	29

TABLE 3

Correlations of Sales Levels  
With Employment & Assets as Success Criteria

Ratio from Exhibit One		ANNUAL SALES***							
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
LEVEL OF EMPLOYMENT (E)	year 3	.62*	.76*	.87*	.84*	.78*	.73*	.70*	.64*
	year 5	.57*	.76*	.86*	.84*	.79*	.77*	.74*	.75*
	year 8	.54*	.70*	.77*	.81*	.83*	.89*	.90*	.90*
ANNUAL GROWTH OF EMPLOYMENT (GE)	year 5	.08	.05	.09	.03	.24	.39	.44*	.47*
	year 8	.09	.19	.19	.27	.30**	.38*	.40*	.37**
LEVEL OF ASSETS (A)	year 2	.51*	.60*	.59*	.42*	.48*	.43*	.36*	.60*
	year 8	.48*	.53*	.64*	.65*	.64*	.77*	.63*	.64*
ANNUAL GROWTH OF ASSETS (GA)	year 2	-.05	.11	.18	.23	.12	.08	.16	-.02
	year 8	.01	.13	.23	.36**	.31**	.43*	.44*	.18
<u>RATIOS</u>									
SALES PER EMPLOYEE (S/E)	year 3	.56*	.63*	.59*	.48*	.56*	.50*	.43*	.48*
	year 5	.34*	.34*	.31*	.17	.42*	.39	.22	.10
	year 8	.36**	.20	.26	.21	.10	.14	.26	.23
SALES PER ASSETS (S/A)	year 2	.38*	.42*	.39*	.43*	.45*	.45*	.37*	.25
	year 8	.40**	.39**	.40**	.36	.40**	.31	.39**	.34
ANNUAL GROWTH IN SALES PER EMPLOYEE (GS/E)	year 3	-.40*	-.40*	-.12	-.19	-.19	-.13	-.36*	-.41*
ANNUAL GROWTH IN SALES PER ASSETS (GS/A)	year 2	-.16	0	-.04	-.02	-.05	-.04	-.04	-.12

Notes: \* significant at 5% level.

\*\* significant at 10% level.

\*\*\* to correct for the effect of inflation, real sales (constant dollars) were used; Spearman rank correlation coefficients are reported.

TABLE 4

Correlations of Profit Levels With Sales Dollars  
Employment and Assets as Success Criteria

Ratio from Exhibit One		ANNUAL PROFITS****							
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
LEVEL OF SALES DOLLAR*** (S)	year 1	-.01	0	-.05	-.07	-.10	-.25	.20	.02
	year 3	.10	.15	0	-.15	-.11	-.20	.19	-.15
	year 5	.07	-.02	-.01	-.04	-.15	-.20	-.14	-.18
	year 8	.21	-.10	-.08	.05	-.22	-.15	.22	-.17
LEVEL OF EMPLOYMENT (E)	year 3	-.14	-.01	-.19	-.20	-.27	-.42*	-.03	-.07
	year 5	-.17	-.04	-.11	-.11	-.24	-.37*	-.10	-.08
	year 8	-.25	-.31	-.31**	-.15	-.31	-.32*	-.19	-.23
ANNUAL GROWTH OF EMPLOYMENT (GE)	year 5	.16	-.20	.11	.09	.07	.01	-.16	-.16
	year 8	0	-.28	-.26	-.12	-.18	-.14	-.34	-.25
LEVEL OF ASSETS (A)	year 2	0	0	-.21	-.24	-.16	-.43	.08	0
	year 8	-.05	-.06	-.12	-.08	-.02	-.08	.12	-.04
ANNUAL GROWTH OF ASSETS (GA)	year 2	-.06	.20	-.25	-.16	-.24	-.14	-.06	-.17
	year 8	-.14	-.08	-.13	.10	-.10	.36*	.26	.07
RATIOS									
SALES PER EMPLOYEE (S/E)	year 3	.32**	.24	.36*	.10	.12	.14	.35**	.01
	year 5	.40*	.27	.48*	.35*	.25	.37*	.35**	.13
	year 8	.49**	.28	.51*	.22	.29	.12	.38**	.18
SALES PER ASSETS (S/A)	year 2	.03	.17	.19	.10	-.10	.18	.19	-.05
	year 8	.14	.04	.34	-.05	-.38	.13	-.09	-.44**
ANNUAL GROWTH IN SALES PER EMPLOYEE (GS/E)	year 3	0	-.30**	.11	0	.05	.05	-.34**	-.32**
ANNUAL GROWTH IN SALES PER ASSETS (GS/A)	year 2	-.19	-.17	.04	.03	.15	.30*	.21	.20

Notes: \* significant at 5% level.  
 \*\* significant at 10% level.  
 \*\*\* to correct for the effect of inflation, real sales (constant dollars) were used;  
 \*\*\*\* Spearman rank correlation coefficients are reported.



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## **RELATIVE VALUES OF ACCOUNTING INFORMATION**

by

Len Fertuck

Associate Professor of Accounting and MIS

Faculty of Management

University of Toronto

246 Bloor St W

Toronto Ont M5S 1V4

**OBJECTIVES:** Accountants have tried for a long time to determine the value of accounting information to the various users of accounting statements. A measure of value for various items of information would have important implications in such areas as the level of detail to be provided in reports and the accuracy with which different items in a report should be prepared. If we knew that certain items in a financial statement were much more valuable to users than others, then we should allocate auditing effort toward stating these items more accurately. We should allocate less effort on the relatively unimportant items since they provide less benefit to the users.

The value of information problem is confounded by the availability of other public sources of information that are often highly correlated with the accounting reports. It is sometimes argued that accounting information thus has very little value because it has leaked out in other ways before the accounting reports are released. However, this is only likely to be true for large publicly traded firms. The accounting reports are likely to be a more important source of information for private firms which are not watched as carefully and which do not have to release as much information to the public.

This study will investigate the relative value to stock market investors of the different items of accounting information contained in public financial statements. This will be accomplished by using a computerized stock market game in a classroom setting with students as surrogates for investors. Information requests, market transactions, and performance measures will be logged to provide a database for analysis. The confounding effect of other information is controlled by providing only the accounting information in a laboratory setting. To the extent that other information could act as a surrogate, the values obtained in this study will be larger than the actual values of investors.

The investigator has developed, under a previous research grant, an interactive stock market game that provides an environment in which the investor's competitive decision process can be simulated under controlled conditions. Players make stock trades by sending bid and ask prices to a computerized "trader" which matches bid and ask prices to make a sale.

A stock market ticker and a listing of the current portfolio are provided to each player on demand. Economic and environmental parameters can be held constant or adjusted as required for the experiment. Similarly, accounting information can be provided in various forms at controlled prices to determine what price would be paid for various items of information. From these prices, the relative value or importance of the different items can be inferred. The game is based on the same architecture that was used to develop the well-tested TREE System (Fertuck, 1980, 1981). Thus no technical problems are anticipated in operating the game.

The literature on value of information has concentrated primarily on the social value of information, public versus private information, and on the use of information within an agency framework to monitor contracts. These topics are reviewed by Atkinson and Feltham (1981). There has been very little work on the relative value of specific items of information other than the event-based studies of efficient markets.

A number of experiments have been conducted using aural auction markets (Plott, 1980; Isaac and Plott, 1981) and computerized auction markets (Williams, 1980; Smith and Williams, 1981). These have focused on price controls and insider information. Users have been surveyed to determine the characteristics of valuable information (Epstein and King, 1982). Other experiments have been conducted to examine the relationship between cognitive style and preferences for various kinds and forms of information (Benbasat and Schroeder, 1977; Benbasat and Taylor, 1978; Benbasat and Dexter, 1979, 1982; Vaserhelyi, 1981).

**RESEARCH PLAN:** This study will be used to determine, in the absence of other information, the rank order of the values of the various items which are provided in a set of financial statements. Players will buy and sell stocks in a closed competitive market at prices determined by the players. They will base their decisions on financial statement data provided by the same computer program that administers the play of the game. No other data will be available for decision-making. Historic data will be available for several preceding periods. During part of the game, this historic data will be available as trend graphs.

The game will be played as part of the requirements of an MBA accounting course. It is anticipated that two groups of 25 students will be involved. Students will be told that part of their final grade will depend on the final value of their stock portfolio and that their decisions are being monitored for the purpose of this experiment but will not be used in grading. Disguised past annual reports for 15 to 25 actual companies will provide the financial statement data.

The use of students as surrogates for investors raises some questions about validity. It will be possible to perform some internal checks of validity by segregating students on the basis of experience since many will be part-time students with significant business experience. If a problem is identified, the same experiment could be repeated with some other group such as an investment club or a group of professional traders. However, this would significantly increase the cost of the experiment and will not be considered until after the initial experiment has been completed.

Successive financial statements about each hypothetical firm will be released weekly through the 13 week course to inform the players about the status of their investments. They will have to ask for each line item separately and will be required to pay a price for it, either out of their portfolio value, or possibly in their own time by system created delays that depend on the amount of information requested. This will motivate players to minimize the amount of information that they request and confine their requests to the most essential information. The order in which information is requested will be used as a proxy for importance and value.

All players will start with their share of a market portfolio. There will be no starting market prices, so the players will establish their own market prices by their bid and ask prices. Learning effects will be eliminated by not counting the first three periods of play. However, the data gathered during this starting phase will be examined for insights into how an efficient market becomes efficient. One possible analysis consists of plotting ticker prices against time to determine trends and oscillations in price and to see if there is a gradual convergence of prices around some consensus value for each firm. This should manifest itself as a reduction through time in variance of prices about some final price or a reduction in bid and ask spreads.

During the first 4 weeks after the initial trial, only the information about line items will be made available. During the last 4 weeks, ratios, comparisons, and graphical information will also be made available. This second interval of play will provide data on the use of processed information and will be used as a check of the consistency of information choice during the two parts of the experiment.

Players will be asked to fill out a standard questionnaire to determine their cognitive style. An attempt will be made to relate cognitive style to preferences for specific types of information. This will be particularly relevant during the last interval of play when players have a choice of numeric and graphic presentations.

The game is instrumented to gather all data required to reconstruct the players information requests and trading decisions. Thus it will be possible to track the information used, the bid or ask trading requests made, and the results of the requests as well as the overall performance of each player. It will thus be possible to test the hypothesis that:

Performance = f(kind of information, amount of information, cognitive style, skill)

Where:

Performance = increase in portfolio value

Kind of information = tabular or graphic

Amount of information = number of items requested

Cognitive style = High-Analytic or Low-Analytic

skill = Grade Point Average or GMAT

The hypothesis can be tested by examining the significance of coefficients in a regression model using the above variables.

It is not likely that stock prices in the game will match the prices in the real market since many other pieces of information, such as inflation rate and economic conditions influence real market prices. Some of this influence could be captured by releasing interest rate and economic index data along with the financial statements.

In any case, this is not a serious problem because the objective of the study is to find the relative value of items of accounting information when all other factors are held constant rather than to replicate prices in the real



real world. If this initial study is successful in generating relative values of accounting information alone, then a more elaborate study might be developed to compare accounting information to other information sources.

The data on request frequency will be aggregated to determine the popularity of individual lines of the financial statements. This will be a surrogate for the relative value of each item of information to an investor. It will not provide information on the actual monetary value of each item. It will not provide information on the value to lenders, unions, or other financial statement users. However, it will provide some initial information on the value of accounting information in a context that approximates the situation of investors who have to rely on accounting information in their decisions. Success with this experiment could lead to other studies which add other information or study the value to other users.

This experiment will also provide an opportunity to replicate some aspects of the Benbasat and Dexter study of "Individual Differences in the Use of Decision Support Aids". It will be possible to test 2 of their 6 hypotheses:

H<sub>1</sub>: High analytic subjects will have a lower profit performance than low analytics.

H<sub>4</sub>: High analytic subjects will take less time to make decisions than low analytics.

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**A TENTATIVE TEACHING PROGRAMME FOR SOCIAL ACCOUNTING**

by M R Mathews

Professor of Accounting and Finance  
Department of Accounting and Finance  
Massey University  
Private Bag  
Palmerston North  
**NEW ZEALAND**

Tel. PN. (063) 69-099 ext. 8602

**A TENTATIVE TEACHING PROGRAMME FOR SOCIAL ACCOUNTING**

**M R MATHEWS**  
Massey University  
New Zealand

**ABSTRACT**

The purpose of this paper is to suggest an integrated programme for the study of social accounting. The teaching programme should provide students with an understanding of some of the concerns felt by academics working in this area and motivate them to question the current accounting system into which they are to be inducted.

There are two main divisions in the teaching programme:-

- i. To provide a philosophical justification for the development of non-traditional disclosures. Three paradigms are considered, each with arguments for and against the main thesis.
- ii. To provide a structured study of non-traditional disclosures taking into account the public and private sectors, long and short terms and financial and non-financial forms of disclosure.

In addition to providing the structure referred to above, the paper provides useful reading lists and an extensive bibliography.

## **A TENTATIVE TEACHING PROGRAMME FOR SOCIAL ACCOUNTING<sup>1</sup>**

by M.R.Mathews, Massey University, New Zealand.

### Introduction

The purpose of this paper is to suggest an integrated programme for the study of social accounting. The teaching programme should provide students with an understanding of some of the concerns felt by academics working in this area and motivate them to ask questions of the current accounting system into which they are to be inducted.

What follows is based, to some extent, on the view that further research and scholarly publications may not achieve as much for the development of a more socially relevant accounting as the production of professionals with a basic acceptance and knowledge of social accounting issues. Such people can only be produced by undergraduate teaching programmes in the short term. A suggested programme is given in the next section. The work is grounded in an evolutionary rather than a radical view of accounting development although the contribution of radical theorists is acknowledged.

The theoretical basis for extending the scope of accounting and financial reporting may be found in the Corporate Report (ASSC 1975) which advocated a range of reports to a number of audiences having a 'right to know'.

### A Beginning Course in Social Accounting

It might be appropriate to begin by establishing the case for additional forms of disclosure. This is sometimes done on the basis of the amount of voluntary disclosure already undertaken. This is probably inadequate as a justification. There are at least three lines of argument, which are complementary to each other, and with a separate literature.

### The Case for Social Accounting

Social Accounting may be justified on three main grounds:

- (i) Shareholders will benefit from increased enterprise income and/or a favourable reaction to managerial decisions by the sharemarket. Share prices are expected to change as a result of social disclosures because non-traditional accounting has information content.
- (ii) There are wider moral/legal/ethical reasons for developing social accounting, which will benefit wider audiences than simply shareholders. The social contact of business with society has a literature which is relevant to the justification of social accounting as well as management education in general. Organizational legitimacy may be a potent force in the justification of additional reporting systems.
- (iii) The new radical literature provides arguments in favour of a political economy of accounting, which justifies a different approach to accounting and reporting to society as a whole. The radical approach is basically non-market in orientation and based upon concepts of labour value (Tinker 1984). It should be explored if the accounting graduate is to be educated in the wider sense. The consideration of economic and social systems with different bases from our own may be necessary in order to "free up" the students thought processes.

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<sup>1</sup>. The author acknowledges with thanks the comments of two anonymous reviewers.

Useful reference material for this section of the course would include:

(i) Market Related

Bowman and Haire, 1975  
Fogler and Nutt, 1975

Belkaoui, 1980  
Shane and Spicer, 1983.

(ii) Moral/Legal/Ethical

Donaldson, 1982. This book is very useful and contains sufficient reference material to develop a reading list. The extent of required reading is obviously a function of the time available and the standard required from graduates. Den Uyl 1984 provides a challenging perspective in his moral philosophy underpinning a Friedmanite economic position. Lindblom 1983 is a useful reference on organisational legitimacy.

(iii) Radical Literature

Some of this literature might be considered difficult for an undergraduate group. It is suggested that at least two papers be included in order to maintain the academic integrity of the course. In some cases instructors may argue for a greater involvement of the radical paradigm. A number of the better known recent papers are listed below:-

Tinker, Merino and Neimark, 1982  
Merino and Neimark, 1982,  
Lehman 1983,

Ratliff and Merino, 1983,  
Cooper and Sherer, 1984.  
Tinker, 1984.

Providing a framework or structure for the study of Social Accounting

The diverse nature of the topic areas which may be included under the heading of 'social accounting' suggests that a structure or classification would be useful. It is necessary to deal with both public and private sectors, a lengthy time frame from yearly accounting reports to, say, ten year Government programmes and disclosures which may vary from descriptive narrative to financial disclosures based on externalities.

The initial coverage should have laid a foundation by establishing a case for new forms of disclosure (requiring a discussion of research results, philosophical positions and political attitudes) and a framework for the examination of new ideas. The remainder of the programme is devoted to a study of the literature, an introduction to measurement and valuation problems and a view of the future of social accounting.

The Literature

The literature to be discussed in this section may be varied to suit the standard of the students and the particular locality. Is a regional, national, or international perspective to be adopted? Are the students sufficiently quantitative to make use of advanced mathematical techniques for the valuation of externalities?

Assuming an undergraduate class, and using the structure provided by Mathews (1984), the following references might be considered useful.

(i) General Introduction

Davis, 1973, 1976  
Prakash, 1975,  
Spicer, 1978

(ii) Social Responsibility Accounting

Investigations of what has been disclosed grouped by country of origin.

United States

Elias and Epstein, 1975  
 Epstein, Flamholtz and McDonough, 1976  
 Preston, 1978  
 Abbott and Monsen, 1979  
 Ernst and Ernst, 1972-78.

Australia

Trotman, 1979  
 Kelly, 1979  
 Trotman and Bradley, 1981  
 Pang, 1982  
 Guthrie and Mathews, 1984

Germany

Brockhoff, 1979  
 Dierkes, 1979  
 Schreuder, 1979

Holland

Van den Bergh, 1976  
 Most, 1977

France

AOS, 1978

Canada

Demers and Wayland, 1982  
 Brooks, 1986  
 Burke, 1984

New Zealand

Robertson, 1977  
 Guthrie and Mathews, 1984

United Kingdom

Lessem, 1977

Belgium

Theunisse, 1979  
 Delmot 1982

Sweden

Grojer and Stark, 1977

Japan

Tokutani and Kawano, 1978.

The extensive references given in this section may be easily permuted to provide the reading list desired by the instructor. If an international dimension is not desired, all references from one country might be given, but if a comparison is thought appropriate a limited number of readings from all groups might be used.

If corporate social responsibility accounting is to be the basis of the course, many of the references given above might be used, and the sections discussed below deleted in whole or in part.

(iii) Total Impact Accounting

This term is used to refer to the inclusion of externalities into the cost structure of the firm. This area is often considered to be too advanced for beginning students of social accounting. Consequently, this section may be reduced or omitted by some instructors. The issues must be addressed, however, if social accounting is to progress beyond the positions represented by the literature already cited. Useful references are

Beams and Fertig, 1971  
 Estes, 1972  
 Mishan, 1976  
 Ramanathan, 1976  
 Dierkes and Preston, 1977

Rockness, Bazley and Nikolai, 1977  
 Wiseman, 1982  
 Benston, 1982a, 1982b, 1984  
 Schreuder and Ramanathan, 1984a, 1984b

The papers listed above form three groups. Ramanathan, Schreuder and Ramanathan and the Benston papers form one group, which argues the case for and against disclosure on philosophical grounds. Mishan may be viewed as a one paper group which is perhaps too detailed for undergraduate use, because it approaches the externalities



issue solely from an economics standpoint. The remaining works form a third group concerned with pollution. Clearly a study of externalities and the measurement thereof will be easily exemplified by pollution problems and environmental damage.

(iv) Socio-Economic Accounting

Linowes, 1968	Granof and Smith, 1974
Mobley, 1970	Sobel and Francis, 1974
Churchman, 1971	Birnberg and Gandhi 1976

Many of the articles listed above date from the period of enthusiasm for social accounting in the late 1960's and early 1970's. From the perspective of teaching undergraduate students the debate contained in these articles is extremely valuable. The Linowes and Mobley works provide the basis for the interchange by Francis, Granof and Smith, Sobel and Francis, and Birnberg and Gandhi. The Churchman paper gives 'food for thought' for all students.

(v) Social Indicators Accounting

An undergraduate programme in social accounting ought to include longer term public sector activities, if only to a minor degree. Instructors may wish to assign a limited number of the following references.

Terleckyj, 1970	Parke and Peterson, 1981
Sheldon and Parke, 1975	Glatzer, 1981
Thompson, 1978	Mayston, 1985
Peterson, 1979	

(vi) Societal Accounting

As noted in the introduction, this is a complex and difficult area, especially for undergraduate students. Instructors wishing to set reading in this area could use Gambling (1974), or parts thereof, or a recent monograph by Enthoven (1985).

Measurement and Valuation Problems

The literature used to flesh out the skeleton of the framework will also demonstrate some of the problems of measurement and valuation. In particular, distinguishing between self-serving public relations prose and meaningful information in social responsibility disclosures, and the measurement and valuation of polluting externalities.

It is not proposed to list many references for this topic because a re-examination of the previously read material, with a critical eye, should provide many classroom discussions. The AAA Report of the Committee on Social Costs (1975) provides comments on measurement problems.

It is necessary to consider -

- (a) How useful are word or line counts of disclosures in annual reports when researchers cannot agree on definitions?
- (b) How can a quality index for disclosures be developed?
- (c) How can valuations of externalities be derived when corporations will not accept any responsibility for the environment?
- (d) How do problems of time and distance affect valuations of externalities?
- (e) How does management view social accounting?

This topic might also be an appropriate place to include dissenting voices in terms of the literature on social accounting. Benston 1982 fits in here, but there are others. It is important to acknowledge the arguments of the opponents of social accounting in order to maintain the intellectual integrity of the programme.

#### Availability of Textbooks

There are very few suitable textbooks available for use in an undergraduate course. However, instructors may like to supplement papers and articles by the contributions of Gray, Owen and Maunders (1987) Burke (1984) Brooks (1986) and Enthoven (1985).

#### The Future of Social Accounting

The course should be rounded off by a topic dealing with the future of social accounting. This topic would allow the instructor to trace the development of the field as he/she sees it and perhaps speculate about future developments. Personal research, the latest material reported in the literature, and more advanced concepts, are all suitable material for inclusion at this point.

An alternative approach is to use this topic to discuss the potential for use of these techniques in practical accounting. That is, to get the students ready to perceive practical areas in which social accounting relates to their employment.

A future orientation is provided by Preston (1981) and by a new textbook by Gray, Owen and Maunders (1987).

#### Summary

A number of accounting teachers and researchers work in the area of social accounting and publish their work in the usual manner. However, there appear to be few courses in social accounting available for undergraduate students. Information about courses is not widely known.

The paper sets out a course in social accounting, with rationale, framework, individual sections and supplementary topics. Clearly there is room for modification, inclusion and deletion of specific readings or whole sections, and the use of 'tentative' in the title of the paper is quite deliberate. The crucial point, however, is that there ought to be opportunities to introduce accounting majors to this important area of accounting. Today's students are tomorrow's professionals and will carry with them many of the values acquired at University. The opportunity to market the newer areas of accounting should not be undervalued.

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