FRAGMENTATION IN ACCOUNTING: AN ANALYSIS OF INTERNATIONAL ACCOUNTING AS A CATALYST FOR INTEGRATION

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ABSTRACT

The isolation and disconnectedness of areas of research are termed fragmentation. The nature of fragmentation and its impact on accounting is explored in this thesis as it potentially relates to ongoing concerns expressed about accounting research. The concept of fragmentation is considered in the context of a model of knowledge accumulation using a sociological perspective. This sociological approach is found to be a common, unifying theme of writers who take opposing views about methodological issues and the disciplinary status of accounting. It thus provides a basis for a descriptive approach that incorporates the broad spectrum of research styles in accounting.

Fragmentation is identified as being embedded and perpetuated in the institutional constructs of academic departments in universities. It is characterised by two features. First, non-homogeneity in the research literature so that research areas cluster into many unrelated groups. Second, a lack of cohesion, that is, a heavy reliance on reference disciplines for theories and methods. The outcomes of fragmentation for a discipline are: a reduction in the efficiency of research as researchers re-discover knowledge already obtained elsewhere in the discipline; a tendency for research in a fragmented area to become inwardly focussed, producing research that lacks relevance outside the group of researchers involved; and the possible ultimate disintegration of the discipline.

Mechanisms capable of reducing the impact of fragmentation on a discipline are considered, based on the experience of other disciplines and on current recommendations in accounting. A potential mechanism that operates in harmony with the institutional structures of knowledge production in accounting and that is currently well-placed to stimulate the re-integration of accounting research is identified in the international accounting specialty. Closer investigation of this possibility is undertaken using a co-citation analysis of seventeen years of source articles from the *International Journal of Accounting: Education and Research.* The co-citation study indicates that the international accounting research literature is fragmented in terms of non-homogeneity, but shows high levels of cohesion. These factors, plus the methodologically eclectic style and broad topic coverage of the specialty, lead to the view that it is a suitable candidate to promote re-integration in accounting.

Researchers pursuing topics in the area may achieve an integrating role by simply applying an international perspective to issues in accounting and maintaining the characteristics mentioned. However, to enhance the contribution of the area to integration, specific research strategies are identified. Three research areas provide bridging points to promote integration. They are, a contextual approach to capital markets research, accounting theory, and measurement issues. It is suggested that research in these areas published in widely read journals has the potential to stimulate re-integration in the accounting literature in a way that is compatible with institutional structures.

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Your love, O Lord, reaches to the heavens,
your faithfulness to the skies.
How priceless is your unfailing love!
(Psalm 36: vs 5, 7a)

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ABBREVIATIONS

AAA	American Accounting Association
ABA	Abacus
ABR	Accounting and Business Research
ACAA	Accounting Auditing and Accountability
AH	Accounting Horizons
AIA	Advances in Accounting
AICPA	American Institute of Certified Public Accountants
AIIA	Advances in International Accounting
AOS	Accounting Organizations and Society
AR	Accounting Review
ASOBAT	A Statement of Basic Accounting Theory
ASQ	Administrative Science Quarterly
BAR	British Accounting Review
CAR	Contemporary Accounting Research
CCGARF	The Canadian Certified General Accountants' Research Fndn
CICA	Canadian Institute of Chartered Accountants
CIERIA	Centre for International Education and Research in Accounting
CJOWB	Columbia Journal of World Business
CP	Conference Paper
ECSIM	European Centre for Study & Information on Multinational Corporations
FAJ	Financial Analysts Journal
FASB	Financial Accounting Standards Board
FE	Financial Executive
HMSO	Her Majesty's Stationery Office
ICAEW	Institute of Chartered Accountants in England and Wales
ICRA	International Centre for Research in Accounting

IICPA	Israeli Institute of Certified Public Accountants
IJA	International Journal of Accounting
IJAER	International journal of accounting education and
JAAF	Journal of Accounting, Auditing and Finance
JABR	Journal of Accounting and Business Research
JAE	Journal of Accounting and Economics
JAL	Journal of Accounting Literature
JAPP	Journal of Accounting and Public Policy
JAR	Journal of Accounting Research
JBFA	Journal of Business Finance and Accounting
JFAQA	Journal of Financial and Quantitative Analysis
JIBS	Journal of International Business
JOA	Journal of Accountancy
JOB	Journal of Business
JOF	Journal of Finance
JOFE	Journal of Financial Economics
MA	Management Accounting
NY	New York
SEC	Securities and Exchange Commission
WP	Working Paper

CHAPTER ONE
AN OVERVIEW OF THE RESEARCH PROJECT

> If the many fugitive parts and pieces of our discipline can be held together and integrated, accounting as an academic discipline will survive, if not it might dissolve and be absorbed by neighbouring fields. The present state of accounting research resembles a jigsaw puzzle where some areas slowly grow into meaningful configurations but without yielding the entire picture. Indeed, the individual fragments seem to spread outwards and not to a common center. (Mattessich 1972, pp. 482-483).

1.1 INTRODUCTION

Recent concerns about accounting research include its lack of relevance for accounting practitioners and teachers and the absence of significant theory development (Burton & Sack, 1991; Gibbins & Jamal, 1993; Tricker, 1979). In an atmosphere of financial restraint and with the need for greater efficiencies within the university sector, concerns about research output have been the subject of some debate (Gray & Helliar, 1994). There are numerous factors which impinge on accounting academics' ability to contribute relevant and timely research and teaching for an information age. However, the concerns raised about accounting research find a familiar echo in the characteristics of fragmentation of research literature, initially suggesting that an enquiry into fragmentation in accounting may provide a direction for addressing the concerns about research.

Fragmentation is characterised by the break-down of the exchange of ideas between researchers into isolated communities and by the over-reliance of a discipline on theories and methods imported from related disciplines. Not only has the fragmentation so aptly described by Mattessich (1972) become an ongoing reality for accounting, but it is also part of the mechanism that creates and perpetuates the rupture between; (a) specialty areas of accounting, (b) accounting research and complex practical problems, and (c) research and teaching. It also mitigates against a unified theory in accounting.

This thesis describes fragmentation and explores how it is implicated in creating and maintaining these outcomes. Potential strategies to stimulate re-integration in the accounting research literature are identified and evaluated. The selected strategy is then considered in more detail with a view to suggesting implementation strategies.

Before addressing the research question and its importance in more detail, an overview of the concerns expressed about accounting research provides a useful background to the motivation for the research.

1.2 BACKGROUND: THE RESEARCH DEBATE

Concerns about accounting research may be categorised as focusing upon: (a) epistemological and methodological issues, (b) the apparent failure of accounting research to offer relevant insights for practice, (c) the lack of consensus regarding a theoretical structure for accounting, and (d) the lack of reference to research in undergraduate teaching.

1.2.1 Methodological Issues

Chua (1986, pp. 601-602) summarised the differences between those who see accounting as a "multi-paradigm science" (Belkaoui, 1985) and those who believe it to be in the throes of a "scientific revolution" (Wells, 1976). She concluded (p. 626) that "mainstream" accounting is based on a single paradigm typified by the hypothetico-deductive model, and offered the interpretive and critical paradigms as alternatives to stimulate debate. Since then, the development in the "new accounting research (NAR)" (Morgan & Willmott, 1993), which problematises accounting as a reflexive social construct, has continued. Both the positive accounting theory and capital market approaches, however, are still growing and represent the epitome of the hypothetico-deductive methodology in accounting research.

Development of the awareness of methodological and epistemological issues and concerns is reflected in the stark contrast between Abdel-khalik and Ajinkya's (1979) monograph explaining empirical methodology and Belkaoui's (1987) sophisticated analysis of a broad range of methodological approaches. The NAR has developed its own publication outlets and a standard of rigorous research within its own perspective. What is striking about the development of the methodological debate, however, is that most of the criticisms published occur in journals which do not usually publish the methodological approach being criticised. For example, virtually all the critical school's criticism of positivist approaches is published by critical researchers within the critical research literature for a critical readership. On the other hand, the positivist school seems content to ignore the critical concerns, and reiteration of the basic characteristics of rigorous research from the positivist perspective is made in publications for that readership. While these two schools of thought do not represent all the methodological perspectives in accounting, they are significant players and the pattern of communication with other perspectives is similarly limited. The institutional reasons behind this outcome are discussed later in the thesis; however, it is important to note here that lack of communication about methodological concerns across methodological boundaries suggests that a one-sided "debate" of this sort is unlikely to bring about understanding or change, rather it preaches to the converted. In fact, it is a microcosm of the concerns identified earlier, where accounting research's limited applicability to practice and teaching is parallelled by some research's limited application in the areas at which it is targeted (i.e., the criticised methodology).

In considering avenues for improving research, therefore, it is desirable to develop an approach which does not require the proponents of a methodological perspective to abandon their fundamental epistemological and ontological assumptions in a type of "conversion" experience. The likelihood of success of these types of approaches is very low, given the lack of communication across methodological boundaries.

1.2.2 Relevance Issues

The capacity and success of accounting research to inform practice have been open to debate since before the publication of the American Accounting Association's *Statement on accounting theory and theory acceptance* (AAA, 1977), which identified a schism between research and practice described more completely in a recent article by Bricker and Previts (1990). A number of authors have described the problem and sought to identify causes and remedies (Abdel-khalik, 1983; Arthur Anderson *et al.*, 1989; Ball & Foster, 1982; Banker, Cooper & Potter, 1992; Baxter, 1988; Belkaoui, 1987; Dopuch, 1978; Gibbins & Jamal, 1993; Hakansson, 1978; Johnson & Kaplan, 1991; Tricker, 1979; Velayutham & Perera, 1993; Wright, 1994).

Some identify the emphasis on more rigorous (statistical) research methods and the encroachment of the "publish or perish ethic" as endemic to the problem (Bricker & Previts, 1990; Burton & Sack, 1991; Morgan & Willmott, 1993; Tricker, 1979). Suggestions for addressing the problem range from changing approaches to education (Dopuch, 1978; Bricker & Previts, 1990; Wright, 1994), providing forums for academics and practitioners to meet (Arthur Anderson *et al.*, 1989; Tricker, 1979) through to arguing that some research should **not** influence accounting practice (Dopuch 1978). Ball and Foster (1982) argue that relevance to external parties is only one factor motivating research and this must necessarily be compromised by other factors including the lack of theoretical or empirical resources to answer issues raised in practice.

Claims that particular research methods or views are more (or less) relevant than others reduce the discussion to methodological debate again (e.g., Hopwood, 1983; Laughlin, 1987; Manicas, 1993; Tomkins & Groves, 1983). Disentangling the methodological rhetoric from the central point of concern, however, the main thrust is the division between academics and practitioners. Academics pursue their rewards by publishing within the epistemological confines of their research communities with little motivation to incorporate practical concerns. Practitioners, too busy and concerned with the confidentiality of clients' information, stay firmly on their side of the divide. Further, there is no consensus about a methodological approach that provides a meaningful way

of dealing with the complexity of "real-world" problems (Dent, Ezzamel & Bourn, 1984). These concerns are not limited to accounting but are also reflected in other subject areas related to business (Bonder, 1979; Leontief, 1983; Remenyi, 1979; Whitley, 1984 & 1986) and the social sciences generally (Campbell, 1969; Easton, 1991; Eichner, 1983; Spiegel-Rosing 1977).

Perhaps Easton (1991) describes the problem most effectively:

> It is what I call the Humpty Dumpty problem. To understand the world it seemed necessary to analyze it by breaking it into many pieces - the disciplines and their own divisions - in much the same way that Humpty Dumpty, now the egg of knowledge, fragmented when he fell off the wall. But to act in the world, to try to address the issues for which the understanding of highly specialized knowledge was presumably sought, we need somehow to reassemble all the pieces. Here's the rub. Try as we may, we have been no more able than all of the king's horses and all of the king's men to put our knowledge together again for coping with the whole real problems of the world. (p. 12-13)

The point that emerges is that methodological "debate" is not sufficient as a means of addressing the failure of accounting research to inform practice. A number of the underlying causes which have been identified are institutionalised in the process of producing research through the university sector. While overt measures to bring practitioners and researchers together are a positive step, an approach which explicitly considers the institutional structure and process of research production is more likely to bring long-term benefits. Part of the thesis outlined later in this chapter is that, by closing the gaps in accounting's fragmented literature by means in harmony with the institutional pressures of a university environment, a step is taken towards achieving an improved capacity to deal with practical issues.

1.2.3 Theory development

Another often-cited problem with accounting research is the lack of underlying theory that relates uniquely to accounting phenomena (AAA, 1977; Gibbins & Jamal, 1993; Hakansson, 1978; Subotnik, 1988, 1991; Tricker, 1979). While there is widespread concern about the hegemony of an underlying paradigm, part of that concern stems from its perceived inability to provide a theoretical basis for accounting research (Arrington &

Francis, 1993; Arrington & Schweiker, 1992; Chua, 1986; Dillard, 1991; Gibbins & Jamal, 1993; Hofstedt, 1976; Hopwood, 1990; Manicas, 1993; Tricker, 1979; Whitley, 1986; Zeff, 1989a). Several writers express concern over the lack of cohesion in accounting researchers' views of accounting. Arrington and Schweiker (1992) state, "indeed, there is probably more disagreement about what accounting is and what it is not among accounting researchers that [*sic*] there is in the broader polity" (p. 518, see also Dillard, 1991, p. 8; Dopuch, 1978, p. 214).

From a positivist perspective, the need for a theory of accounting *per se* is not a concern, since accounting is what accountants do. However, in the case of policy making, regulation, or innovation, or anything which needs to move beyond the current practice of accounting, the lack of a consistent, widely-accepted theoretical basis is seen as a limiting factor for productive research. Efforts to formulate such a theory face major impediments, however. First, the adoption of a range of methodological and epistemological positions within accounting research means that for a general theory to gain acceptance, it would need to meet virtually irreconcilable epistemological requirements. Second, the largest and perhaps most powerful research grouping in the western academic world is the positivist one, which perceives neither a need for nor an epistemological justification of normative theorising. It is unlikely that a project for normative research which may be a long time in generating useful outputs would receive support in that environment. If it is nurtured outside that grouping, however, it then faces the first problem - how to communicate into the positivist view from outside. Third, the weight of evidence in the social sciences is that it is extremely difficult to formulate a general theory for a discipline, so any researchers who wish to take on this task face long delays or potential failure to achieve rewards in an output oriented reward system.

Thus it seems that achieving a general theory of accounting by simply urging researchers to take on this task may be unrealistic and hence unlikely within the current structure of accounting research production. Rather, it seems that an indirect approach which links

current theoretical views and methodologies may be a more practical option to provide at least a basis for a general theory in the future.

1.2.4 Education - research schism

Another, related, criticism of the accounting discipline has been its failure to integrate research into undergraduate teaching programmes (Beaver, 1984; Burton & Sack, 1991; Wright, 1994). This is a common concern across both the American- and British-based approaches to teaching (Zeff, 1989a). Beaver (1984, p. 37) comments; "other fields, such as finance, incorporate nontechnical summaries of research into their introductory (and more advanced) texts to a much greater degree than we appear to in accounting. The reason for this disparity is not obvious." It is suggested that this lack of integration of research into education is implicated in the schism between research and practice (Bricker & Previts, 1990; Wright, 1994). Another view is that as research becomes increasingly specialised and statistically rigorous its relevance for teaching at the undergraduate level is severely diminished. The growing isolation of specialist research areas from each other and from the core of basics imparted to undergraduates may render the research outputs uninterpretable at that level.

This concern parallels the schism between research and practice, in that research output appears to have very little direct relevance for either students or practitioners. The distinction between the nature of these two audiences for accounting research is that the practitioner needs research relevant to complex situations, while the student is more likely to be seeking a lens through which to simplify the complexities of reality into a framework which may be more easily understood. In either case, a general theory, as discussed above, would be useful, or failing that, at least an integrated literature which incorporated different views into a unified whole would be useful for teaching and practice.

1.2.5 Summary

The four concerns identified in the literature may be divided into characteristics of accounting research - methodological schism and a lack of a theoretical base - and the

failure to meet the needs of users, that is, students and practitioners. The potential for addressing each of these concerns directly and individually seems limited, given the degree of concern expressed in the literature over an extended period. It appears that an alternative approach which incorporates the perspective of each of these concerns on the underlying problem with accounting research is a viable avenue for consideration.

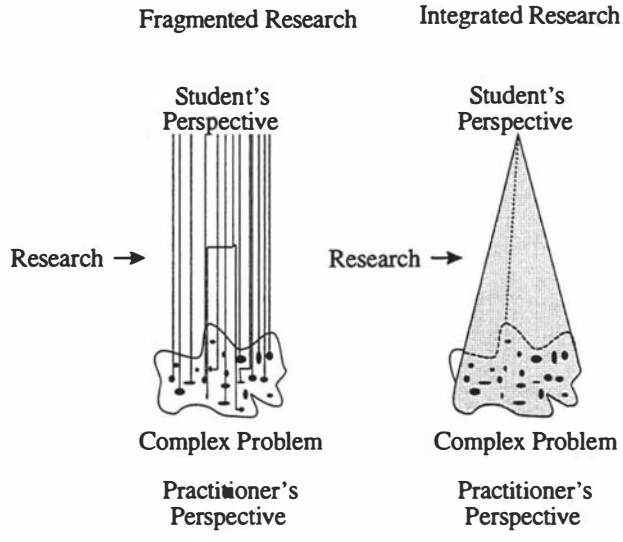
1.3 THE RESEARCH QUESTION

The previous section identified the concern that accounting as a research area is methodologically fragmented, lacks a theoretical basis and is unable to meet the needs of two of its major audiences. The problem is encapsulated in Figure 1.1 which shows the "real-world" complex problem at the bottom from the practitioner's perspective and the student's need for a simpler, coherent perspective on that complexity at the top. In between is accounting research which provides a way of understanding for both users. At the moment, methodological divisions and lack of a theoretical basis make research perspectives disjointed and mutually exclusive resulting in the view on the left of the figure. This view provides only disjointed approaches to aspects of the problem for the practitioner and a complex view of the problem for the student. An alternative is for accounting research to offer an integrated research perspective either based on a general theory or through an integrated research literature. This provides the consistent depth for considering complex issues for the practitioner while offering the student a clear lens through which to simplify reality. This is the representation on the right hand side of the Figure 1.1.

The idea captured in the Figure is that the four concerns are logically linked in the description of accounting research as fragmented. The lack of communication on methodological issues, the lack of relevance to user groups, and the lack of a theory are all symptomatic of a fragmented literature. The discussion above also suggests that addressing the individual concerns directly has not been fruitful, indicating that perhaps the underlying causes remain. The possibility explored in this thesis is that one important

underlying cause is the fragmentation of accounting literature, and ways of redressing the fragmentation are sought which take into account the institutional context and constraints of the research process.

FIGURE 1.1 Research and the Student and Practitioner Perspective



The aim of this study, more succinctly stated, is to explore both the role of fragmentation in the process of knowledge accumulation and the possibility of developing a strategy to re-integrate the accounting research literature.

To achieve this aim the study has the following objectives:

(a) To analyse the concept and implications of fragmentation in a discipline.

(b) To describe a model of knowledge accumulation and how it relates to fragmentation.

(c) To identify and/or develop a technique which describes a literature in a way that is compatible with the knowledge accumulation model.

(d) To identify and/or develop a means of mapping the knowledge accumulation structure in (c).

(e) To identify and/or develop potential integrating mechanisms.

(f) To analyse the likely effectiveness of the potential integrating mechanisms for the accounting research literature.

(g) To analyse in more detail the mechanism selected to confirm it has the required characteristics.

(h) Should the mechanism have the characteristics identified as preconditions for likely effectiveness, to develop specific strategies for enhancing re-integration in accounting research.

1.4 IMPORTANCE OF THE RESEARCH QUESTION

The previous sections have shown how four identified concerns with accounting research suggest that fragmentation of the research literature is a relevant factor which has not previously been considered in this context. It is anticipated that by focussing attention on the problem of fragmentation, progress in resolving the concerns raised may be made. This is important because suggested approaches to date have not been successful and have not been directed at any identified, longer-term underlying factor. As long as there are such unaddressed structural problems, progress is unlikely to be made through shorter-term, isolated responses.

Fragmentation of research has been related to the research concerns above, but is also linked more directly with the efficiency of research output. Fragmentation is associated with a lack of communication between researchers who are specialising in different areas of a discipline. A number of researchers may be considering the same, or closely related, problems but because their methodology or functional approach varies, they may never become aware of the findings of other research. In more extreme cases of dogmatism, researchers may be aware that parallel research is being undertaken from another perspective, but dismiss those efforts as "unscientific" or making no contribution simply because they are based on a different research perspective.

As a result, similar findings may be "discovered" repeatedly in different specialties and never integrated into a clear research perspective on the problem. This involves an

inefficient use of resources - a cost which should be avoided (Previts, Parker & Coffman, 1990a). Reducing fragmentation in accounting research is a way of achieving this.

Finally, the importance of reducing fragmentation in the accounting discipline may be linked to its potential to remain a separate discipline for teaching and research purposes. Ultimately, a discipline which continues fragmenting through reliance on other disciplines for theories and methods and through methodological schisms faces the possibility of being absorbed into the related disciplines and losing its separate identity. This concern is not unique to accounting, it has also been raised as a possibility for other fields, for example, operations research (Bonder, 1979), economics (Remenyi, 1979) and information systems (Weber, 1987). To bolster the position of the accounting discipline so that "no university administrator would be able to consider accounting of marginal relevance" (Elliott, 1992, p. 2) concerted efforts to integrate its research perspectives are important.

1.5 RESEARCH METHODOLOGY

Chapter Two describes the methodology used to address the research question in detail. At this point it is worth noting that a variety of approaches are needed to formulate an understanding of fragmentation as a concept and a model of knowledge accumulation as a context for the production and intellectual structure of accounting research. These questions are addressed adopting a sociological perspective. In order to create a tool through which the areas of fragmentation in the accounting literature could be visually identified and related to other specialist areas a mapping technique is developed through a process of analysis and trial and error. A literature search is used to identify potential strategies for re-integrating accounting literature, and these are evaluated against criteria derived from the literature and the characteristics of the accounting discipline. The outcome of the selection process is the decision to evaluate international accounting as a specialty area with the potential to perform a re-integration function in accounting research. In order to evaluate its potential as an integrating agent, co-citation analysis is

used to identify and describe the structure of research in international accounting. The co-citation analysis is based on a database of citations from source articles drawn from the *International Journal of Accounting: Education and Research* covering a period of 17 years. The mapping technique is used as a basis for comparison with the structure of accounting as a whole, and areas where re-integration may be achieved are identified.

1.6 SCOPE OF THE STUDY

This research contributes a strategy for re-integrating the accounting research literature, that has been identified and tested against criteria for its appropriateness. The complex context of the production of research from a sociological perspective is taken into consideration in suggesting possible strategies.

This research brings together a sociological model of knowledge accumulation in accounting that provides a basis for discussion about the future direction and nature of research in accounting.

While care is taken to ensure that the recommendations made are appropriate, the effectiveness of any proposal lies in the hands of those who may choose to follow the recommendations or not. These concerns are reduced, however, by the conscious effort to avoid recommendations which run counter to motivations for researchers inherent in university systems.

The study is also limited, in the same way as any empirical technique, in that co-citation analysis is applied to a sample of the observable research literature. An examination of the complete literature for any established discipline or specialty of accounting is beyond the scope of this study.

1.7 ORGANISATION OF THE THESIS

The thesis is presented in nine chapters as outlined below.

Chapter One **An Overview of the Research Project**

Chapter Two **Methodology**

Methodology is itself an ambiguous term as it is used in accounting literature. This chapter discusses the term and its meaning for the thesis and outlines the methodology and methods used to address the research question.

Chapter Three **Fragmentation: A Literature Review**

The concept of fragmentation has not been widely used in accounting literature. This chapter reviews the broader literature on fragmentation and synthesises views into the causes, characteristics and outcomes of fragmentation. Evidence of fragmentation in other disciplines and accounting is then reviewed.

Chapter Four **The Disciplinary Status of Accounting**

Methodological disputes over whether or not accounting is a science, whether or not it has a paradigm and whether or not it is a discipline suggest the need to find a common ground on which the disciplinary status of accounting may be understood. This chapter identifies the sociological perspective as common to many of the competing views in the accounting literature and applies indicators based on sociological observations to establish accounting's status as a discipline.

Chapter Five **A Model of Knowledge Accumulation in Accounting**

In order to provide a context for the production of research and the pattern of research output, a model of knowledge accumulation which has a sociological basis is developed. A mapping technique is provided which allows the co-citation analysis conducted by Bricker (1987) for accounting research as a whole to be presented in a visual form. This approach achieves the incorporation in one diagram of the co-citation findings and knowledge accumulation characteristics. This map facilitates the identification of the "location" and characteristics of fragmentation.

Chapter Six **Re-integrating a Fragmented Discipline: Previous Experience and Possibilities**

The criteria against which re-integration strategies in accounting are to be evaluated are specified and a literature search used to identify potential re-integration strategies. The success of strategies in other disciplines and their potential for application in the accounting context are evaluated. International accounting as a specialty area is identified as having broad characteristics which suggest that it may be the most suitable option for the integration role. The detailed characteristics which would be required for the success of the strategy are identified.

Chapter Seven **A Model of Knowledge Accumulation in International Accounting**

The knowledge accumulation modelling and mapping techniques developed in Chapter Five are applied to the results of a co-citation analysis of international accounting research literature.

Chapter Eight **International Accounting as a Catalyst for Re-integrating the Accounting Discipline**

The international accounting research literature as represented in the co-citation analysis and fish-scale map of knowledge accumulation is evaluated against the criteria for the likely success of international accounting as an integrating agent. The characteristics which were identified as important are found to be present, and specific strategies for integrating the accounting literature through research in the international specialty are identified.

Chapter Nine **Summary and Conclusions**

The thesis is summarised and the findings and contribution highlighted. Further research possibilities in the area of the knowledge accumulation process in accounting, and international accounting in particular, are discussed.

1.8 SUMMARY

This chapter has identified fragmentation of research as the common characteristic of four major concerns with accounting research. An effort to reduce fragmentation is identified as a means of affecting a long-term improvement in the research output of accounting by reducing the failure of research to deal with the needs of users. It is also seen as potentially increasing the efficiency of research output by reducing the tendency to "rediscover" research findings already known in other specialties within accounting. Further, increasing the integration of accounting research is important in ensuring its long-term viability as a separate discipline. The methods to be used in addressing the issue of fragmentation and re-integration in accounting are briefly outlined and the limitations of the study discussed. Finally an outline of the thesis is provided.

CHAPTER TWO
METHODOLOGY

> Evidently the picture people have of a subject can significantly affect its subsequent development. Therefore, although we cannot hope to settle the question definitively, we need frequently to examine and to air our views on what our subject is and should become. (Hamming, 1968 quoted in Westin, Roy & Kim, 1994, p. 32).

2.1 INTRODUCTION

The purpose of this chapter is to consider the methodological issues involved in the project and to introduce the methods used. In broad terms, the argument of the thesis is that accounting research literature has been found to be fragmented, that this fragmentation is partly the result of the unintended effects of the institutional structure in which research is conducted, and that it has a negative impact on the ability of the discipline to accumulate knowledge effectively and to remain viable as a discipline. Because fragmentation is partly a result of and is also implicated in problems in the knowledge accumulation process, it is appropriate to seek specific means of actively mitigating against it. Attempts in other disciplines to do this are considered and the option considered *a priori* most likely to succeed in the accounting discipline is selected for further consideration. The option selected is to promote within international accounting research an integrating role in a style similar to that which has been suggested for history. To evaluate the possibility that research in international accounting may be an effective integrating agent, it is first necessary to have a model of knowledge accumulation and a map of the current state of accounting research in terms of knowledge accumulation concepts so that the question of whether or not international accounting is a likely candidate for the role of integrating accounting research can be evaluated. If it is found to be likely, then the model and maps may be used to identify research strategies that will contribute to the integration of accounting literature.

Section 2.2 describes the methodological approach underpinning the selection of the research question and methods, to provide a background for more detailed discussion of the methods in Section 2.3. The final section summarises the chapter.

2.2 REFLECTION ON METHODOLOGY

This section reflects on three key aspects of methodology which underlie this study. First, the term methodology is considered and defined. The next section briefly reviews the broad methodological scope of accounting and "locates" the current study within that range in terms of key descriptors of methodological approaches. Section 2.2.3 considers different approaches in the philosophy of science literature to conceptualising the development of a discipline. Finally, a sociological perspective relevant to the study is briefly described.

2.2.1 Definition of methodology

The term methodology is variously defined and applied, and most often used interchangeably with "method" to mean the specific techniques and procedures adopted to answer the research question. This use of the term has been treated very disparagingly by some authors who suggest that a lack of literacy underlies such use of the term; "Methodology, in the sense in which literate people use the word, is a branch of philosophy or of logic . . . Semiliterates adopt the word when they are concerned neither with philosophy nor with logic, but simply with methods," (Machlup, 1963 quoted in Christenson, 1983, p. 2).

Chua's (1986) definition is simple and captures the idea that methodology is concerned with methods, how they are chosen and what is considered evidence in line with the associated epistemology. She writes, "Methodological assumptions indicate the research methods deemed appropriate for the gathering of valid evidence" (p. 604, see also Blaug, 1975, p. 406). This is the definition of methodology used in this study.

2.2.2 Methodological approaches in accounting

Belkaoui (1987, p. 48) discusses the underlying assumptions for research in the social sciences, and describes the differences in views on methodology as follows:

> . . . the methodology debate, concerning the methods used to investigate and learn about the social world, involves the ideographic-nomothetic debate. This debate focuses on whether the methodology involves the analysis of the subjective accounts obtained by participating or getting inside the situation as in the ideographic method or whether the methodology involves a rigorous and scientific testing of hypotheses as in the nomothetic method.

Belkaoui draws on Gordon Allport's early distinction between nomothetic and ideographic approaches, describing the former as "seeks general laws and employs only those procedures admitted by the exact sciences" (p. 179). This is identified by Belkaoui as "the accepted view of the role of accounting research" (p. 179). This agrees with Chua's (1986) "mainstream" characterisation for research with this methodological approach. Belkaoui also goes on to mention that the nomothetic/ideographic debate has also been termed the "quantitative versus qualitative research" debate (p. 180). This distinction has been linked to a dichotomy between normative (qualitative research) and empirical research, as a result of the emphasis on empirical testing of hypotheses in the "scientific method" (quantitative research) (Henderson & Peirson, 1977, p. 35). The empirical side of the divide was dominated by the positivists who equated empirical research with the markets- and agency-based archival research approach and excluded field studies and case research, which although "empirical" do not provide results that can be generalised. Recently, however, the growth in the range of qualitative methodologies being applied in accounting has highlighted the narrow understanding of the term empirical. The empirical content of studies in grounded theory or ethnographic work, for example, is being distinguished as empirical but not based on methods that produce research from which it is possible to generalise or which it is possible to reproduce, by labelling the latter approach as "positivist" research.

In order to pursue the objectives of this study, both an empirical technique and a normative/descriptive analysis are used. It is not considered possible to generalise results across disciplines or time, however, and it is the interaction of individual researchers which is seen as important for the generation of research output and the creation of the

social institutions and systems which constitute the environment in which researchers work. This socially constructed reality, is on the other hand, considered to be stable and is reproduced over time.

The descriptive part of the research is based on a conceptualisation of knowledge accumulation from a sociological perspective, using an empirical bibliometric technique to generate a descriptive mapping of the current state of accounting and international accounting research. The fundamental underpinnings of the purpose of the analysis are (a) that it is desirable to reflect on the direction and nature of research in accounting in order to make conscious choices about research directions in the future, and (b) that fragmentation of the research literature, beyond certain unavoidable levels, is undesirable. The reason for this position is explained in Chapter Three where the outcomes of fragmentation for a discipline are discussed.

The next section describes the philosophical perspective of the development of disciplines because this fundamentally affects how issues concerning research output will be viewed and what approach will be taken to address them.

2.2.3 Views of the development of disciplines

The philosophy of science debate about how the development of science and knowledge may be best described and the best prescription for effective knowledge accumulation has a long history and little hope of resolution. Blaug (1975) describes the logical impasse of philosophies of science:

> To believe that it is possible to write a history of science 'we es eigentlich gewesen' without in any way revealing our concept of sound scientific practice or how 'good' science differs from 'bad' is to commit the Inductive Fallacy in the field of intellectual history; by telling the story of past developments one way rather than another we necessarily disclose our view of the nature of scientific explanation. On the other hand, to preach the virtues of *the* scientific method while utterly ignoring the question of whether scientists now or in the past have actually practised that method seems arbitrary and metaphysical. We are thus caught in a vicious circle, implying both the possibility of science and an ahistorical, prescriptive methodology of science. From this vicious circle there is I believe, no real escape . . . (p. 400)

The possibilities for justifying a view of what is the best approach for advancing knowledge may be argued on the basis of philosophical and logical principles, but in the end each researcher will choose an approach based on personal belief or faith in one view over another. Chapter Three includes a discussion of the application of different views of scientific development in accounting because this also poses a problem for how we understand an area to exist as a discipline.

A fundamental tenet of this research is that the tendency to characterise research areas as methodological domains reinforces already existing social and institutional tendencies towards the separation of knowledge into the care of researchers who behave more like stubborn cliques than invisible colleges. By encouraging the idea that contributions to knowledge may be made from many perspectives, an attitude of openness and inquiry rather than of closure and dogmatism is nurtured. If accounting is to have a common discipline area it is important that commonality and communication are encouraged and enhanced so that through research a full understanding of the subject is cultivated.

Separate groups of researchers committed to accepting only one view of a subject may be able to produce efficiently a line of research based on that assumption, but there appears to be no "internal" mechanism within accounting research production which ensures that the research is grounded in the needs of its users (relevance) or that it is not "discovering" things already known in other areas of the research field. The concerns of many writers about the direction of accounting research was reviewed in Chapter One.

One dichotomy suggested for considering the development of areas of knowledge is between an internalist and an externalist view. This division is described variously (Barber, 1975; Blaug, 1975; Fuller, 1991, Westin *et al.*, 1994), and probably more realistically as a range of views rather than a simple division (Bunge, 1991). The use of the term varies from the descriptive, that is, how researchers are understood to produce research, to the normative, that is, how researchers should produce research.

Bunge (1991, p. 538) describes four levels of externalist view. The first,

> presupposes that the scientific community is self-regulating: that it sets its own agenda and settles its own affairs. This thesis is so mild as to be hardly distinguishable from the internalist thesis.

Bunge identifies Merton's work as the exemplar of this view.

The second form moves more towards an external position, with less emphasis on individual researchers. It:

> postulates that individual scientists do not act on their own but as members of their scientific communities, observing the norms and standards prevailing in such systems, seeking recognition and rewards from their peers, and in most cases following the scientific fashion of the day. (p. 538)

This view includes the idea that science is part of the "economic infrastructure of society . . . science is only a tool for solving economic problems. . ." (p. 539). There are exemplars in this view which perceive science as being not only economic determinants, but also ideological ones, which place it closer to the first view.

The remaining two categories which Bunge (1991) describes are radical externalist views in which all knowledge is viewed as "social in content as well as in origin" (p. 539). That is, that all sciences are not only conducted within a social context, they are *about* society.

The basic difference between the externalist and internalist views lies in the perceived source of direction for areas of research. The internalist view is that this direction should largely come from the body of researchers involved. The externalist position is that groups such as government bodies, private sector lobby or funding groups, professional bodies and other disciplines, should act to direct the course of development of research.

Westin *et al.* (1994) use citation analysis to evaluate the influence of other disciplines on the disciplines of computer science, management studies, management science and management information systems. They conclude that neither the internalist nor the externalist description is sufficient to explain the development of any of these disciplines (p. 31). They argue that depending upon the degree of influence of the internal and

external factors, the disciplines are best represented as being on a continuum somewhere between *internally driven disciplines* at one end and *externally driven disciplines* at the other.

Similarly, in accounting there are influences external to the academic discipline in the form of professional bodies, government research funding and private sponsorship of academic staff positions and research projects. The internal influences on the development of accounting research are common across most institutionalised departments in universities and include the academic institution itself, the academic mores and ethics, and the epistemological, ontological and methodological positions of the researchers. To the extent that the output of accounting researchers continues to be perceived as failing to meet the criteria important to external parties, accounting academics, who largely rely on external funding (private or public) to support their research activities, will find it increasingly difficult to maintain their autonomy. The threat of increased external interference in prioritising and directing research efforts is parallel to the threat of governmental regulation faced by accounting professional bodies in western countries in which the profession was perceived to be failing in its self-regulation of accounting practitioners. Fuller describes the externalist view of intervention as follows:

> Not only does this way of talking about things reproduce the most objectionable features of the internal-external history of science distinction but, more important, it masks the extent to which science is gradually devouring more of society's resources, whether they be measured in terms of labor, capital, or product. Thus science policy should be seen as just as much a defensive as an offensive measure on the part of society. (pp. 170-171)

The problem with meeting external demands is that an academic community may be caught lurching from one "hot" topic to the next as external groups identify areas of particular concern. This fire-fighting strategy has been used as a criticism of accounting standard setting bodies in the past. The perspective taken in this research is that an internally driven direction, with some, preferably limited, outside intervention, provides a better outlook for accounting research into the future. This view lies between the first and second of Bunge's (1991) externalist categories. It recognises the internal, social forces and individual elements of the production of knowledge, as well as accepting that

as an area of production with associated costs to society, external parties will have a vested interest in intervention should the outputs be considered unsatisfactory. It does not go so far as to argue that science is only a tool for solving economic problems or that the external should control or displace the internal social controls of a group of researchers.

This perspective directs the methodological approach taken in response to identified problems in research output. It motivates an attempt to stimulate the internal mechanisms of the discipline to adjust in order to rectify the problem without a need for external intervention. This type of adjustment is seen as an internal response, since the recognition of the problem and the identification of a strategy to alleviate it comes from within the body of researchers. It suggests that the internal mechanisms are not sufficiently responsive to problems to produce a change without self-conscious reflection on the process by those involved in it. However, the internal mechanisms are seen as more likely to be effective overall than ongoing direction on research goals and specific topics provided by an external policy group. The latter option allows little scope for the creativity, individual motivation and interests of researchers to result in innovation and "quantum-leaps" in knowledge.

The next section describes a sociological approach to studying the production of knowledge and its relationship to philosophical issues.

2.2.4 A sociological perspective

In this research fragmentation is shown to be one significant dysfunctional feature contributing to perceived deficiencies in accounting research output. The factors associated with fragmentation in accounting research, its underlying causes in the sociological structures of research institutions, and the identification of a source of integration from within the accounting discipline are the subject of this thesis. The sociological perspective is shown in Chapter Three to be a useful tool for considering the process of research production in a context in which there are strong methodological divisions and competing views of the nature of accounting as a research area. The

sociology of science, in particular, is relevant to the subject of this study. Barber (1975) analyses the relationship between the philosophy of science and the sociology of science as follows:

> The new view of the sociology of knowledge recognizes, indeed insists upon, the importance of the philosophical problems of knowledge. But the philosophical problems of science and other forms of knowledge have been attended to by an ancient, highly developed, and necessarily separate discipline - philosophy. These problems cannot be confused or merged with sociological problems of knowledge. Of course, as the newer sociology of knowledge further insists, sociological and philosophical aspects of knowledge are interconnected - that is, affect one another - at certain important points. But through considerable and important ranges on analysis, they are independent and separate from one another. (p. 104)

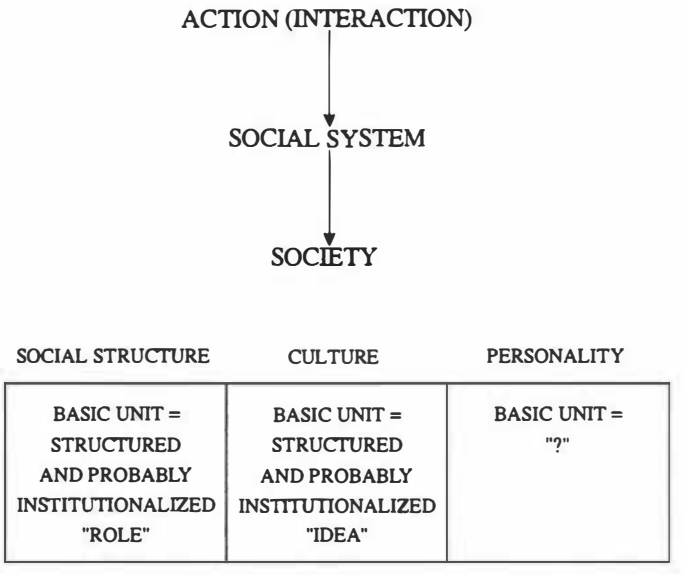
It is the areas of independence between the philosophical views that vary so widely in accounting and the sociological perspective, that provide this approach with its special descriptive ability in the case of accounting where many different philosophies of science are adopted.

Barber goes on to describe the assumption underlying sociological analysis as resting upon the idea that action and interaction between and within systems are conceptual tools rather than views of the nature of reality. He shows the systems in a diagram reproduced as Figure 2.1.

In this schema one underlying idea is that the basis of analysis for role and idea structures are institutions, and although Barber admits that this term has been used in a variety of ways in the sociological literature, it is only used to refer to social structures and he suggests that it be understood as, "supported by more or less moral consensus among those who are engaged in those structures" (p. 106).

Another key aspect of the schema is that it reflects the independence and interdependence of the three elements of; social structure, culture and personality. Barber (p. 107) argues that, "the sociology of knowledge consists in relating any one or

FIGURE 2.1 Relations Among Action, Social System, and Society



Source: Barber (1975, p. 105)

more of the cultural subsystems either to other subsystems or to other subsystems in culture, or to subsystems in social structure, or to subsystems in personality." In this thesis the social structure of the production of academic knowledge is related to the cultural structure of ideas in the form of an intellectual structure of knowledge in accounting and, at the individual level, the motivations of researchers as they respond to social institutions are incorporated.

This section has provided the methodological background for the research question and the line of argument adopted in the thesis. The next section discusses the methods applied in order to achieve the research aim.

2.3 RESEARCH STRUCTURE AND METHODS

The nature of the tasks undertaken in the study varies between developing concepts and models based on previous literature through to the use of empirical techniques for describing the current intellectual structure of research. The range of different methods is necessary to meet the objectives described in Chapter One. The section is divided into

parts to reflect both the structure of the research and the particular methods used. The first part considers the approaches adopted to develop a concept of fragmentation. The second part describes the analysis necessary to develop a model of knowledge accumulation, a compatible method for empirically representing the intellectual structure of a discipline and a technique for mapping that structure. The third part discusses the methods used to identify and evaluate re-integration strategies. The potential techniques to investigate the selected re-integration strategy are discussed in detail. The final part discusses how specific implementation strategies were pinpointed.

2.3.1 Fragmentation in the accounting literature

The first objective of the study is to analyse the concept and implications of fragmentation for a discipline. Literature searches through *Firstsearch, ABI/Inform* and the traditional method of using citations from documents already obtained, provide the basis for a literature review on fragmentation and related areas such as specialisation. The literature was synthesised by classifying the factors associated with fragmentation into causes, characteristics and outcomes. The evidence of fragmentation and its effects in other disciplines as well as in accounting are also reviewed. Overall, the approach is to explain the concept of fragmentation based on literature in the area and experience in a range of disciplines.

2.3.2 Knowledge accumulation and the discipline of accounting

Much of the argument surrounding the issue of fragmentation centres on the idea that there is a level at which research should be integrated. The focus of the issues raised about accounting research is more frequently on the disciplinary level rather than seeking to integrate accounting with other social sciences. Therefore, it is important to establish the nature of the construct of a discipline in the context of a research area in which there is a great deal of debate about the appropriate model for scientific progress, and the appropriate methodologies and research questions. An approach is sought that encompasses the wide range of views in accounting to form a construct of a discipline that may be used as the basis of a descriptive model of accounting research which is inclusive and appropriate to reduce fragmentation.

The approach adopted is to review the various methodological debates in accounting and identify any common themes. The common element, a sociological approach, is then used to assess whether or not accounting may be considered a discipline in those terms. This involves a literature review to identify indicators of disciplinary status and then a comparison of accounting against the indicators.

Having established the context in which accounting may be viewed as a discipline, the sociology literature is further used to develop a description of the process and pattern of knowledge accumulation. This satisfies the second objective of developing a model of knowledge accumulation. Indicators of the appropriateness of this description for accounting are provided by observing features of the accounting discipline either directly or as described in the literature.

The third objective is to identify a method for describing a body of research that is compatible with the model of knowledge accumulation. This analysis is taken in the latter part of this section in which techniques for describing a literature are reviewed and the most appropriate one for this study is selected. A detailed description of this technique, co-citation analysis, is provided because it has not been widely used in accounting literature, and it is woven into the knowledge accumulation model that forms the basis of the subsequent analysis.

The fourth objective is to develop a mapping technique that captures some of the key aspects of the knowledge accumulation process and pattern in conjunction with co-citation analysis. This is undertaken based on previous approaches to cluster mapping and is largely a matter of analysis and trial and error. The mapping technique is then applied to Bricker's (1987) co-citation study of the accounting literature, and used to describe areas of fragmentation.

2.3.3 Reintegration strategies

The next objective of the study is to identify potential re-integration strategies. Since there is no theory that may be applied to structuring integration approaches, a review of

the strategies recommended and adopted in other disciplines is used as a starting point to identify types of strategies used in the past and the factors that affect their outcomes. This leads to the development of a strategy that is based in the experience of other disciplines but specifically designed to be appropriate for accounting.

2.3.4 Analysis of the international accounting literature

The re-integration strategy selected at the previous stage is evaluated in more detail to ensure that it satisfies the preconditions identified. The method adopted as compatible with describing a literature and the knowledge accumulation approach, co-citation analysis, is applied to international accounting literature to identify whether or not international accounting currently exhibits the characteristics identified as important for its role as an integrative mechanism in the accounting discipline. It also provides a view of the intellectual structure and content of international accounting research which may be presented as a map using the technique developed for the purpose.

The rest of this section provides an analysis of potential methods for describing the characteristics of a literature, international accounting literature in particular, in line with a knowledge accumulation approach. The selected method, co-citation analysis, is explained in detail. First, expert review is considered as a possible approach to understanding the intellectual structure of a discipline or specialty area. Then the broad category of techniques known as bibliometric analysis is introduced and the prior literature on bibliometric analysis is reviewed. The two main citation methods, bibliographic coupling and co-citation analysis are described and the technique best suited for the current purpose is identified. Following that, the strengths and weaknesses of co-citation analysis are described. Finally in this section, a summary is provided.

2.3.4.1 Expert review

A number of approaches are available to study a body of knowledge. One approach is for an expert in the field to review the literature, classify the research and provide opinions on the need for further research in specific areas. Alternatively, bibliometric

methods which rely on empirical evidence drawn from citations in published works may be applied (Garfield, 1979).

There are expert reviews of research in international accounting, for example, Gray (1983 & 1989); Meek and Saudagaran (1989); Mueller (1989); Samuels and Piper, (1985); Wallace (1987). While they are valuable in providing a perspective on aspects of the research area, their subjective nature and the limited capacity of any one researcher (or group of researchers) to summarize accurately the content and direction of a literature spanning thirty years (Gamble, O'Doherty & Hyman, 1987) suggest that this approach is not appropriate for the current study.

2.3.4.2 Bibliometric methods

Pritchard (1969) defines the term bibliometrics as, "the application of mathematical and statistical methods to books and other media of communication" (p. 349). Bibliometric techniques use relationships in published communications such as: between a published work and the works it cites; patterns in publication including the age of the cited paper; cross-citations between journals; and types of footnoting and citation counts to investigate relationships in a body of literature. Baird and Oppenheim (1994) describe the nature of this relationship:

> A citation is, of course, a reference to some previously published work that is relevant to the argument the author wants to make. The author may be criticising the earlier item, may be building on it, may be using it to enhance his or her argument, or may be acknowledging an early pioneer. Maybe an author makes a citation simply to imply that the author has read widely around his or her subject. Authors use citations to illustrate, to elaborate, to build on or to criticise. The author believes the earlier item is relevant and wishes to draw the reader's attention to it.
> A citation, therefore, links the earlier cited paper to the later one that cites it. (p. 3, paragraphing in original)

Some basic terms in citation analysis are the source document (or work) and the cited document (or work). The source document is the article, or book, or other document that makes reference to another published document. The latter document is referred to as the cited document. In the following literature review, bibliometric methods are

classified by their purpose, in order to facilitate the process of selecting the appropriate method.

2.3.4.3 Literature review

Since the inception of computerised citation indexing services by Eugene Garfield, bibliometric analysis has been widely used and well accepted in virtually every area of academic pursuit. Numerous studies are regularly published in journals such as: *Scientometrics, Journal of Documentation, Journal of Information Science, Journal of the American Society for Information Science,* and many studies are published in the specific disciplines' journals (Liu, 1993, p. 374; Warning & Emerson, 1995, p. 84).

The studies have been used in science policy analysis, in the design of library collections, for understanding the forms and structures of research in "science," for particular disciplines and specialties, as well as for identifying important researchers, works, schools and journals.

The specific objectives of bibliometric studies fall into four categories:

(1) Analysis of bibliometric characteristics
(2) Impact or influence studies
(3) Studies of why and how authors make citations
(4) Studies which map specialty knowledge bases.

Each category will be briefly described with reference to the relevant literature, so that the role and particular characteristics of co-citation analysis as a bibliometric technique and the impact of criticisms of citation studies may be clarified.

Bibliometric characteristics are features of the communication media such as: the growth in publications; the life expectancy of a published work, that is, the period over which it may continue to be cited; the age of the literature cited - a seminal measure of which is the immediacy factor; approaches to footnoting; the frequency with which an author is

expected to publish[1]; and journal productivity studies. This type of analysis has been applied in the physical sciences (e.g., Burton & Kebler; 1960; Lotka, 1926; Magyar, 1974; Price, 1965), in the social sciences (eg., Cole & Zuckerman, 1975; Cole, Cole & Dietrich, 1978; Crawford & Crawford, 1980; Pierce, 1992), and in business studies areas (e.g., Bricker, 1988a & b; Chung, Pak & Cox, 1992; Gustafson & Kuehl, 1974; Hamilton & Ives, 1982; Heck, Jensen & Cooley, 1991; Smith & Krogstad, 1984 & 1988).

The second category of studies considers the influence or impact of an element of interest on the literature of an area. The element may be a journal or journals, influential articles, authors, departments, doctoral programmes, reference disciplines or even at the specific level of particular attributes of articles. This work has once again been popular across all academic areas and has been linked to a notion of success of the element being tested. Authors working in this area are generally careful to specify that they are measuring a degree of influence or impact rather than imputing levels of quality to the element being studied. Examples of typical studies in this category for the physical sciences are Garfield (1977a & 1977b[2]); in the social sciences Baird and Oppenheim (1994), and Downing and Stafford (1981); and within the business studies area accounting has had many such studies - Chung, Pak and Cox (1992), Bazely and Nikolai (1975), Beattie and Ryan (1989 & 1991), Brown and Gardner (1985a & b), Brown, Gardner and Vasarhelyi (1989), Gamble and O'Doherty (1985), and Lehman and Street (1990).

Studies of why and how authors decide to cite another document are important for the development and understanding of citation analysis. However, because of the methodological difficulties involved in conducting these studies, they tend not to be so

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1 Such studies usually take the form of a test of one of the extant models such as Lotka's law, Price's Cumulative Advantage Distribution, Bookstein model, or Brookes' model (see O'Connor & Voos, 1981 for a review of the literature).

2 Garfield alone produced so many of this style of impact study in his regular contributions to *Current Comments*, that these have been selected as a purely representative rather than a comprehensive list of articles.

numerous. By the very nature of the work it is necessary to read the text of every article to classify the reason for each citation (Chubin & Moitra, 1975; Moravcsik & Murugesan, 1975; Small, 1978 & 1980). To do the type of study undertaken by MacRoberts and MacRoberts (1986) not only must every article be read, but also the researchers must be experts in the area. They attempted to identify not only whether or not the references made were the correct and important ones, but also which references to relevant material were omitted. MacRoberts and MacRoberts provide a "*very preliminary*" (p.165, emphasis in original) analysis of 15 papers only. Another approach to understanding the uses and usefulness of citations is to ask authors themselves, using either survey or interview techniques. This raises the difficulty of whether or not the authors are able to distinguish clearly why they cited certain works, and once again is very time-consuming research requiring specialist knowledge of the area (Brooks, 1985; Cano 1989). Heck and Huang (1987) study the rankings of the impact of articles provided by peer assessment and compare it to citation results for the accounting literature. Liu (1993) provides a useful review of this aspect of citation studies. Details of the findings of this work will be covered in the section below on strengths and limitations of co-citation analysis.

The final category of citation studies is those that map specialty knowledge bases. This type of citation analysis is based on the assumption that there is a relationship between the citing and cited papers which reflects the underlying cognitive and social structure of a field of inquiry. The development of bibliometric coupling and co-citation analysis in the 1970s provided this window on the structure of disciplines and specialties, and it has been applied in many areas of academic pursuit. Bricker (1991a, p. 29) describes the intellectual mapping as follows:

> Cocitation clustering is a method premised on the existence of an intellectual relationship between all documents (or in some work, authors) included in a single bibliography. . . .If clusters identify specific research areas, then the clustering of cocitation data results in a natural expression of the intellectual structure of a discipline . . .(p. 29) (See also Small, 1973, p. 268 and Small, 1977, p. 140)

While bibliographic coupling and co-citation analysis are the purpose-built techniques for this type of study, other approaches have been used to create an understanding of the

structure and relationships within and between disciplines. These may be as simple as counting citations by one discipline of another or comparing relative publication counts. The application of these techniques is reviewed here.

Any of the mapping techniques may be applied to different units of bibliometric data and there also may be a large variation in the scope of the subject area studied. The early approaches focussed on the relationship between documents, but since then the techniques have been applied using authors as the basis of establishing links, journals and even countries. These techniques have been applied at the macro-level using all citations in both the Science Citation Index and the Social Science Citation Index for a period, through to particular specialties such as agency research in accounting. Table 2.1 provides a sample of studies classified by the bibliographic feature analysed, and the scope of the study.

This literature spans 20 years and is still being developed and expanded. Refinements in approaches have included the clustering of clusters, the use of co-subject analysis, and subject classifications by source documents citing a cluster. The September 1990 issue of the *Journal of the American Society for Information Science* was devoted to co-citation analysis. It appears that the area has gained the respect and interest of a wide range of researchers.

Of the four categories of application of citation analysis reviewed in this section, the mapping category is the one that best matches the purpose of mapping the intellectual structure of international accounting. The next section focuses on the specifics of mapping techniques, bibliographic coupling and co-citation analysis, with a view to determining the best technique for the current study.

TABLE 2.1 Mapping Studies Classified by Bibliometric Attribute and Scope

Scope / Bibliographic characteristic	Macro Level-Physical and/or Social Sciences	Physical Science	Social Science	Business	Accounting
Document	Small (1993)	Braam, Moed, & van Raan (1988 &1991); Garfield, Malin & Small (1978); Griffith, Small, Stonehill & Dey (1974); Small (1973, 1977); Small & Griffith (1974); Small, Sweeney & Greenlee (1985); Miyamoto & Nakayama, (1983)	Crawford & Crawford (1980); Usdiken & Pasedeos (1995)	Culnan & Swanson (1986); Blackburn & Mitchell (1981)	Bricker (1987, 1989, 1991a); Gamble, O'Doherty & Hyman (1987); McRae (1974); Hofstedt (1976); Brown, Gardner & Vasarhelyi (1989)
Author	Cole, Cole & Dietrich (1978)	McCain (1986)	McCain (1983, 1984, 1986); Paisley (1990); White (1983); White & Griffith (1981a & b)	Culnan (1986); Culnan, O'Reilly & Chatman (1990); Warning & Emerson (1995)	
Journal		Braam, Moed, & van Raan (!988); McCain (1991, 1992); Miyamoto & Nakayama, (1983)	McCain (1991)	Beattie & Ryan (1991)	Everett & Watson (1991)
Country			Usdiken & Pasedeos (1995)		

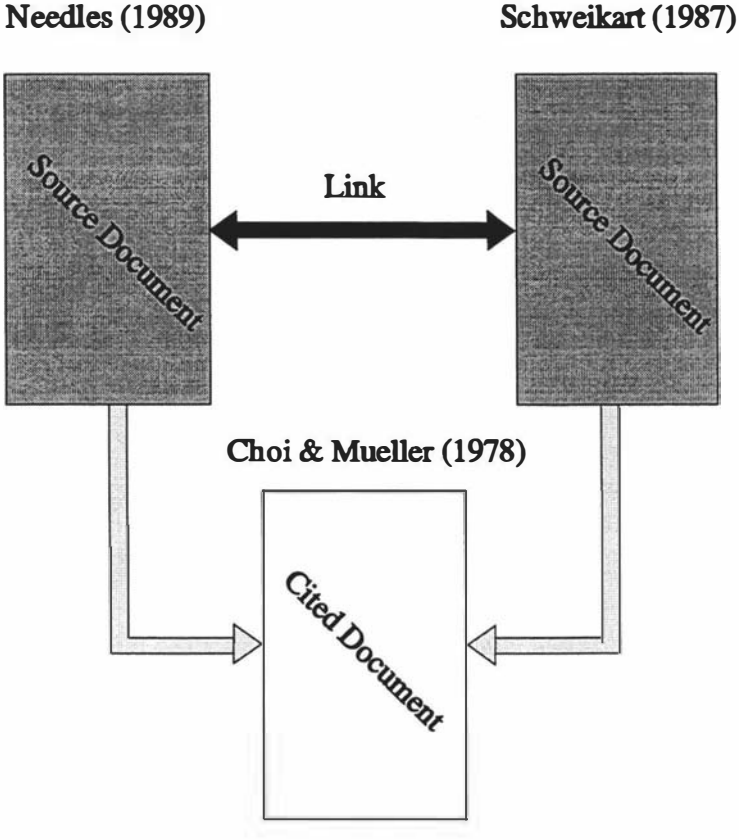
2.3.4.4 Bibliographic coupling and co-citation analysis

Bibliographic coupling and co-citation analysis are the most commonly used techniques for identifying the structure of a body of literature. Kessler (1963) is accredited with the development of bibliographic coupling - the first of the methods for mapping an

intellectual structure. Co-citation analysis was originally devised by Henry Small in his 1973 paper, was further developed by Small and Belver Griffith (Griffith, Small, Stonehill & Dey, 1974; Small & Griffith, 1974; Small, 1977), and extended into author co-citation by White and Griffith (1981a) and White (1983).

The approach in bibliographic coupling is to identify source documents that refer to the same cited document. In this way links are established between source documents based on the idea that they share a commonality since they cited the same document. For example, Needles (1989) cites Choi and Mueller (1978); Schweikart (1987) also cites Choi and Mueller (1978). The two source documents are linked by their common reference to a cited document, Choi and Mueller (1978). Figure 2.2 shows this diagrammatically. Note that the more cited documents two source documents share, the stronger the link between the two source documents.

FIGURE 2.2 Bibliographic Coupling



Co-citation analysis, on the other hand, focuses on the cited documents. For each source document every work cited is paired[3] to form co-citation pairs. For example, Needles (1989) cites Choi and Mueller [C&M] (1978), Mueller (1979), Bindon and Gernon [B&G](1987), and Gray (1983), among others. Co-citation analysis focuses on the link created by the source document between the cited documents by creating all possible unique pairs from the cited documents. In this case the pairs are;

Pair no:	1	C&M (1978) and Mueller (1979)
	2	C&M (1978) and B&G (1987)
	3	C&M(1978) and Gray (1983)
	4	Mueller (1979) and B&G (1987)
	5	Mueller (1979) and Gray (1983)
	6	B&G (1997) and Gray (1983).

These are the co-cited pairs for Needles (1989). The co-citation procedure seeks to identify unique pairs of documents. For this reason it is the combinations of pairs and not the permutations which are of interest[4]. Thus, in the pairing above there is not another pair Mueller (1979) and C&M (1978) because this would include the same pair twice. The pairing procedure has two steps. First, as a practical means of ensuring that pairs are always formed in the same order (and therefore that Mueller (1979) and C&M (1978) would not be formed in that order) the cited documents from all source documents are sorted into a specific order **before** pairing. This may be alphabetically on author name or if each cited document has been assigned a unique identifier - in numerical order. Second, the pairing algorithm used above is applied and so the pairs are always formed as "A" and "B" and never "B" and "A". For the example above, this means that pair 1 is in the correct order, pair 2 would be B&G (1987) and C&M (1978).

The pairing process is repeated for all source documents and then the number of times the same pair is cited by different source documents is counted. The more times a pair is co-cited (i.e., the greater the number of source documents which cite both the

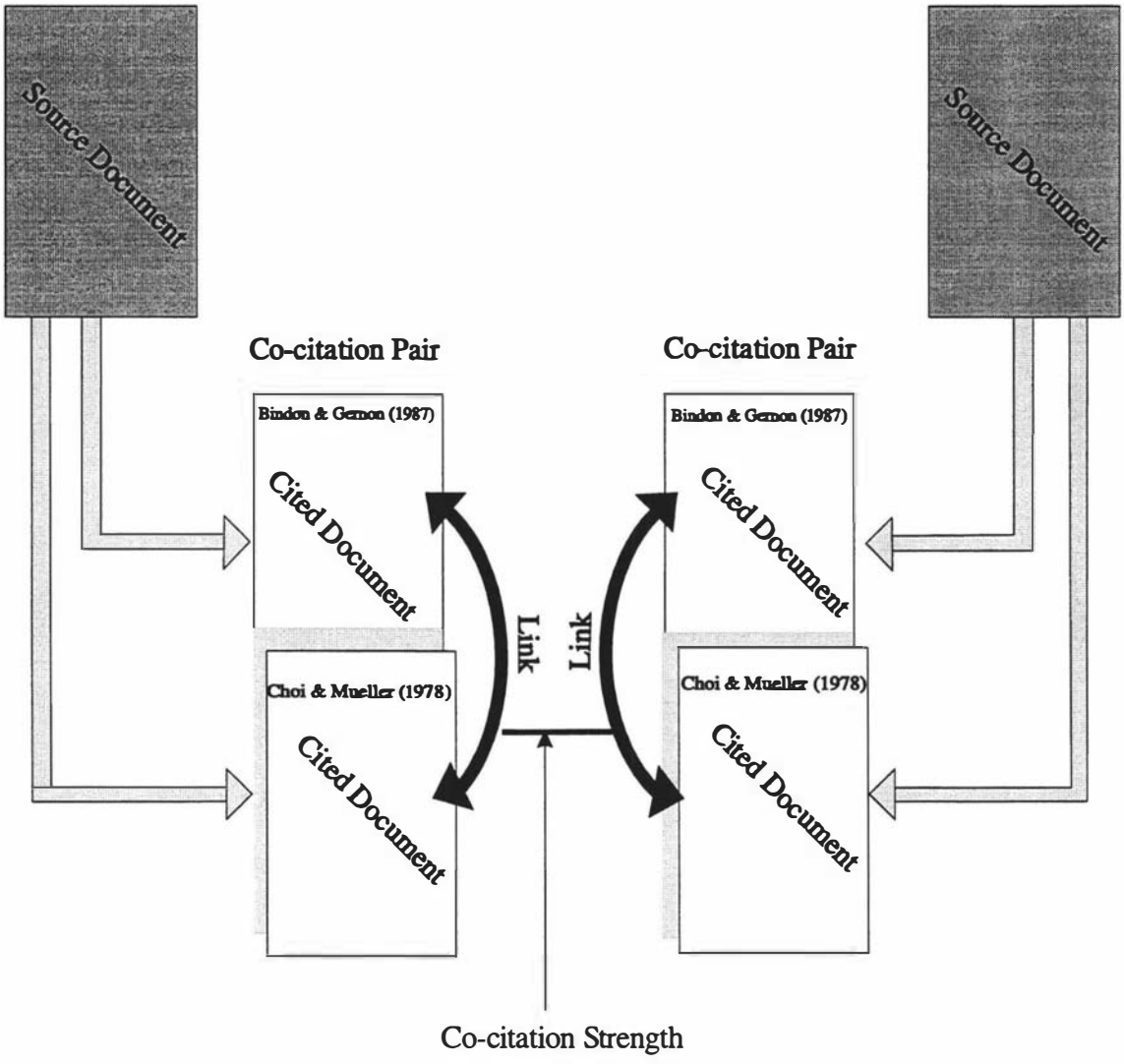
---

[3] The "co" in co-citation analysis refers to this pairing. Tri-citation analysis has been considered and ruled out because the number of repeated citations of triples of papers is very low (Small, 1980).

[4] The number of unique pairs generated from n documents is : $\frac{1}{2}n(n-1)$

documents together) the stronger the link between the pair of papers. Figure 2.3 shows the link observed between the co-cited pairs using this technique.

FIGURE 2.3 Co-citation Analysis



The case of multiple authors for a document makes no difference to the analysis because it is the documents that are being co-cited and the authors are only a traditional means of identifying documents[5]. The co-citation pairs are generated from all source documents

[5] Author co-citation analysis is another application of the co-citation technique discussed later in the chapter - this section deals only with document co-citation. In the database developed for this study, each document is in fact identified by a unique code number rather than using the authors as identifiers.

and the number of times a unique pairing occurs is counted. This frequency of co-citation, called co-citation strength, shows how many times the ideas contained in the two previously published documents were linked in later documents[6], and thus reflects the degree of consensus within an area about the link between the two documents in a co-cited pair. Small (1973) describes it as follows, "In measuring co-citation strength, we measure the degree of relationship between papers as perceived by the population of citing authors" (p. 265). If a pair of documents has a high co-citation strength many source authors perceive a strong relationship between them.

Bibliographic coupling is the "sharing of one or more references by two documents" (Small, 1973, p. 265), whereas co-citation analysis links documents which are cited together by a single work and searches for similar pairs cited together in other works. The fundamental difference in the two techniques lies in the nature of the links established. As Small (1973) explains:

> Unlike bibliographic coupling which links source documents, co-citation links cited documents and is, therefore, analogous to a measure of descriptor or word association. . . . Bibliographic coupling . . . is a fixed and permanent relationship because it depends on references contained in coupled documents. Co-citation patterns change as the interests and intellectual patterns of the field change. (p. 265)

The possibility of new pairs being created every time a source document is added also increases the technique's ability to trace the development of links between ideas as the database of source documents is increased. For this reason, co-citation analysis is generally considered the most appropriate technique for mapping and tracking the structure of a knowledge base as represented in its literature.

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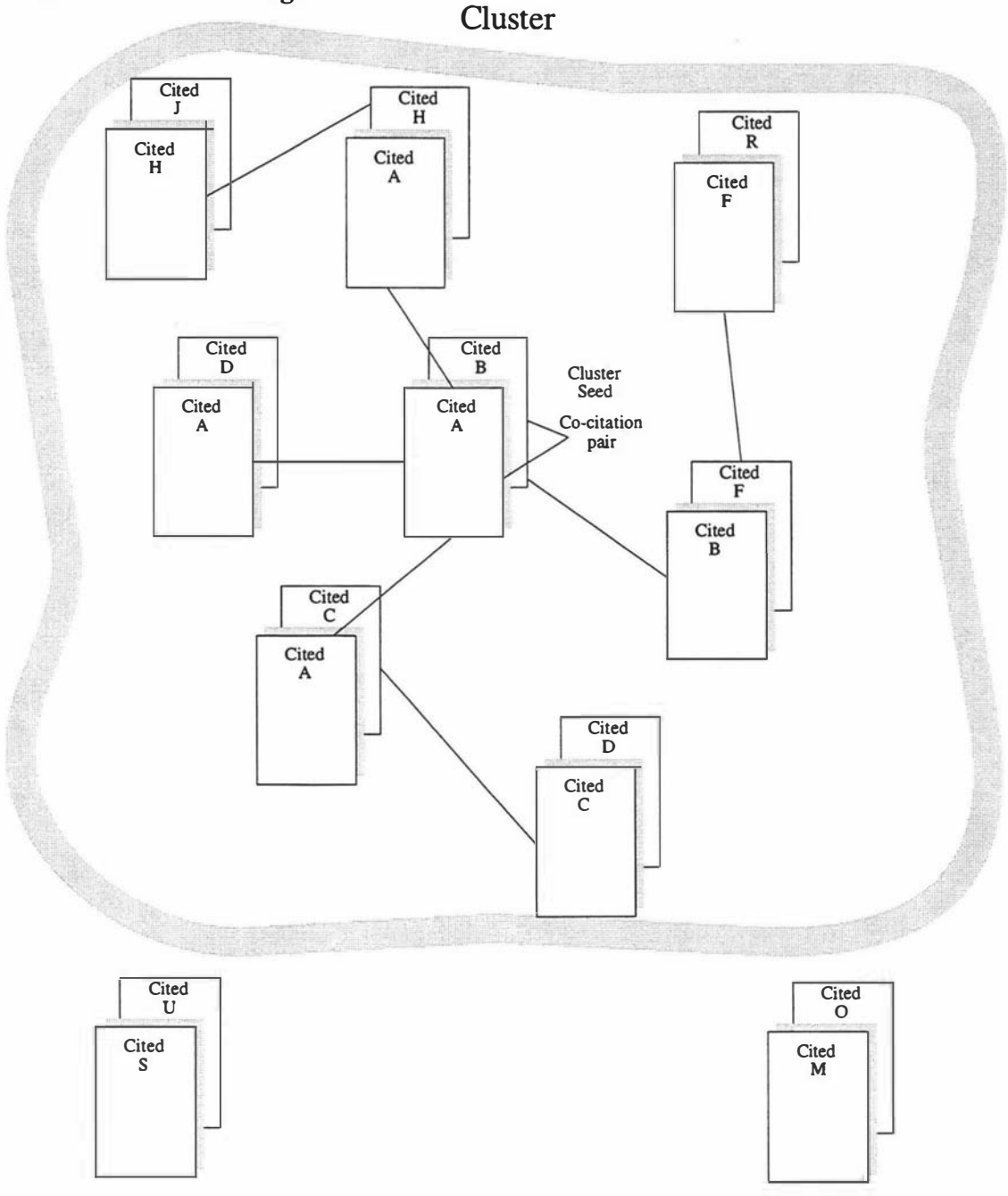
[6] Note that a pair is formed only once for each source document, regardless of how many times it is referred to in the document since there is no attempt to measure the degree of impact of a particular document or idea on the source document. This leads to the point that this type of study is clearly distinguishable from the impact studies discussed earlier in that it attempts to trace the linkages of ideas or communications between researchers and is not focussed on the degree of impact of a particular author or document. Thus, for example, a document which is highly cited in its own right is likely to be highly co-cited as well. It may be, however, that it tends to be cited with only a small number of other papers . This would lead to it having a high co-citation strength in a very small cluster.

One approach to mapping the pattern of linked ideas is to use co-citation pairs to seed co-citation clusters of a given minimum co-citation strength. The clustering sequentially links all pairs of documents which have one paper in common. Once all the documents which have any link with the original pair have been included in the cluster, the cluster is complete. Thus, each cluster will include documents which are linked, either directly or indirectly, with documents already included in the cluster, as shown in Figure 2.4.

FIGURE 2.4 Clustering Process



When the first cluster is complete, a pair from any of the remaining pairs is used to seed the next cluster and so on until all the pairs are clustered or shown to be isolated as clusters of only one pair. Other techniques for mapping co-citations include multidimensional scaling (MDS) and factor analysis.

The extension of the method to include sequential co-citation threshold stepping is a useful advance in the method's application (Bricker, 1987). This method applies citation threshold levels stepping through from a minimum to a maximum and plotting the resultant clusters on the dendogram. Thus, if the threshold is three, each co-cited pair to be included for clustering must have been cited together at least three times. As the threshold is raised, fewer documents of more general application are included. The highly co-cited documents included at high CTLs are naturally also included at lower CTLs, so in general, any document included in a level higher than the current CTL must also be included in the current CTL. A dendogram is a way of representing this nesting of the clusters which occurs as the threshold level is changed. Figure 2.5 shows a representation of how a dendogram is created in this fashion for the pattern of document pairing shown in Table 2.2. Note that it is easier to follow the development of the clusters as documents are added by reading from the highest CTL to the lowest. Cluster 1 at CTL 5 contains four unique documents; A, B, C and D which form three co-citation pairs. These pairs remain clustered together as the CTL is lowered and additional pairs with lower co-citation strengths that are linked by a single document to that cluster are added. For example, at CTL 4 the pairs B and E and D & E are linked to the original Cluster 1 by the documents, B and D. At CTL 3 the pair E and F is added and this provides the link with the document F that draws the pair, F and G into the cluster, and so on. As more pairs are included in the clusters, some clusters are likely to merge as additional pairs create links to bring the clusters together. It is this relationship between the clusters that is reflected in the dendogram. Each line represents a cluster and they are shown to merge in the nesting structure as the lines meet in the dendogram. For example, in Figure 2.5 Clusters 2 and 3 are shown to merge at CTL 4[7].

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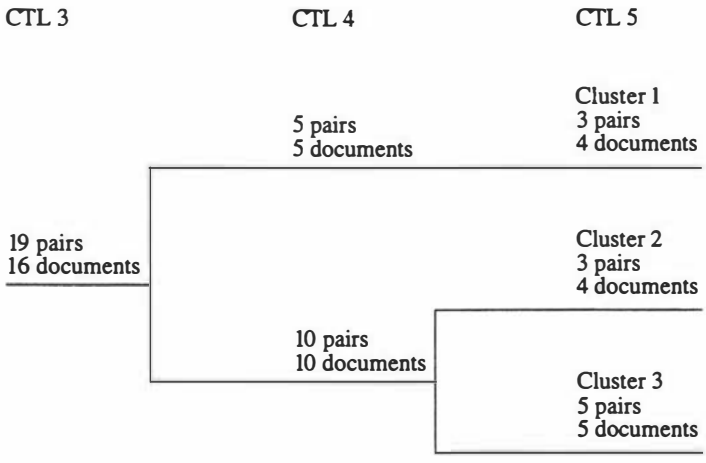
[7] A point to note is that the numbering of the clusters as generated by the clustering routine is quite arbitrary. Further, the re-running of the clustering routine at different CTLs means that if the same seed pair is used and Cluster 1 and Cluster 2 merge at CTL 5, then what was Cluster 3 at CTL 6 may

TABLE 2.2 Example of clustering at different CTLs

CTL 3	CTL 4	CTL 5
Cluster 1	**Cluster 1**	**Cluster 1**
A & B	A & B	A & B
A & D	A & D	A & D
B & C	B & C	B & C
B & E	B & E	
D & E	D & E	
E & F	**Cluster 2**	**Cluster 2**
F & G	F & G	F & G
F & S	F & S	F & S
G & Y	G & Y	G & Y
S & T	S & T	
R & T	R & T	**Cluster 3**
R & U	R & U	R & T
T & X	T & X	R & U
H & T	H & T	T & X
H & X	H & X	H & T
U & V	U & V	H & X
V & W		
T & W		
R & X		

FIGURE 2.5 Sample Dendogram



now be numbered Cluster 2 (or it may occur in a different place in the clustering sequence and have a completely different cluster number).

Stepping through the threshold levels thus provides a nested structure of the research area (Garfield, 1979, p. 102; Bricker, 1989, p.250). The benefit of sequential co-citation threshold stepping is that it allows the focus of the structure to be expressed from very narrow on the right hand side of a dendogram representation of the clusters to very broad on the left. That is, it reveals the levels of nesting within clusters.

The combined characteristics of capturing the intellectual exchange of ideas through citations, the dynamic nature of the co-citation analysis and the ability to describe the structure of the research area make co-citation analysis an appropriate technique to provide a description of the subject matter of international accounting.

While either of the bibliometric techniques are compatible with the sociological perspective of research production taken in this thesis, as Gamble *et al.* (1987) describe, co-citation is a dynamic way of constructing a social science history of a specialty.

A final reason for adopting the co-citation approach is that it allows a direct comparison with Bricker's (1987) structure of the research literature in accounting which has been used as a basis for the knowledge accumulation model in Chapter Five. While other methods may be used to identify the structure of international accounting, as explained above, the use of the same technique as Bricker allows for a more direct and appropriate comparison of results.

The foregoing discussion has emphasised document co-citation analysis. As shown in Table 2.1, however, co-citation studies based on authors have also been widely applied. The technique is the same except that rather than linking cited documents, cited authors are paired, co-citation strengths calculated and clustering proceeds in the same manner. Having identified clusters of co-cited authors, the clusters are characterised by reference to the main specialty interests of the authors included. While this method may be successfully used for generating maps of the intellectual structure of the discipline or specialty area, it is more directly a reflection of communication patterns among researchers in the area. To the extent that a document-based study is linking the concept

or idea expressed in one document to others, and this view does not change over time (unlike the position of authors on issues), then a document-based analysis is more directly concerned with the intellectual structure of the area. For this reason, a document-based study is preferred for the purposes of this research.

2.3.4.5 Strengths and limitations of co-citation analysis

The strength of citation studies stems mainly from the objectivity and availability of the data. The limitations are related to the uncertainty about the process behind academics' citation choices and some technical, practical issues associated with the data and analysis. Difficulties associated with impact or influence studies, which are inherently controversial in their attempts to measure productiveness and quality (Carey, 1993; Carey, Solomon & Wilson, 1995; Liu, 1993, p. 373-374), are not relevant as the current study is focussed on co-citation analysis.

The discussion proceeds by first considering the fundamental assumptions underlying co-citation analysis and whether or not these assumptions are supported in the literature, noting associated strengths and limitations. The more technical aspects are considered next, and finally the section is summarised.

2.3.4.5.1 Strengths and limitations of fundamental assumptions

As mentioned above, the fundamental assumption underlying co-citation analysis is that a citation represents an intellectual connection. When a source document cites two previous documents it follows that they are perceived as linked by the author of the source document. Should this be the first time the two documents are linked, it may be that the source author is taking the first steps to synthesize a previously diverse area of the literature. If the pair of cited documents are subsequently cited together by other authors (and therefore has a high co-citation strength) the intellectual link perceived and created by the first source author is accepted and potentially developed by other authors. By mapping the links created at co-citation strengths greater than one co-citation analysis seeks to bring to the surface the consensus of many writers in a field about the pattern and structure of research work in that field or between that field and others.

White and Griffith (1981a) and Culnan *et al.* (1990) refer to this as "the field's view" of itself which offers a completeness and lack of individual bias not available through individual reviews. Small and Griffith (1974) explain this as follows:

> Many of the relationships we have uncovered are, of course, known to the specialists themselves, since they were established by their own citing patterns, but the perspective this method offers is far broader than can be achieved by any individual scientist. This is the crux of the method: the observed relationships are in substance those which have been established by collective efforts and perceptions of the community of publishing scientists. Our task is to depict these relationships in ways that shed light on the structure of science. (pp. 39-40)

This results in another advantage for the co-citation technique which is that it does not require a formal definition of the discipline or specialty area since the "field's view of itself" establishes the boundaries through the citation patterns revealed in the clustering process. Small (1977) explains:

> The principal difficulty with this approach [experts establishing bibliographies of an area] is that it is almost impossible to establish precise criteria as to what should or should not be included within the boundaries of the subject, and the temptation is to apply present-day criteria to earlier literature. The method employed here, on the other hand, uses a clustering algorithm to establish these boundaries; it involves no subjective decisions on what is to be included or excluded from the specialty literature. (p. 140)

The second major assumption is that the citing of a document is representative of a particular idea in the research area. If this follows, when the co-cited pairs are clustered, a content analysis of the clustered papers should reveal a concept or area which captures the notion to which the source authors were referring.

The limitations of co-citation analysis and citation analysis in general largely relate to the lack of understanding about why and how source authors make references to preceding works. It may be that authors over-cite (Cole, Cole & Dietrich, 1978, pp. 228-229), that is refer to more papers than necessary for many possible reasons, the most cynical of which is to show they have seen a wide range of the literature (Moravcsik & Murugesan, 1975; Subotnik, 1991). It may be that source authors tend to under-cite (Cole *et al.*,

1978; MacRoberts & MacRoberts, 1986). That is, they either deliberately or accidentally omit citations to relevant references.

The tendency to over-cite has been explored in the literature referred to above which considers why and how authors reference work. It has been suggested that a large number of citations are perfunctory or redundant and that some are designed to win favour with key people in the area (whose work is just more visible anyway). For example, Moravcsik and Murugesan (1975) in their study of thirty articles in the field of high energy physics found that 31 per cent of the references were redundant and 41 per cent were perfunctory. It has also been suggested that authors naturally tend to cite the work they are familiar with and this is usually the work of researchers they know in the area. There may also be a higher tendency to cite review papers to avoid the need to review an area in the current paper.

Based on their review of the literature, Baird and Oppenheim (1994, p. 6) offer the following list of possible reasons for citing:

- paying homage to pioneers in the field;
- giving credit to related work;
- the reference to a standard methodology . . . citing rather than describing it in detail;
- providing broad background to the topic;
- correcting or criticising the previous paper;
- quoting earlier papers that offer corroboration for one's ideas or claims;
- alerting researchers to forthcoming work;
- drawing attention to previous work that is not well known, but ought to be;
- identifying an earlier publication from which the author obtained the original idea for his or her work;
- eponymic citation - the first reference to an idea term or technique that has a person's name;
- citing a major figure because it makes your research look more respectable;
- citing a major figure because you think he or she may be a referee of the paper when you submit it to the journal;
- citing articles that fit the author's perceptions of the journal's readers and what they are expecting . . .
- citing according the author's knowledge of the subject area ;
- citing according to the influence of his or her mentors;

- the author's carelessness. Many citations are miscited, and it is obvious the author has never read the original paper he or she is citing. This is often because the author has copied citations he or she found in some other people's papers;
- the comprehensiveness (or lack of it) of the author's private reprint collection.

This list encompasses Garfield's (1979) list (see also Liu, 1993, pp. 375-376). While some of these reasons for citing cause concern when the purpose of the citation study is to asses the contribution of a document or author, as long as the mentor figure, the author's perceptions of the interests of the journal readers, the referee's work etc. are all relevant to the study the links created in a co-citation analysis of such documents will still reflect the underlying structure of the intellectual exchange. Certainly the first ten reasons for citing listed by Baird and Oppenheim are the reasons which underlay the success of co-citation analysis in that they capture the development of ideas from the previous literature into the current research.

One area of controversy in this group is the negative citation - that is where the author cites in order to correct an early error or point out the incorrectness of the earlier work. While there has been concern about the impact of this type of study in citation influence studies, it is clear that in developing an understanding of the structure and development of a research field, even a negative citation is relevant since just as much may be learned by a mistake and its correction as by a straight-forward contribution to the literature (Downing & Stafford, 1981, p. 221).

A similar area of concern is the self-citation. Once again, while a predominant amount of reference to one's own work may bias the results of influence studies, as long as the work referenced is relevant to the area reported in the current research, the self-citation does not undermine a co-citation study.

Overall, this category of potential bias in the citing behaviour of authors is not of major concern for the relevance of co-citation analysis. There are two reasons for this. First, where authors cite mainly the work of researchers they know, this may bias that

particular document; however, with a wide enough sample of research in an area (either represented by documents or authors) any such particularisms are likely to be overwhelmed by the many researchers all citing a range of works. Second, in co-citation analysis the setting of a threshold of minimum co-citation strength means that it is clear from the analysis the number of source authors who linked a given pair of documents. If the co-citation strength is only one, the implication is clear that the pairing may not be significant. Time and the subsequent creation of the same pairing by other researchers will tell. Thus the co-citation clusters at a threshold level of greater than one reveal a consensus about the literature drawn from a wide range of published authors in the area.

Of more concern for the reliability of co-citation analysis is the under-citing problem. Where a researcher has implicitly used an idea published elsewhere and does not acknowledge that debt, that particular paper is biased in its representation of the intellectual structure of the field. Where an idea has become very well accepted in a literature it may be considered unnecessary to cite the originator since "everyone knows" that Pacioli is accredited with the double entry system or that Professor Raymond Chambers dubbed his exit price measurement system CoCoA. In this way the older seminal literature may cease to be cited in later works - and to some extent this "obliteration by incorporation" (Merton, 1965; Garfield, 1975 & 1980) suggests a level of consensus in a field which Kuhn (1970) would consider most efficient for its progress. It is, however, an element of the literature which will cease being captured by co-citation analysis.

Other possible reasons for not citing relevant works include a lack of awareness that they have influenced the writer, or the particularly unacademic one of a refusal on the part of an academic to recognise the work of a rival. Research to date does indicate that there may be a significant amount of under-citing. For example, MacRoberts and MacRoberts (1986) find that only about 30 per cent of the influences on the work are captured by references in 15 papers in the field of the history of genetics. This type of finding causes concern for all types of citation analysis, including co-citation studies, and further research is desirable. However, it is important to note that such research is severely

limited since it assumes that the researcher studying the citations of a paper knows the source of ideas in it better than the author. The demanding nature of the work also means that the sample sizes to date have been very limited and only in narrow areas of particular disciplines. To date no work on this has been carried out in the accounting field.

There are built-in mechanisms in the academic approach which limit the extent of under-citing. As discussed in Chapter Five, the recognition a researcher receives through citations from his/her peers is important for promotion and research funding. The academic community is therefore very concerned that proper citation of pre-existing ideas should be carried out (Hagstrom, 1982). Researchers police the ownership of their own ideas, editors and reviewers have a responsibility in this area too (although concern has been expressed about the diligence with which this is pursued in some disciplines - Garfield, 1980; Price, 1970a). Finally, the penalties imposed for plagiarism when discovered in the academic world are normally severe.

On the positive side for co-citation analysis, studies which have sought to verify the structure produced with experts in the field have in the majority of cases found that the experts concur with the relationships identified by the technique (Braam, Moed & van Raan, 1991a, p. 241; Garfield, 1979, pp. 72-73; McCain, 1986; Small, 1977; White & Griffith, 1981b). In the case of accounting, Bricker (1987) validates the results of the co-citation analysis by using multiple discriminant analysis on the articles classified in Brown and Vasarhelyi's *Accounting Research Directory* (1985). The test is designed to confirm that the MDA technique classifies the articles into the same groups as the cluster analysis (p. 100). This validation technique confirms the representational structure generated by the co-citation analysis (pp. 143-148). Heck and Huang (1987, p. 10) find support for the accuracy of citation studies in the case of ranking articles in accounting, and Gamble *et al.* (1987, p. 10) cite four studies which have shown that citation analysis provides better matches with expert's rankings than a number of other commonly used measures.

Studies which have attempted to assess whether or not a citation to a work is representative of a link with an idea contained in that reference, have had very encouraging results. Small (1980) finds for highly cited chemistry papers that:

> The uniformity of citation contexts when these papers and books are cited is very striking. An average of 87% of the authors citing these documents are citing them for the same reasons and using the almost identical terminology when citing them. (p. 186)

Similarly, authors using a range of citation tests to triangulate the results of the mapping of specialties have found that the clusters produced by co-citation analysis do contain meaning and are not merely artefacts of the technique (Braam, Moed & van Raan, 1988; Braam *et al.*, 1991a)

While there are limitations to the technique, the evidence is that it does enable a mapping of underlying intellectual structures, even if the process of researchers citing previous documents is not yet well understood.

The strength of co-citation analysis is that it is a technique capable of drawing together unselfconsciously produced evidence from a wide range of researchers in a field. That is, the necessary limitation of a single expert's view of the field is overcome and the consensus of a wide range of individuals is captured. That this happens indirectly, based on evidence generated for another purpose, adds to the perceived objectivity of the outcome. That is, the citations are unobtrusive or non-reactive (Smith, 1981, p. 84-85). The lack of influence the researcher may exert over the outcome compared to a survey or interview approach also enhances the objectivity of the results.

2.3.4.5.2 Technical difficulties

There are four main technical difficulties experienced in co-citation studies that will be addressed in the order in which they occur in the co-citation analysis process. The first main difficulty is problems with the data. These can stem from the use of citations from the source articles themselves or as a result of using secondary sources such as the SCI or SSCI. Second is the application of statistical methods. Third, how to attach meaning

to the clusters generated. Finally, how to provide some external validation for the results of the co-citation clustering.

The popularity of citation analysis grew significantly once computerised database services such as SCI and SSCI were created. The reason is simply the huge amounts of time and effort required to create a database of citations. The provision of such services entails many problems in ensuring the data are correct, and difficulties with the accuracy of the citations have been reported (Baird & Oppenheim, 1994, p. 6; MacRoberts & MacRoberts, 1986, p. 161 & 1988). These problems are the result of three factors. First, and most difficult to pick up and correct, are the errors made by authors in writing their reference lists. The care taken varies significantly and some researchers claim that a number of errors persist in the literature because source authors have not actually read the material being cited, but have incorrectly picked up a reference from an earlier paper, or have accurately copied one which was incorrectly cited. A second source of errors in computerized databases is what has been termed "false drops" (Baird & Oppenheim, 1994; Warning & Emerson, 1995). These occur when significant researchers in a field have a similar name. For example, R. S. O. Wallace may be carefully cited as such by a conscientious researcher, but if these initials are shortened to R. Wallace, it may be impossible to distinguish this writer from one whose name is Robert Wallace. Similarly, source authors sometimes become confused between the first and second names of cited authors. The impact of these errors may be quite significant in an author co-citation study; however, to date there is limited evidence about the extent of the potential impact or different rates of error in different disciplines.

The second area of technical problems for co-citation analysis is that of the statistical techniques to be applied. This becomes an issue after the co-citation pairs have been created and the number of times each unique pair is cited by different source authors is counted (co-citation strength). To eliminate casual or perfunctory references to a document or authors, it is normal to set a minimum co-citation strength threshold. However, there is no theory for establishing the level of this threshold and levels chosen may of necessity vary significantly between studies (Small, 1977, pp. 141-142). For

example, a study based on the combined resources of the SCI and SSCI may involve hundreds of thousands of citations, and individual pairs may have co-citation strengths in the hundreds. Studies limited to single disciplines or specialty areas, or limited by manually entered data, may require considerably lower co-citation thresholds. For example, Paisley (1990, p. 460) mentions the restrictions of using manual data entry and notes two studies, one which sampled 266 articles from four journals for one year, and another which included 337 articles from seven journals for one year. Usdiken and Pasedeos (1995) also used a manual data entry procedure which generated 4,515 citations from two journals for a period of three years.

Garfield (1979) suggests that the threshold level should be set neither too high nor too low, and offers the following guideline:

> . . . the threshold should be set low enough to pick up all the documents that could be considered, by the measure of citation frequency, the core of the scientific literature. This core material is representative of the full spectrum of significant research activity. (p. 100)

Similarly, it is not possible to establish a measure of the significance of the documents or authors included in the co-citation clustering relative to the total number of authors or documents. The techniques being applied are descriptive rather than being derived from a theoretical base which could suggest what a reasonable expectation regarding the "representativeness" of the clustered documents. Some descriptive analyses have been included in the literature in an attempt to capture a sense of the relationship between the clustered documents and the total sample. These measures are variously seen as reflecting "connectedness" or "density" of the relationships between documents or authors.

Having established which documents are to be included in the co-citation clustering procedure, the next step is to decide on the clustering technique to be adopted[8]. The

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[8] There is also a range of other options which do not include clustering, for example, factor analysis, MDS and so on.

earliest and simplest approach is to use single link agglomerative[9] clustering. It starts with a seed pair and continues to add pairs to the cluster as long as one of the documents (or authors) in a pair is found in a pair not yet clustered. Thus it is a single link with a document or author that is the basis for forming the clusters. Once a cluster is completed, a remaining pair is used as a seed to begin the next cluster and so on until all pairs are either clustered or have been used as a seed, but not linked with any other pairs. This is the approach described above and depicted in Figure 2.5. It is the most commonly used clustering technique for co-citation analysis (Bricker, 1987, p. 20) and has been successfully externally validated (Bricker, 1987; McCain, 1986; Small, 1977; White & Griffith, 1981b).

Once the clusters have been formed, the next step is to identify what they represent. This has been generally achieved through content analysis of the titles of the cited documents. This procedure relies on authors choosing titles which meaningfully reflect the subject matter and method of the paper. This approach has limitations since this is often not the case and titles provide limited scope for a full description. The next approach is to use document abstracts. It is often the case, however, that there are so many cited documents clustered in a study that content analysis of all abstracts or papers is not feasible. This problem is exacerbated in the case where a significant proportion of the cited documents are books or working papers which are not conveniently available through abstracting services. Even in a manually constructed database the source articles must all be obtained. However, there will be many more cited documents not all of which are even available.

One feature of the clustering process which reduces the impact of this limitation is the fact that with many documents in a cluster the theme or common idea which causes the papers to be co-cited is often strong enough to emerge clearly through the many titles (or abstracts) included. Another factor that reduces the impact of this problem is where

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[9] Agglomerative: the elements to be clustered all begin separate and are brought together through the clustering technique. This is the opposite of the divisive approach which begins with all elements grouped, and then divides them into clusters. See Bricker (1987, endnote 5, p. 27).

the analysing researcher is familiar with the field, and probably has a knowledge of the substance of a reasonable proportion of the documents (or of the work of the authors).

Validation of the generated clusters is the final area of difficulty. Studies have used expert opinion, surveys and data analysis based on classifications conducted by others (e.g., Bricker, 1987). There are drawbacks with each of these methods, an individual is limited in their perspective while questionnaire survey methods lack a means of ensuring that there is a common understanding of the structure of a research field (or of bringing together the disparate views if there is not). Even the multiple discriminant analysis used by Bricker (1987) relies on the classification of smaller part of the literature by a group of researchers. New work in the area is using links with subject indexing and co-word analysis to test the robustness of the cluster structure. Once again, these are based on the assessment of others who may or may not be experts in the field and rely on the careful selection of words by authors. Nonetheless, while none of the methods are without fault in themselves they provide a triangulation of methods to support the outcome of the co-citation analysis. To date the outcome of such efforts has shown that for the purpose of mapping a specialty structure or a discipline, co-citation analysis is widely supported.

This section has described a number of the technical problems inherent in the co-citation clustering procedure. In some areas, due care and precautions can reduce the impact on the analysis, while in others the best that can be offered is that the judgement of the researcher has been made carefully and the potential impact on the study is fully disclosed. Overall, the problems do not appear to overwhelm the value of the technique, as is evidenced by its successful application and validation in a wide range of disciplines.

2.3.4.6 Summary

This section has reviewed the approaches available for identifying an intellectual structure for a specialty area and has argued that co-citation analysis using single link agglomerative clustering is appropriate for the current study. The technique was

described and its strengths and limitations discussed both at the level of its underlying assumptions and the main technical difficulties.

Overall, the co-citation technique is widely used in many disciplines, as well as specifically in accounting. It has been found to be robust and relevant and it is appropriate for the analysis of the international accounting literature.

2.3.5 Identification of specific strategies

The final objective is to identify particular strategies for research in international accounting that will stimulate re-integration in the accounting literature. The maps, other citation-based information and perspectives from the literature are used to identify particular areas in which directed research in international accounting would be useful in knitting together fragmented areas of the accounting research body. The approach adopted is mainly analytical and comparative, using the goal of integration as a guide.

2.4 SUMMARY AND OVERVIEW

The methodological cornerstones of the research project have been discussed and the methods used to achieve the objectives set out in Chapter One have been described. The important constructs may be summarised as follows:

- Integrated knowledge is preferred over fragmented knowledge on the basis that fragmentation has negative outcomes for a discipline and is linked to criticisms of research output. This view is supported in the next chapter by the analysis of the literature relating to fragmentation and the experience of other disciplines.
- The philosophical perspective taken on the issue of the appropriate source of direction for the development of a discipline is a mild form of the externalist position. This view recognises only a limited amount of input from external parties is appropriate. However, the preference is for the internal mechanisms of

a discipline to provide a less "directed" environment that promotes creativity and free-thinking in research.

- A sociological perspective of research production is an appropriate approach to researching knowledge production in accounting. A review of the methodology and philosophy of science debates in accounting is undertaken in Chapter Four. The sociological perspective is identified as a common theme and an appropriate descriptive approach for studying research processes.
- Citation data reflect the communication of ideas between researchers within and between disciplines and specialties. This method of capturing the communication patterns of researchers has been considered in detail in this chapter. The technical limitations of the method are considered to be insufficient to outweigh its usefulness for the current purpose.

CHAPTER THREE

FRAGMENTATION: A LITERATURE REVIEW

> I hope we succeed in creating an exciting and productive research environment, one in which our students - and not our predecessors - are able to render us obsolete. (Demski, 1987, p. 95).

3.1 INTRODUCTION

Fragmentation has been identified in the accounting literature as an outcome of and also a factor which contributes to significant problems in accounting research output. These problems are outlined in Chapter One and include the isolation of research from practice and from teaching, the lack of theory, and the many methodological disagreements. While fragmentation may not be the only factor implicated in these concerns, it has been specifically identified as a problem in the accounting literature over a long period of time and by a number of authors approaching the issue from different perspectives. The broad range of concerns suggests that fragmentation warrants careful examination.

While fragmentation has been identified as a problem in accounting and other disciplines, as with many areas of study, it has been considered from many different perspectives and in some cases given different identifying names. This chapter reviews literature relevant to fragmentation and its implications both within accounting and other disciplines. In order to create a structure for a diverse literature, the discussion of the concept of fragmentation is divided into three categories: causes, characteristics and outcomes. This structure imposes some clarity on the literature, but it is not a mutually exclusive division into categories because of the reflexive nature of fragmentation. That is, once fragmentation becomes a problem in a research area its effects are self-perpetuating in that they enhance the initial causes to recreate the outcomes. The cycle of increasing fragmentation thus creates overlaps between the causes, the characteristics and the outcomes.

The next section provides a broad working definition of fragmentation. Section 3.3 considers the concept of fragmentation by focussing on causes, characteristics and outcomes. The existence of fragmentation in a wide variety of disciplines is explored in Section 3.4 to establish that it is not a problem which is peculiar to accounting, but that its causes are to some extent generic in nature. Section 3.5 considers the evidence and observations of fragmentation specifically in accounting literature. The final section summarises the chapter.

3.2 AN INITIAL DEFINITION OF FRAGMENTATION

Before beginning analysis of the literature, it is necessary briefly to consider the concept of fragmentation introduced in Chapter One. This serves to limit the literature review to meanings of fragmentation that are relevant to this thesis and to include terms that are not labelled "fragmentation" but that are conceptually very similar.

The *Collins Concise Dictionary* (Hanks, 1988) definition of fragment is; "1. a piece broken off or detached. 2. an incomplete piece. 3. a scrap; bit. ~vb 4. to break or cause to break into fragments. Fragmentary - disconnected." The emphasis on disconnectedness, isolation and incompleteness is a key element in understanding the concept as it is applied to a discipline. In Chapter One, fragmentation was introduced as describing a situation where fragments of the jigsaw puzzle of research are spreading outwards, not towards a common centre (Mattessich, 1972, p. 483). There are two important features of fragmentation for consideration. First, the fragmentation which is the subject of this thesis relates to the research base of a discipline. Second, fragmentation describes a state of disconnectedness or isolation. Terms and phrases like "over-specialisation", "a lack of integration" and "ethnocentricity" may relate to fragmentation to the extent that they are about such a disconnectedness in a research base. With this as a starting point, the literature is reviewed through the lens of three aspects of fragmentation, and a refined definition is selected at the end of the next section for use in the thesis.

3.3 FRAGMENTATION - CAUSES, CHARACTERISTICS AND OUTCOMES

The introduction of this chapter identified the difficulty in separating the different features of fragmentation in order to clarify the different terms used and the differences in the application of fragmentation as a concept. The problem of the self-perpetuating nature of fragmentation in distinguishing its different aspects was also described. The categories are seen as useful, however, as they allow a more systematic approach to understanding the concept which fits with the focus on fragmentation within a model of knowledge accumulation developed in Chapter Five. The goal of this section is to clarify the literature and establish the basis for understanding the operational form of the definition of fragmentation.

3.3.1 Causes of fragmentation

The six causes of fragmentation described in this section have been identified from the literature and grouped according to those themes which emerged as important. The first cause identified is called "natural" fragmentation; over-specialisation and its relationship with fragmentation is covered next. Dogmatism is then described, followed by the reward structure in academia and the institutionalisation of disciplines and specialties which lead to fragmentation. Following these, the relationship between the stages of development of a discipline and fragmentation is described; and, finally, the potential effect of national and cultural boundaries are considered.

3.3.1.1 Natural fragmentation

The first cause of fragmentation is termed "natural" fragmentation. It is a base level of disconnectedness which may be expected to occur as a result of the present inability of researchers to draw upon a Grand Unified Theory of the world (Campbell, 1969; Hawking, 1988). To the extent that the relationship between all areas of knowledge is currently beyond the understanding of any particular group of researchers, separate theories, languages and methodologies must be applied to different areas to increase our knowledge about them. No attempt to measure the base level of fragmentation was

found reported in the literature, but it is implied that the causes of fragmentation identified in this section act to create levels of disconnectedness in knowledge beyond what is unavoidable due to current limitations of technology, intellect and method.

3.3.1.2 Over-specialisation

The second identifiable cause of fragmentation, and the first one which can be acted upon to reduce its effect, is over-specialisation. This follows directly from the notion that there is a certain unavoidable level of specialisation to at which areas of knowledge have been divided into such small areas that their contributions are related back only to that very small area and are no longer relevant to other areas of knowledge nor applicable to practical problems.

Easton (1991) describes the problem of "divided knowledge," termed fragmentation in this study. He describes the relationship between knowledge and specialisation as follows:

> In short, true to the Cartesian revolution, with its emphasis on analytic reasoning, we have managed to decompose the world of understanding into a virtually limitless number of fragments. Faithful descendants of Adam Smith as well, we scarcely need to be reminded of the identifiable virtues of specialization. . . . The search for understanding seems to have driven Western scholarship into decomposing nature, whether physical or social, into smaller and smaller units on the assumption that when we have understood the smallest unit - . . . - we will then be able to reassemble our knowledge for a comprehensive understanding of the whole. . . . We do not need to address here the issue of whether the Cartesian impulse for analytic decomposition can ever provide satisfactory understanding of the whole or whether in the search for knowledge we may need to begin with the whole entity before we even begin to seek understanding of its parts. Whatever the reader's opinions on that score, the fact is that society confronts us with problems that are, for example, definable neither as political, philosophical, linguistic, economic, nor cultural alone. . . . It is commonplace today to point out that disciplinarians find it difficult not only to talk to each other but even to carry on a credible discourse with colleagues in subspecialties within their own disciplines, because the level of development in many areas of inquiry has become so highly differentiated and technical. . . . As yet, however, there is no general theory about the best way to integrate major areas of knowledge in the social sciences, let alone the humanities. Success, whenever achieved, can be attributed more to trial and error than to any systematic understanding of the requirements for reassembling decomposed, specialized knowledge. (pp. 12-13, 23)

The idea which links specialisation and fragmentation is *over*-specialisation. The success of the physical sciences, social sciences and humanities in the production of knowledge using specialisation is clear. The issue is to recognise when too much of a "good" thing becomes destructive. This can be depicted as a continuum (Figure 3.1) in which specialisation increases to a point at which the benefits no longer outweigh the costs to the efficient production of knowledge. After that point, continuing specialisation becomes fragmentation and no longer enhances a discipline's ability to build knowledge about the phenomena of interest.

FIGURE 3.1 Specialisation to Fragmentation Continuum

Thus the cause of fragmentation identified here is not specialisation but the tendency to continue to specialise after the benefits no longer outweigh the costs and the specialisation turns into fragmentation.

3.3.1.3 Dogmatism

The next cause of fragmentation to be considered is dogmatism. Belkaoui (1987) bases his definition of dogmatism on Chambers (1967) and suggests that it "refers to the authoritarian assertions that a certain viewpoint is the best one" (p. 169). Dogmatism is also called, perhaps a little more kindly, ethnocentrism. These terms describe the attitude of researchers within a specialty or discipline when they become intolerant of criticism of their own specialty and/or closed to the potential of other specialties to contribute to knowledge. This attitude is often related to an over-inflated sense of the importance of that research area by the researchers working within it. Campbell (1969) describes dogmatism as the ethnocentrism of disciplines as follows; "the symptoms of tribalism or nationalism or ingroup partisanship in the internal and external relations of university departments, national scientific organizations, and academic disciplines" (p. 328). This

description may equally be applied to specialties within disciplines, and Campbell links dogmatism and overspecialisation:

> Our only hope of a comprehensive social science, or other multiscience, lies in a continuous texture of narrow specialties which overlap with other narrow specialties. Due to the ethnocentrism of disciplines what we get instead is a redundant piling up of highly similar specialties, leaving interdisciplinary gaps. (1969, p. 328)

Belkaoui (1991) also describes this link:

> The presence of these conflicting paradigms in accounting is equivalent to a division of labor that is necessary to investigate the various facets and complexities presented by the production and use of accounting phenomena. The division of labor does not, however, produce the desired benefits, as each scientific establishment in accounting starts acting as a sovereign state rather than as a member of a cooperating team. (p. 167)

Lee (1989, p. 246) further suggests that for accounting in particular "suspicions about and lack of respect for" other researchers' work "is due in part to the lack of impact of research on practice." The failure of research to impact on applied areas of a subject has also been linked to over-specialisation, so the reinforcement of both the tendency to continue specialisation and to be dogmatic in regard to the merits of the researcher's own specialty area are linked and reinforce the effect of one another on the fragmentation of a discipline.

Dogmatism may take the form of intolerance regarding any other specialty or it may be focussed specifically on specialties which use different methodologies. Methodological dogmatism has also been termed epistemic privilege (Johnson, 1995), and is innate in approaches which claim that truth is concrete and only observable through the methodologies it accepts. Such views exclude pluralism, and strong adherence to their basic tenets leads directly to dogmatism. The most common example of such an approach is the logical positivism which was/is pursued in a range of disciplines (Canterbery & Burkhardt, 1983).

Dogmatism may take the form of intolerance of other subject areas, the assertion that only one subject is of importance for research. Given the division of knowledge-seeking activities into many categories within universities, this kind of dogmatism is not as

widespread as the methodological type. A less extreme form has been experienced by some new discipline areas within universities in the form of pressure applied by the traditional disciplines in the natural sciences and humanities. Academic staff in the new disciplines are aware at times of strong pressure to prove themselves as representatives academic areas conforming to university norms, and yet may feel that they are still not afforded equal status for decision making and resource allocation purposes. Examples of this perceived need to achieve legitimisation include business studies in general and accountancy in particular (Subotnik, 1988), communication or media studies (Mancini, 1993; Monahan & Collins-Jarvis, 1993), and many social science areas (Mancini, 1993).

Arrington and Schweiker (1992) argue that some level of ethnocentrism, in the nature of a confidence or belief in the importance of the researcher's area, is a positive characteristic and that it is only as this ethnocentrism becomes more extreme, denying the usefulness of other areas, that it begins to have negative effects. The impact of ethnocentrism at the excessive end of the spectrum is described by Arrington and Schweiker (p. 530) as leading "to an insularity such that researchers isolate themselves within small research communities, no longer desirous of speaking with, writing to, or arguing with members of other communities." It is the tendency to isolation which is implicated in the creation and maintenance of fragmentation. Mouck's (1990) description of Lakatos' view of methodological dogmatism in particular agrees with this approach:

> . . . it must be noted that Lakatos does not argue against dogmatism in all forms. A group of researchers . . . may use the protective belt to protect a hard core that is held with dogmatic allegiance. . . . But Lakatos makes it clear that a *methodological* dogmatism that restricts competition among rival research programmes is counterproductive to the growth of scientific knowledge. (p. 238)

The description of costs exceeding benefits parallels the description of the impact of specialisation, and suggests that it is not a total openness to any view that is required, but rather a balance between belief and confidence in the researcher's own area and a respect for and willingness to listen to other perspectives which is required to prevent fragmentation.

Philosophers of science such as Popper, Kuhn and Lakatos have described the "principle of tenacity" which is observed when researchers in a specialty hold on to a theory or disciplinary matrix beyond the point where it has been falsified, in Popper's terms, or where there are too many emerging anomalies, to use Kuhn's description. This is an extreme example of dogmatism in that not only do researchers in a specialty maintain the superiority of their area, they do so in the face of mounting evidence that their specialty is in fact no longer meeting its own epistemological tests for usefulness (Blaug, 1975). For Popper this is definitely a break from best scientific practice, whereas Kuhn and Lakatos allow some leeway, suggesting that some tenacity may prevent a specialty from being replaced too readily by a competing area. The implications for fragmentation are that this may provide a link between fragmentation and the "death" of a specialty, as the tenacity of researchers prevents the recognition of the failure of the area and their research efforts must partition the anomalous evidence (Blaug, 1975; Whitley, 1986). Perhaps the passing away of that research area is inevitable, but it may be that the tenacity of the researchers actually prevents the development of the area across boundaries in a way which may create bridges into other research approaches and "mend" the ailing area, allowing its knowledge to be used and extended rather than replaced.

A dogmatic attitude, especially one which is inherent in a particular methodology, is a behavioural trait brought about perhaps by awareness of failure or by very strong beliefs, as outlined above. Other social factors in the research process also may be causally related to fragmentation. These factors are discussed in the next section.

3.3.1.4 Reward structures

Reward systems are well known in management literatures for their potential to create dysfunctional effects. This section considers the major academic reward system and its potential to cause fragmentation. It is important to note at the beginning, however, that just as the management accounting literature has struggled to describe ways of designing optimal reward systems, it is not obvious that there is a clearly superior one for academia than is currently practised. As with many of the causes described in this section, the key

requirement is balance, so that there is an awareness that once a single, limited indicator is used to measure performance, the potential for manipulation and dysfunctional effects increases.

In academia the reward system has traditionally been tied to measures of research capability. While there has been debate about how the quality of an academic department or individual faculty members should be assessed (Boyer, 1991; Gray & Helliar, 1994; Street, Baril & Benke, 1991; Sunder, 1991), the dominant approach is to base performance assessment on publication or citation records (Accounting Education Change Commission, 1990; Benjamin & Brenner, 1974; Gray & Helliar, 1994; Sunder, 1991). In the extreme, this is commonly referred to as "publish or perish." Where this pressure becomes a dominant motivating factor for researchers there are three joint effects which lead to research fragmentation.

First, the total number of publications a scholar in a discipline would need to read in order to be considered "widely read" is growing at an exponential rate as the urgency to publish creates unprecedented levels of output. Researchers must somehow select what to read, and it is most efficient for the production of further research to read extensively in a small area rather than to sample a wide range of literature and not be very familiar with any specific issue.

Of course, it would be possible for journals to continue publishing the same number of articles as previously, and editorial panels would have the huge task of selecting the best from a large selection. The pressure to get published, however, cannot be held within the boundaries of the existing publications, and here the second effect comes into play. Researchers find that they are "small fish in a big pond" and the competition to publish is tremendous. One reaction is to seek to differentiate the work produced to the extent that a new specialty area within the discipline is created (Bricker, 1991a; Mulkay, 1975; Swanson, 1993). This area will begin with few researchers and, if it survives the initial scepticism of the rest of the discipline, will generally go on to create new publication outlets (Hopwood, 1976). With fewer researchers, and the potential to make a

significant impact in terms of publications, and potential citation counts, the new area attracts researchers and eventually grows until competition again becomes fierce for publication opportunities. This is a very simplified description of the process which will be considered in more detail in Chapter Five; however, the outcome to note is that as the number of specialties grows, the researchers' dilemma in selecting which articles to read is also solved. They can concentrate on articles in journals representing their specialty area. Thus not only is there an impact on fragmentation through increasing pressure to differentiate, but researchers also become isolated within the specialty area by a lack of time or desire to read other publications (Green, 1966; Swanson, 1993).

The pressure to create new specialty areas is also linked to the fragmentation effects of dogmatism and this is the third joint effect of the reward structure. As researchers struggle with a lack of acceptance by the traditional areas of a discipline, they may be motivated to respond with the dogmatism of the "newly converted" - arguing the case for their position without a desire to listen to or understand the point of view of opponents (Bricker, 1991a, p. 29; Zeff, 1989). Thus in the early stages of a specialty, the creation of which may be unconsciously a product of the publish or perish pressure, dogmatism may also emerge as a reinforcing factor to isolate the research output.

It is important to reiterate that not all pressure to publish is negative, just as not all moves to specialise are superfluous. The pressure may prevent a discipline from becoming stultified and content within its current boundaries, encouraging innovation and break-throughs in understanding. The difference is again one of balance. Where there is pressure in the reward system to differentiate and little encouragement for integration, the development of research initiatives is likely to be dysfunctional. An example of the lack of incentives for integrative work is described by Kochen (1978, p. 129):

> One vehicle by which the process of S&T copes with its large output of specialized publications is the review paper. A good review paper shows how numerous findings fit together not only with each other but also with older findings and with possible applications and extensions. Good review articles are difficult to write, and the incentives are not great. (p. 129)

To write an effective review article much time and thought are necessary (Kochen, 1978). Yet reviews are perceived to be a lesser contribution to the literature since they are not considered an "original" work.

In the extreme, the publish or perish tendency can lead to an emphasis on quantity over quality because of the pressure to achieve targets in the short-term, resulting in "sterile academic trivia" (Tricker, 1979, p. 8).

Another case for the need for balance in reward structures, rather than the abandonment of measures of research output is the case described by Whitley (1984) in which the break-down of reward structures within academia is associated with fragmentation. Whitley considers the sociological aspects of applied social sciences. He argues that because there are two types of research - intellectual (theoretical) and applied - in management science, the tendency for those who do applied research to be able to gain rewards from audiences outside the researching community may lead to fragmentation. Whitley (1984) explains:

> This relative lack of autonomy [from outside audiences] and reduced extent of collegiate control means that scientists do not have to rely upon their colleagues to a great deal to gain reputations which lead to material rewards. . . . Because of the importance of these lay audiences and their capacity for controlling considerable resources, scientists in this field are unlikely to develop the sort of cohesive social and intellectual structures which are found elsewhere in the sciences. Also because the professional reputational group as a whole does not control the allocation of resources through the award of reputations to practitioners on the basis of their published contributions to collective goals, individual scientists have considerable autonomy from their colleagues and are able to pursue research goals in a variety of directions and to ignore collegiate assessments of their results. This leads to fragmentation of research topics and variously different criteria of assessment. (p. 375-376)

Thus, the argument is that a break-down in the social control of rewards within a discipline also may lead to fragmentation, although Whitley suggests that this is not the necessary outcome, but is dependent upon features of the subject matter itself (see Section 3.3.1.8).

In summary, it is suggested that the strength of the publish or perish imperative in academia tends, if not offset, to produce a fragmented research base in a discipline as researchers seek to differentiate their work. This cause of fragmentation is also identified as linked with dogmatism.

3.3.1.5 Institutionalisation

Some authors argue that the institutionalisation of subject areas into departments in universities has contributed to the fragmentation of research. Campbell (1969, pp. 333-338) describes in detail the processes by which specialties, initially covering a broad range of subject areas in an integrated way, may fragment if departmental structures are imposed. He traces the ethnocentrism of disciplines directly to the institutional decision-making structures known as departments in universities. The key elements in the argument are: the social and political processes to allocate resources and establish standards for "important" areas for teaching and research in the department; and the propensity for increased communication flows within a department (as opposed to between departments) to bias views towards the central ground of the subject area of the discipline. The argument is that the academics representing the centre of a department's subject area tend to achieve control over the resources and setting of curriculum since they have more "allies" in the department. Those on the outer edge would normally have close links with the academics close to their area within the department and to those who are now, arbitrarily, in another department. The tendency towards control by the central group in matters of resourcing, research and curriculum ultimately leads to an inward-looking or centrally focused department in which inter-departmental research and teaching is not perceived as important and not rewarded. The fact that the historically accidental division of subject areas into departments is common across many universities reinforces this tendency since a researcher cannot obtain rewards or prestige by moving to another university that would value his/her "inter-departmental" work. Stocking and Leary (1986) describe the strength of the impact of the departmental structure: "one of the most clearly-evident generalized processes in their [i.e., disciplines'] history has been the great inertial strength of institutionalized disciplinary formations, which has been manifest even with the recurring movements toward interdisciplinarity" (p. 57). Spiegel-

Rösing (1977) describes the political nature of the institutional form and bluntly states its potential impact:

> There is nothing special about SSTS [Study of Science, Technology and Society] researchers' professional self-interest; status maintenance strategies are part of the politics of all fields of research (Spiegel-Rösing, 1974), and the absence of such strategies may, as we know from historical examples, lead to the 'death' of a field in spite of its intellectual fruitfulness (Fisher, 1966, 1967). (p. 9)

The description of the situation in Communication as a field of study by Swanson (1993) draws together the influence of a tendency towards specialisation, the institutionalisation of disciplines in universities, as well as the pressure on researchers to publish, and indicates the complexity of the relationship between the factors identified thus far:

> In one sense, the proliferation of subfields may be seen as resulting from normal disciplinary development toward specialization. Indeed, the emergence of specialized research communities devoted to pursuing subjects in great depth might be taken as a mark of disciplinary maturation. However, many communication subfields seem to be evolving along a trajectory that, over time, leads away from identification with any parent discipline. The current trend appears to be for subfields to define themselves as interdisciplinary undertakings. They gauge their success in part by their ability to attract researchers from a range of disciplines, and they endeavor to legitimate themselves by developing distinctive theories, methods, or syntheses of multiple disciplinary perspectives that will differentiate them from parent disciplines and from other subfields. (pp. 165-166)

The tendency to differentiate subfields may be manifested in a further level of institutionalisation by creating intra-departmental ethnocentrism. This process suggests that as particular subfields of a discipline gain sway in a department, it may be difficult for individual researchers, not researching within that area, to gain resourcing and curriculum support within that department. Since there is not a single dominant paradigm in accounting, it is possible, however, for researchers to relocate to departments where their research ideology "fits" with the dominant group. This mechanism, however, promotes and reinforces the separation between specialty areas in a discipline and reduces opportunities for communication and a "catholic mix" (Zeff, 1989) of research approaches (see also, Manicas, 1993; Morgan & Willmott, 1993; Tomkins, Rosenberg & Colville, 1980; see also Swanson, 1993).

3.3.1.6 Cultural/environmental influences

Whitley (1986) identifies differences between the UK and US environments, in particular the litigious nature of US society, as contributing to the style of development of the financial economics area in each of the countries (pp. 186-187). Differences in the development of discipline areas in various countries may be related to many factors. For example, differences in approaches to higher education, different levels of regard for the subject area, and the role of individuals in promoting an area or leading its academic development may all have a significant influence.

The accounting discipline is one that provides an interesting example of a cultural/environmental split in the literature. Bromwich and Hopwood (1981) describe the split in research approaches: "The sophisticated methodologies that are so characteristic of American empirical inquiries can, we think, be contrasted with the more descriptive approaches in the U.K. and in the behavioural and organizational areas the contrasts are becoming even more evident" (p. xiii).

The barrier of language also may be another factor which causes a fragmentation between research approaches in different countries. The lack of reference to non-English literature in even the international accounting area (see Chapter Five) bears witness to the lack of such exchanges.

Clearly a pervasive factor such as culture and the environment of research is difficult to relate directly to a tendency to fragmentation. However, it does seem likely that since discipline areas cross national boundaries, differences within a discipline that develop between nations, may be culturally based. This is most likely to be true for those differences that are linked to more fundamental "belief" schisms. It is also possible that difficulties in communication between researchers in different countries may lead to unintentional repetition of research work.

3.3.1.7 Stages of development of the discipline

Some authors identify fragmentation as being associated with the early and late stages of the life of a discipline or a sub-discipline. This pattern is accepted across a wide range of views, for example Spiegel-Rösing (1977) reflects on the early stages of the Study of Science, Technology and Society (SSTS), and points out that early fragmentation was the result of difficulties in finding a common or core literature. Kochen (1978, p. 115) does not distinguish between poor quality and immature research areas as producing "divergent research".

Similarly, writers in the Information Systems area identify the problems of a lack of consensus about reference disciplines and the associated fragmentation as relating to the early stage of development of the discipline. They also link it to its potential disintegration as an area of study (Bonder, 1979; Culnan, 1978; Culnan & Swanson, 1986; Goul, Henderson & Tonge, 1992; Weber, 1987).

Bonder (1979) identifies two of the four indicators of the trend towards the disintegration of the operations research (OR) area as:

- A significant amount of study effort we would clearly classify as OR practice is performed by individuals who do not associate themselves with "operations research" and are not members of OR societies . . .
- The relevance of current mathematical developments in OR is continually questioned and, perhaps more significant, the techniques and methods are being developed by individuals who have more of a disciplinary allegiance to mathematics and economics than to operations research. (p. 210)

The indicators reflect a breakdown in cohesion within the discipline. Bonder warns that "if these trends in practice continue, and if we continue to pursue current research directions, OR may lose its identity as a distinct activity and be assimilated into other fields of endeavor" (p. 210).

Within the accounting discipline, Hopwood's (1976) inaugural editorial for the journal *Accounting, Organizations and Society*, identifies research into the social and behavioural areas of accounting as embryonic. Hopwood cites Hofstedt's (1976) study when suggesting that the behavioural literature is "still in an early stage of development with fragmented studies and few signs of a coherent tradition" (p. 2). Hopwood goes on

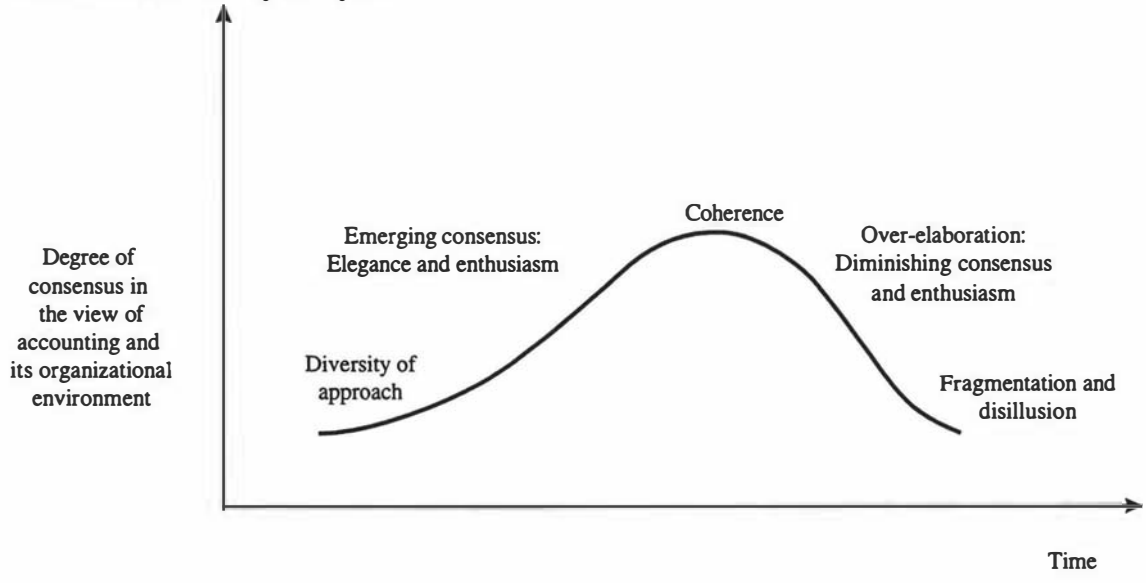
to suggest: "we need to move towards a more coherent research tradition where new developments can be seen as building on and extending prior foundations" (1976, p. 3). This is a very apt description of the difficulties facing the early development of a specialty area. It describes the need for an integrated research base to develop from the early, fragmented attempts to build a new area of research.

Just as the early stages in the development of a discipline may be characterised by fragmentation, the end of its life-cycle may also be marked by a disintegrating literature. This image of the lifecycle of a discipline or specialty is captured in Dent, Ezzamel and Bourn's (1984) description of the myth cycle, reproduced as Figure 3.2. The authors describe the use of myth as a technique for simplifying reality and how shared myths provide a common framework for professional researchers (see also Stocking & Leary 1986). They describe the process as follows:

> Elegance may reinforce faith and conviction in myths. But this may be accompanied by increasing abstraction from reality and the recognition of the partiality of research. Following this recognition, myths may at first be elaborated. But fragmentation of research may occur and ultimately support for the myths may become dissipated. (p. 236)

This projected life cycle for a myth in a discipline closely mirrors Kuhn's (1970) view of the development of a paradigm to the stage of normal science. Once a paradigm becomes a normal science it provides a useful framework for puzzle solving and is taken for granted by adherents. As anomalies arise the paradigm is challenged and ultimately a scientific revolution results in its replacement.

FIGURE 3.2 A Myth Cycle



Source: Dent, Ezzamel and Bourn, 1984

It may be that the fragmentation which occurs in the early development stage is unavoidable as a new area attempts to develop its fundamental theories and methodologies. The fragmentation which may perhaps be avoided is that which results from excessive pressure to create ever more specialties because of an over emphasis on the publication measure of output as discussed above. These early stages were also associated with a dogmatic approach which nurtures the new speciality but reduces the possibility for an integration of knowledge. Similarly, at the latter stages of the lifecycle the principle of tenacity - another example of dogmatism - has also been observed. It may be that the emphasis on competitive models of knowledge development and the defensive dogmatism which is motivated by a desire to forestall the death of the discipline become self-fulfilling realities. An alternative is to encourage integration and co-operation rather than competition. Under this model researchers in a struggling research area may be motivated to reach out for new insights from other areas and achieve integration and the inclusion of their views into new ways of understanding rather than have their accumulated contribution pass away. To the extent that a different perspective may be able to achieve an integration of knowledge rather than the

conquering of a previously successful approach, the level of fragmentation could be reduced.

3.3.1.8 The nature of the subject matter

As indicated above, Whitley (1984) suggests that some subject areas may be more prone to fragmentation. The evidence of fragmentation covers such a broad area of the social sciences (Campbell, 1969; Easton, 1991; Remenyi, 1979; Spiegel-Rösing, 1977) that it seems difficult to argue that only particular subject areas are prone to it. However, Whitley's (1984) argument is that being an applied discipline with a divided reward structure is not a sufficient cause for fragmentation to occur. The nature of the subject matter is also a key factor. In management science the "high task uncertainty is combined with low autonomy and low mutual dependence among researchers ... it lacks a common craft skill and set of research procedures which could form the basis of a social organization" (p. 376).

This suggests that subject areas may be characterised on the three factors of task uncertainty, autonomy and mutual dependence among researchers with combinations of these characteristics being correlated with an increasing tendency to fragmentation. The observations of a relationship are too limited at this stage, however, to suggest that there is a generalisable conclusion.

3.3.1.9 Summary

This section has identified eight potential causes of fragmentation. In the case of natural fragmentation and the initial start-up phase of a specialty or discipline fragmentation is argued to be unavoidable at this time. For the other sources, however, the emphasis is on maintaining a balance between the positive effects they seek to achieve and their excessive application which leads to fragmentation. An awareness of the need for balance and an attitude of seeking integration rather than domination is identified as important in reducing fragmentary tendencies in the factors described.

An interesting aspect of the literature referred to in this section is the varying levels within the hierarchical structures of institutionalised research at which causes of fragmentation are identified as existing. The broad level of all knowledge is identified as fragmented by the imposition of academic departments by Campbell (1969); divisions between disciplines are identified by Easton (1991); and within disciplines by Swanson (1993). This raises the conundrum that what may be seen as a positive development of growing integration from the perspective of a specialty may be seen from the discipline's point of view as increasing fragmentation into a number of isolated specialties. For this reason, it is important that the level at which fragmentation is identified as occurring is made clear.

The next section explores the characteristics of fragmentation. These are closely linked with the causes and so the emphasis of the next section is on identifying observable features which are characteristic of fragmentation within a discipline.

3.3.2 Characteristics of fragmentation

Bricker (1989) describes fragmentation as follows:

> Among a discipline's research areas, fragmentation and integration represent two extremes of a continuum of intellectual association, consisting of shared attributes such as models, theories, methods, findings and implications. The research areas of an integrated discipline are characterized by shared attributes, while those of a fragmented discipline are not. (p. 246)

Because of the links identified between potential causes of fragmentation, it is likely that the "lack of agreement" which Bricker identifies may also be associated with a lack of desire to achieve agreement, which has been described as dogmatism or ethnocentricity in the previous section. A characteristic tendency in fragmented disciplines is the lack of communication between specialty areas and, further, a lack of desire for communication or even hostility towards it. This characteristic will be observable in low levels of communication between specialty areas within a discipline. This may be measured by the number of citations between journals (McRae, 1974) or, in terms of citations, by the proportion of citations which are linked to documents commonly cited by the discipline as a whole. Bricker (1987, pp. 108-109) developed this concept and applied it to co-

citation analysis, terming it homogeneity. In terms of co-citation analysis homogeneity is the proportion of the discipline's research works that fall into the largest research areas at the most general levels of association (CTL 3 & 4). A characteristic of fragmentation within a discipline is the observed non-homogeneity of its literature.

As the process of fragmentation takes hold, the institutionalisation of schisms in a discipline is also reflected in an increasing number of departments which specialise in one particular research approach. The growth of such specialist departments is a characteristic feature of fragmentation. A related feature described in the previous section is the growth in the number of specialist journals.

The pressure to create new specialty areas described in the previous section, drives researchers to look for new methods, theories or views from which to develop a distinctive approach. Often the new approach is reflected in the use of theories and approaches from other disciplines. The observable effect of this is that a discipline will have a large proportion of "imported" literature. This state has been described as low cohesiveness by Bricker (1987) and Hofstedt (1976) (see also, Crawford & Crawford, 1980; Small & Crane, 1976) . Hofstedt (1976, p. 49) describes the three dimensions of research as: disciplinary interfaces, maturation, and cohesiveness, and applies them to behavioural accounting and security price research. The concept of cohesiveness applied is very similar to that used by Bricker in that it uses a measure of citations within the research area of interest. Hofstedt (1976) explains, "If Researcher X in Field Y footnotes all preceding researchers in Y, and no other field than Y, then presumably a highly integrated field will be observable" (p. 51).

Further tests of cohesiveness suggested by Hofstedt (p. 53) include, the "commonality of allegiances *outside* of the research sub-field," the number of schools and researchers involved in the area, and the number of times researchers have repeat publications in the same research area.

A number of characteristics of fragmentation have been identified in the literature. The two which specifically relate to the citation patterns in a discipline's literature are homogeneity and cohesiveness. Bricker (1987) used these measures to assess the existence of fragmentation in the accounting literature. Figure 3.3 shows the relationship between these two measures and how they capture the fragmentation of a literature. The coloured areas represent the research within the disciplines. The research in the fragmented discipline is coloured to reflect the type theories and methods common to that area of research. The non-homogeneity is shown by the splintering and gaps between the research areas. This reflects a lack of communication between the areas and an inward-looking concern with particular research styles and topics. Two reference disciplines are shown as dominating major portions of the fragmented discipline. The reliance on the reference disciplines for theories and/or methods creates closer links between those fragments and the reference disciplines, than currently exist between those areas and the rest of the fragmented discipline. The researchers in those areas would probably feel more "at home" discussing research issues with academics in the reference disciplines than members of their department.

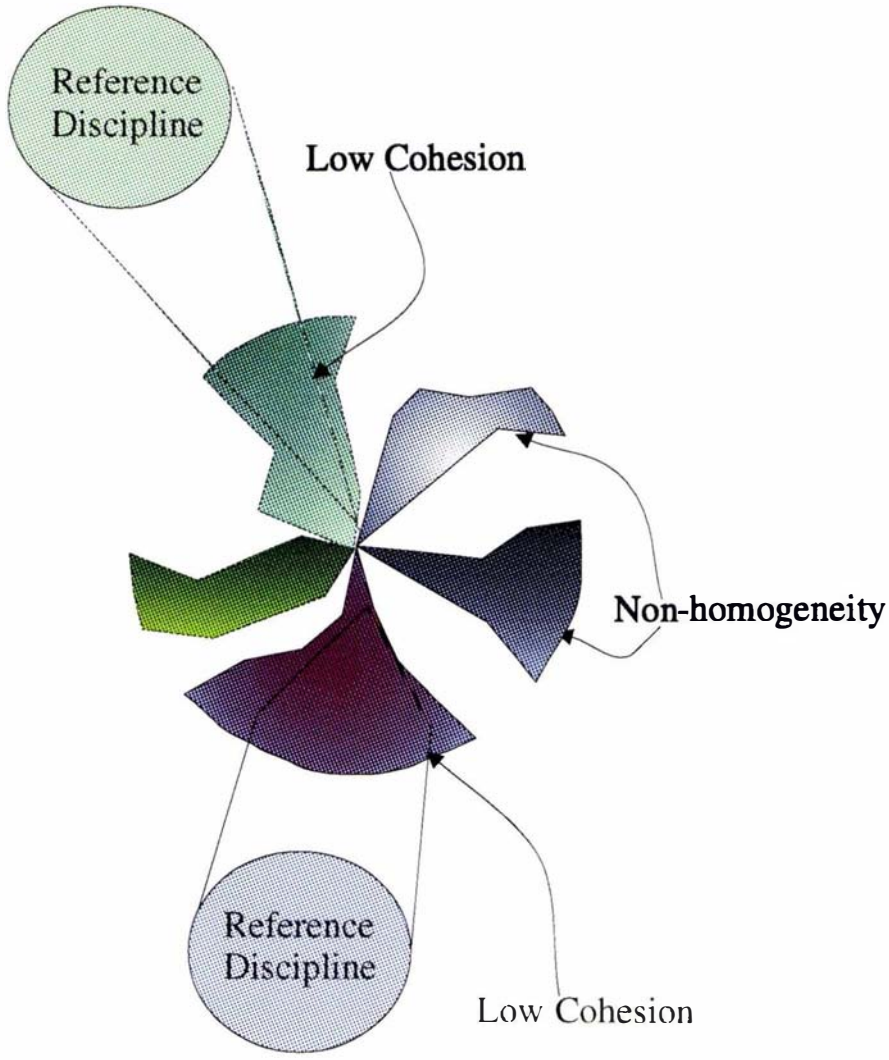
The next section considers the outcomes of fragmentation on the development of knowledge.

3.3.3 Outcomes of fragmentation

Kochen (1978, p. 129) states a view of fragmentation quite plainly, "Fragmentation uncompensated by efforts at evaluation and synthesis . . . is deplored. . . . Fragmentation in excess of attempts to interconnect the fragments is counterproductive." While it is perhaps justifiable to reject fragmentation simply because of its nature, this section seeks to specify the impacts of fragmentation which Kochen believes are counterproductive.

Three outcomes of fragmentation are identified. First is the inefficiency created by the isolation of researchers. As research is conducted on an issue it is part of the accepted approach in virtually all disciplines that the existing literature relating to that issue will be read to allow the researcher to become aware of previous approaches to the issue and

FIGURE 3.3 Characteristics of Fragmentation



evidence gathered. Where researchers within a discipline are isolated and there is little or no communication across the literature, there is an increased possibility that previous literature on an issue will be overlooked or ignored. It may be overlooked simply because the researcher is unaware of it or because researchers adopt dogmatic views regarding the contribution of specialty areas other than their own. In this way fragmentation can lead to research results being needlessly duplicated or possible avenues for development being overlooked because the previous literature on the issue has not been thoroughly incorporated into the current research.

Entman (1993, p. 51) describes this type of outcome between disciplines: "Because of the lack of interchange among the disciplines, hypotheses thoroughly discredited in one field may receive wide acceptance in another. Potential research programmes remain fractured, with pieces here and there but no comprehensive statement to guide research."

A second outcome of fragmentation is the potential for the research issues pursued by academics to become irrelevant to anything but the further development of their particular specialty. This outcome is very difficult to identify since it is often difficult to see immediate relevance or direct benefits from much of what is called "pure" research as opposed to "applied" research. It is important for researchers to be aware of this danger. However, as a research area matures, if it becomes too inward-looking and is often called into question regarding its relevance, then it is possible that the efficient sharing of theories and perspectives has turned into an ethnocentric interest in research for the sake of it, and the output has become the sterile academic trivia to which Tricker (1979) refers.

The third potential outcome of continuing fragmentation is the disintegration of the discipline. As the specialty areas become more and more differentiated, the common elements which bind the discipline are reduced and the body of knowledge which is central to a discipline may no longer be significant enough to hold them together. Accountancy, operations research, information systems and communication studies are areas where discipline disintegration has been raised as an issue (Bonder, 1979;

Mattessich, 1972; Swanson, 1993; Weber, 1987). A contributing factor in most of these cases appears to be such a heavy reliance on reference disciplines that researchers' allegiance to the reference disciplines is sometimes stronger than a sense of belonging to a discipline of their own.

It is possible of course that the disintegration outcome is the result of the discipline's failure to produce research which is valued, either because of increasing anomalies in a Kuhnian sense or as a result of continuing degenerative problem-shifts as per Lakatos, and the fragmentation is both a result of the failure and also hastening it as described above. Whether the disintegration is the best alternative is a very difficult question which should be addressed in each case. The suggestion made earlier is that the possibility for an integrative approach is an option which could be considered.

3.3.4 Summary

The literature on fragmentation has been reviewed under the three categories of causes, characteristics and outcomes. The self-perpetuating nature of fragmentation results in overlaps between the causes and characteristics. The outcomes of fragmentation have been identified as undesirable for an academic discipline. The concept developed of fragmentation may be summarised as a state or process in which disconnectedness in a research base is created. Fragmentation is observed in citation studies using measures of non-homogeneity and/or low cohesion in a research literature, and is also as reflected in increasing numbers of specialist departments and publications.

3.4 FRAGMENTATION IN OTHER DISCIPLINES

Fragmentation has been observed in a wide range of disciplines. It is not the purpose of this thesis to specify means of increasing levels of integration in many disciplines: accounting is the focus of the current study. However, it is useful to review the observation of fragmentation in other disciplines to establish the generic nature of the problem and the seriousness with which it is regarded by researchers in other disciplines.

Confusion about the aspects of fragmentation and the lack of clarity about levels at which it may be identified are also captured in the differing views in some disciplines. Further, this section provides a basis for the discussion in Chapter Six of the approaches that have been tried in some of these disciplines to attempt to stimulate re-integration.

Economics is a discipline which is closely related to accounting and provides the basis for some well accepted research approaches (Bricker, 1987). The situation that seems to exist in economics is an interesting case study in how the separation of the aspects of fragmentation and the adoption of differing perspectives regarding the level at which integration is desirable, causes apparent conflicts in views.

Remenyi (1979, p. 30) quotes Schumpeter's concern that the economics discipline was fragmenting into "an indefinite number of specialties." In contrast to this, Whitley (1986, p. 173) identifies a lack of integration in the business finance area in its early development, and describes its successful colonisation by economics. Economics is seen as possessing characteristics that allow it to remain coherent in the face of many ambiguities:

> Undergraduate education is highly standardised and formalised so that certified economists share common analytical skills and have a strong consciousness of what economics is and what it is not . . . This standardisation of intellectual skills and ways of formulating and solving intellectual problems enabled the reputational system of economics to expand and colonise other areas of research in the 1960's without fragmenting into distinct schools and approaches. (p. 178)

The outcome for business finance (or financial economics as Whitley describes it) is that it has remained "remarkably cohesive and not fragmented in the same way as other expanding sub-fields of management studies" (Whitley, 1986, p. 180).

The contrasting views of economics by Remenyi and Whitely are at first disconcerting, and may be simply attributed to the difference between an "insider's" view and that of an "outsider". However, Remenyi is referring to an increasing specialisation in subject areas, whereas Whitley is emphasising the methodological tightness and certainty of the economic model. Thus, from one perspective (subject matter) the area may be seen as

fragmented, while from the other (methodology) it is seen as highly integrated and successful.

This view is supported by Blaug (1975) who uses "Lakatos' methodology of scientific programmes" (p. 400) to analyse the history of political economy. Blaug charges economists with failing to recognise that their metatheories are not empirically testable while maintaining a positivist view of their methodology. He describes an interesting case:

> So-called Cambridge controversies in the theory of capital, which actually are controversies about the theory of functional income distribution, have raged for twenty years without so much as a reference to anything but stylized facts, such as the constancy of the capital-output ratio and the constancy of labor's relative share, which turn out on examination not to be facts at all. The fundamental issue at stake between Cambridge U.K. and Cambridge U.S. we are told by no less an authority on the debate than Joan Robinson, is not so much the famous problem of how to measure capital as it is the question of whether saving determines investment instead of investment determining saving. That issue depends in turn on the question of whether the world is better described by full employment or by underemployment equilibrium. In as much as the entire debate is carried out in the context of steady-state-growth theory, and as everyone agrees that steady-state growth is never even approximated in real economics, there is no reason whatever for refusing to operate with both models, depending on the problem at hand. Neither model has any predictive power, and Cambridge controversies, therefore, are incapable of being resolved by empirical research. (pp. 426-427)

Blaug (1975) uses the principle of tenacity, described earlier, to explain how researchers may persist with views and arguments that have been falsified. The example above shows how insulated from empirical analysis the debates may become. This provides a very rarefied atmosphere in which theories may be developed and refined and defended without ever facing the risk of falsification. Whitley (1986) identifies this separation as one strength of the economics paradigm and calls it a partitioned bureaucracy. He describes this feature as follows:

> . . . the areas of research with high levels of uncertainty and ambiguity are partitioned from those where task outcomes are more stable and predictable . . . so that the central core of the field remains largely undisturbed by environmental turbulence . . . This partitioning remains effective as a means of coping with uncertainty as long as the reputational system as a whole is dominated by the standards and goals of those undertaking analytical studies and retains sufficient

> economic and social support for their standards to govern access to material rewards. (p. 174)

It appears that the methodological strength identified by Whitley (1986), dubbed partitioned bureaucracy, is the same as the principle of tenacity. While this may be a strength in terms of the survival of the research programme, its side-effect is a lack of relevance for empirical situations. If carried to the extreme a complete fragmentation between the theory and empirical work of a discipline may result (see also Eichner, 1983, p. xiii).

An example of a discipline at the other end of the spectrum of separation between theory and application is a relatively new area called Future Studies (King, 1975). The aim of the development of this field of study was to create an inter-disciplinary perspective of likely developments in the future so that issues could begin to be addressed before they became urgent dilemmas. However, the institutional and methodological structures of the university environment caused fragmentation problems for the fledgling area. King (1975) identifies the marked "sectarianism" of the social sciences, "where, for example, social anthropology, social psychology and sociology appear, at least from the outside, to be distinguished more in the sense of orientation than of fundamental discipline" (p. 46). This poses the problem for Future Studies of finding a knowledge base that integrates all the areas necessary to project and model likely impacts on the future. King (1975) and Campbell (1969) discuss some of the problems of institutionalisation that make it difficult to break out of the typical university/department structure to address complex, multi-faceted issues.

Also within the social sciences, related areas which have the development of knowledge as their subject area are not immune to similar difficulties. Barber (1975) suggests that the sociology of knowledge needs to be integrated back into general sociology. He suggests that particular models are perhaps less important than "the sharp and continuing awareness that such integration is desirable all round" (p. 113). Similar problems have been identified in the related area of philosophy of science. Spiegel-Rösing (1977) identifies an emerging trend in the Study of Science, Technology and Society (SSTS) as that of desimplification. She sees this trend as arising in part from the "emerging need

for reapproachment between hitherto separate approaches and traditionally fragmented divisions of labor" (p. 24). More specifically she summarises the views of the authors in the book of readings of which she is co-editor as follows:

> There is hardly a chapter in this book which does not point out this need for integration. Bohme (Chapter 9) sees a solution to the major conceptual deficiencies in the philosophy of science only in a joint and integrated approach involving sociology, history and philosophy of science. MacLeod (Chapter 5) points out that in a more encompassing social history of science, the study of science as part of the wider cultural context is essentially dependent on interdisciplinary collaboration. Mulkay (Chapter 4) tells us that in the field of sociology of science, the cry for integration of separate disciplinary approaches has become a standard phrase. Fisch (Chapter 8) asks for closer collaboration with sociologists of science in order to tackle the wider problems raised by the deficiencies of present research. Layton (Chapter 6) states that there must be an intra-disciplinary as well as inter-disciplinary integration if the history of technology is to become fruitful; he also points out a strong need to overcome national differences in the study of technology. Freeman (Chapter 7) also demands cross-national and inter-disciplinary bridges in the area of economics of science; indeed, he views the need to contribute to such cross-disciplinary communication as one of the major justifications for his contribution to this book. In the section of this book devoted to science policy studies there is no chapter that does not point out the dilemmas which have arisen from contradiction between the diffuse, complicated, far-reaching and intertwined issues of science and technology policy - and the fragmented approaches which various slices of disciplinary traditions have accorded them. (p. 25)

Other areas identified as fragmented include management studies (Whitley, 1984), mental health therapies (Crawford & Crawford, 1980), communication studies (Swanson, 1993), operations research (Bonder, 1979) and information systems (Weber, 1987).

Fragmentation is not limited to the social sciences or humanities. Cole, Cole and Dietrich (1978) make the following observation:

> Recent developments in biology have had the effect of splitting the biological sciences into a multiplicity of distinct fields; work done in one area frequently has no relation to that done in other areas. The organization of the biological sciences is rarely the same from one university to another. Similar problems exist in many other fields. (p. 219)

Boyer (1991) exhorts academics to take action in the face of the fragmentation across the disciplines:

> But in addition to the scholarship of discovery, we also need what we call the scholarship of integration. We need creative people who go beyond the isolated facts, who make connections across the disciplines, who help shape a more coherent view of knowledge and a more integrated, more authentic view of life. And in our fragmented academic world, this task of integration becomes more urgent every single day. . . .in the days ahead we urgently need scholars who move beyond the traditional academic boundaries and begin to put their learning in intellectual, social, and ethical perspective. (pp. 4-5)

This overview of the identification of fragmentation in other disciplines suggests that accounting's case is not an isolated one in the social sciences. However, as the Chapter Six review of solutions applied in these areas shows, the depth and breadth of experience with the problem have not provided encouraging examples of success in addressing it.

3.5 FRAGMENTATION IN ACCOUNTING

The area of central concern in this thesis is the problem of fragmentation in accounting. The review of the literature thus far in the chapter has identified many potential causes, the characteristics and outcomes of fragmentation as well as the evidence of its existence in many other disciplines. The accounting literature reviewed in this section reflects many of the same concerns raised for other disciplines as well as the emergence of the causes, characteristics and outcomes of fragmentation. The diverse approaches of the accountancy writers who raise the fragmentation issue, as well as the consistency of the warnings across an extended period of time reinforce the importance of addressing this issue seriously to offer practical responses.

This section divides the accounting literature on the subject into five categories which reflect the identification of the causes of fragmentation in accounting and its outcomes. By far the largest category of literature relates to the issue of dogmatism in accounting research and its contribution to fragmentation. This is closely related to the national/cultural split identified as being related to methodological trends in the United

Sates compared to the United Kingdom. The next category reviewed is the reward structure's publish or perish pressure in accounting academia and its perceived effects. Institutional specialisation by accounting departments is discussed in the following section. Literature describing the tendency for accounting to specialise within its own disciplinary boundaries and also evidence of fragmentation within specialist areas of accounting research is reviewed in the next section. Finally, empirical evidence of fragmentation through citation and publication studies is discussed and linked to some of the features identified in the sections preceding it.

3.5.1 Dogmatism

The type of dogmatism which most writers identify as a problem in accounting research relates to entrenched views about methodology. Manicas (1993, p.151) suggests that "the differences between the mainstream [approach to accounting research] and its critics define a chasm." He also admits that there are emerging disagreements within critics of the mainstream but takes the view that the lack of a unified opposition may not prevent their efforts from transforming practice (see also Reiter, 1995). Funnell (1995, p.3) describes "[t]he rise of 'alternative' research or critical accounting paradigm in accounting and its strong challenge to the entrenched hegemony of the positivist paradigm is one of the most striking features of academic accounting over the past decade." Schreuder (1984) identifies the major methodological split between positivists and normative research approaches but is hopeful that "we have not yet created unbreachable communication barriers" (p. 215).

Arrington and Schweiker (1992, p. 518) seem less confident about the chances of productive communication:

> Through techniques like those discussed above [rhetorical, interdisciplinary argument], an intelligible sense of accounting as a subject matter takes shape. But what is intelligible as accounting to one research community is sometimes closer to unintelligible to another. Indeed, there is probably more disagreement about what accounting is and what it is not among accounting researchers that [*sic*] there is in the broader polity.

Tricker (1979) cites accounting dogma as leading to an emphasis on internal issues of the disciplines rather than the changing needs of the external environment. The link between the need to maintain dogmatic views and the consequent inability to address emerging relevant issues is also identified in accounting by Belkaoui (1991), Lee (1989) and Williams and Rodgers (1995).

Zeff (1989) recognises the potential benefits of the what Mattessich (1995, p. 266) terms the "empirical revolution" as providing understanding of new areas of the "world in which accounting is practiced" (p. 170). However, he also notes:

> there has been a tendency for accounting researchers to become more enamoured of their research methods and methodologies than of the potential of their findings to contribute usefully to the stock of knowledge in the discipline. . . . when they leave the [doctoral] programme, their attachment is not so much to accounting as to favoured research methods. . . . Another unfavourable effect, one that could not reasonably have been expected, has been an intolerance for research approaches other than one's own, and especially of classical approaches to addressing questions. . . . Yet one observes an unhealthy trend in the behaviour of some researchers who vaunt the superiority of their own approaches to research, while deprecating that of others. (pp. 170 - 171; see also Antle, 1989; Demski, 1987)

These writers all identify accounting research as displaying a key cause and outcome associated with fragmentation. Dogmatism is one of the difficult issues to deal with head on as many writers in the critical school have found. Reiter's (1995, p. 50) description of the hegemony of methodological views in American academia as a "tough nut to crack" is an accurate one.

3.5.2 National/cultural schisms

Zeff (1989, p. 169) describes the methodological barriers identified in the section on dogmatism as also following national boundaries: "An unmistakable trend in US accounting research during the last 25 years has been the increasing use of formal empiricism and mathematical model building (Whittington, 1986; Bell, 1987)." Bromwich and Hopwood (1981, p. xiii), quoted earlier, similarly noted the differences between the two countries.

The restriction of communication patterns between journals to within the US or UK and not between them was observed by McRae (1974), suggesting that this is not a short-term trend.

The most striking feature of the national-methodology split identified by these authors is that the United States and the United Kingdom share a number of historical and cultural links and importantly are both English speaking countries. The extent of other possible fragmentations of research between non-English speaking nations and the western world is unknown. Similarly, the cultural impact of eastern views and language on research methods in accounting is only just beginning to be addressed (e.g., Hines, 1992).

3.5.3 Reward structures

Another identified cause of fragmentation, the emphasis on publication for establishing a successful career in academia, is increasingly being identified by writers in the accounting discipline as having negative effects on research development.

A number of writers identify the publish or perish ethic in accounting academia (Gray & Helliar, 1994; Lee, 1989; Morgan & Willmott, 1993; Sunder, 1991). Lee (1989, p. 241) links this pressure to the lack of relevance of research to practice with the motivation of researchers to "advance their careers by building research and publication reputations, and impressing research journal editors and reviewers with complex fundamental research activities" (see also Bricker, 1987, p. 14). This tendency is also linked to the methodological dogmatism identified in Section 3.5.1, since publication within a strong methodological perspective is not easily achieved by taking a critical or alternative view. In accounting, the division of methodological approaches between journals represents the response of accounting academics unable to publish outside the mainstream or economics-based accounting methodologies without access to specialist journals. Strong concerns that even journals which purport to be general in their coverage of accounting research show a strong bias have been published in journals which voice the alternative to the mainstream view (e.g., Tinker & Puxty, 1995; Williams & Rodgers, 1995). The citation studies discussed in the last part of this section indicate that there are clear lines

of division between groups of academic journals in accounting. Tricker's (1979) comments summarise the views of a number of authors contained in these three sections:

> . . . there is a tendency to emphasise the methodology rather than the results. Given pressures, widespread in North America but quite prevalent in the UK, to publish research writing in the few academically acceptable journals for career advancement, the tendency is not surprising. But it can lead to sterile academic trivia; findings produced with a proper concern for statistical rigour but irrespective of the quality of the hypotheses or the value of the results. Comte's positivism - the belief that all true knowledge is scientific - has a powerful hold on accounting thought. (p. 8)

3.5.4 Institutionalisation and specialisation

The previous sections have already indicated that there is a specialisation along methodological lines within accounting, and that it has elements of dogmatism associated with it. In this section the tendency to specialisation and its further institutionalisation into specialisation of university departments is reviewed. Note that the segmented "market" for academic accounting journals mentioned in the previous section is another strand in the same fence that leads to fragmentation.

Mattessich (1972, p. 483) was quoted in Chapter One as describing accounting research as a jig-saw puzzle where the fragments are spreading outwards rather than towards a common centre. He refers to the necessary specialisation in terms of a division of labour between experimenters on one hand and theorists and formalists on the other. He also emphasises the balance that is needed between specialisation and integration as described in an earlier section, "Such a division of labor is as indispensable as is the close cooperation between those specialists" (p. 487).

Belkaoui (1991, p. 168) describes the strength and implications of the established specialisation in stark terms:

> Those unplanned dynamics characterize the accounting scientific establishments through increasing specialization, power and status differentials among the specialized disciplines, and professional ideologies of 'grandeur'. All this is contributing to friction among the establishments with the prospects of decreasing interdisciplinary relationships and a decline in the production of useful formal accounting knowledge.

Once such specialisation is institutionalised in the form of journals and other communication media, and within academic departments the opportunities for opening up debate on a wider front than intra-specialty details are reduced. There is evidence in accounting, especially in America, that such specialisation has already taken place (Heck, Jensen & Cooley, 1991; Williams & Rodgers, 1995; Windal, 1981). The Rochester School is well-known for its positivistic methodological approach. Subotnik (1988) gives examples of the specialisation of accounting into separate departments:

> I myself was once told at the outset of a job interview: 'this is a statistically oriented department. We look for people who can complement (or was it 'compliment'?) our work'. The University of Chicago demands empirically oriented scholars on its Business faculty. Harvard wants to perpetuate the case method. The law of comparative advantage - yet another business image - is sometimes cited in justification of the resulting intellectual homogeneity. In practical terms what all this means is that the market for business schools is as segmented as that for peanut butter. (p. 102)

The following recommendation by Leung (1988) to potential international accounting researchers reflects the link between an emphasis on publication and the specialisation in departments for the furthering of academic careers in accounting.

> With the continued emphasis of the 'publish-or-perish' policy of many universities, young faculty members who wish to focus their research in the international accounting area may find this study helpful as they attempt to align their own research interest with prospective institutions. (p. 60)

While such advice may be accurate, it further reinforces the mechanism of institutional specialisation and isolation which, if not offset by other forces for integration, results finally in fragmentation.

3.5.5 Disciplinary isolation and fragmented specialties

The earlier sections of this chapter described the existence of fragmentation at different levels within the academic hierarchy. Writers in accounting also identify the disconnectedness, or fragmentation, of accounting at different levels.

Belkaoui (1987, p. 169) argues that dogmatism within accounting is resulting in barriers to communication with the broader social sciences, "As in the case of exclusivism,

mistaken identity, and premature dismissal, the wall of dogmatism must be shed to allow accounting to experience the benefits of the basic tenets of the research methodology used in the other social sciences." Bromwich and Hopwood (1981, p. xv) also identify this type of integration as desirable. The issue these authors raise is one which concerns the level of integration between accounting as a discipline and the other disciplines of the social sciences. This concern may be a double-edged blade for accounting as a discipline because of the existence of internal fragmentation. To encourage links with other disciplines in the social sciences while there are concerns over a lack of integration within the discipline itself may result in further fragmentation in accounting through a loss of cohesion as researchers search outside accounting for links with other social science disciplines. It could be that a theory or methodological approach may be found which brings such a useful insight to the accounting discipline that it unifies behind this approach. This provides an integrated, but potentially dogmatic solution if other methodologies are "expelled" from accounting as a result. The more likely alternative, however, is that many different social science approaches are drawn into accounting with low to medium levels of acceptance, and a discipline which is already lacking in cohesion (see the next section) becomes further divided. The argument is not that integration with social science disciplines is a damaging aim in itself, just that the focus of concern needs to be clear. If the aim is to foster an integrated discipline of accounting then this should take priority over integration with other social science disciplines.

The delicate nature of the balance is clear as over-specialisation and diversification lead to fragmentation, but the dominance of one dogmatic methodological approach also results in the same outcome. Lee (1989) and Zeff (1989) both express concern with the specialisation of accounting research which edges out multiple approaches (see also Belkaoui, 1987; Chua 1986; Hopwood, 1988; Tinker & Puxty, 1995; Whitley, 1988). The focus of this research project is to seek integration at the level of the accounting discipline using techniques which don't involve integration by domination or promote further specialisation and diversification.

A number of authors have identified fragmentation in specialties within accounting. Management accounting research is claimed by Dent *et al.* (1984, p. 237) to have become fragmented during the 1970s. Lewis, Parker and Sutcliffe (1984) indicate that the research into reporting to employees suffered from a repetitive consideration of issues and suggests these factors as possibly contributing to the pattern:

1. Lack of recognition of prior research;
2. Variable interest of different professional groups;
3. Different countries of publication. (p. 284)

The identification of the lack of recognition of prior research and a split in the research between different countries suggests that the reduced efficiency in the literature identified is related to fragmentation. Gibbins and Jamal (1993) indicate that accounting judgement research needs to broaden its connections with both research and the "real complexities of the task" (p. 463) to secure great benefits for both the field of research and practice. The issue of fragmentation in specialties in accounting is one which needs to be held in balance with the objective of integrating the discipline in the same way as integration with the broader social sciences. The focus of this thesis on integration at the level of the discipline means that the particular specialty areas identified as fragmented are not specifically considered.

3.5.6 Citation and publication studies and fragmentation

Citation studies in accounting have provided evidence relating to fragmentation at different levels of specialisation. Bricker (1987, 1989), Beattie and Ryan (1991), Everett and Watson, (1991) and McRae (1974) have studied the accounting discipline.

Bricker (1987) concludes that the hypotheses relating to fragmentation in accounting using the characteristics of cohesion and homogeneity could not be rejected. That is, that the accounting literature was low in cohesion and showed non-homogeneity. In developing the hypotheses, Bricker mentions the lack of a well founded cut-off point for measuring cohesion and homogeneity. The benchmark set for homogeneity is 90 per cent and Bricker's analysis reveals that at the lowest CTL level homogeneity is 84 per cent and drops then to 65 per cent at CTL 4 and 37 per cent at CTL 5 (p. 179). In the

case of cohesion, Bricker compares the percentage of citations to non-accounting sources for documents cited greater than five times with interdisciplinary citations for anthropology, political science, psychology, sociology and economics (pp. 181-182). He finds that, "accounting remains more open and less cohesive than many other established social sciences" (p. 182). Perhaps concern about the arbitrary nature of the bench mark and comparison conditions the more conservative statement of his findings in Bricker (1989):

> In summary, the complete isolation of some area clusters at CTL 3 and the low extent of nesting in some parts of the inferred structure suggest that accounting research is incompletely integrated. . . . This structure showed a substantial amount of cluster nesting, indicating that some accounting research areas are relatively well integrated, notably the accounting research lines that eventually formed the 'Financial' cluster, . . . These findings lend only partial support to assertions that accounting research is fragmented. (pp. 259-260)

Subsequently, however, other researchers have found evidence to support the fragmentation identified by Bricker using different citation techniques. Everett and Watson's (1991) dendogram of the relationship between journals lends support to Bricker's findings. In the words of Everett and Watson:

> Bricker [1989], using co-citation clustering and content analysis, concluded that some areas of accounting research were relatively well integrated. Bricker found that the integration was highest in the 'financial' cluster, including 'Positive Accounting' research and most 'Market-Based' and 'Time-Series' research. By contrast other areas such as 'Statistical Auditing,' 'Tax' and 'studies of Academic Accounting' were relatively isolated.
>
> Figure 2 [a MDS map of journal similarity] lends support to Bricker's results as the *Journal of Accounting Research,* the *Journal of Accounting and Economics*, and *The Accounting Review* are clustered together. These journals are also located in relatively close proximity to the major finance journals with which they share much of the same underlying economic theory. In contrast the *Journal of Accountancy*, the *Auditing Journal of Practice and Theory,* the *Journal of Accounting and Public Policy*, and *Accounting, Organizations and Society* are more dispersed indicating less integration of the areas of accounting with which these journals are primarily concerned. (p. 9)

The relationship between journals was also tested by Beattie and Ryan (1991), this time using citations by journals to books as the linking mechanism. They find that the journals are split into two main groupings which are distinguished by their different emphases on quantitative analysis. The first grouping, with a lower emphasis on quantitative studies,

contains *Accounting, Organizations and Society* (AOS) linked closely with *Financial Accountability and Management.* Also clustered in that group, but forming a distinct sub-group is *Abacus, The Accounting Review* (TAR), *British Accounting Review* and *Accounting and Business Research.* The second grouping includes the four finance journals in the sample plus the *Journal of Accounting and Economics, Journal of Accounting Research* (JAR), and the *Journal of Business Finance and Accounting.* The only classification which is surprising in the context of the earlier discussion and Everett and Watson's findings is the placement of TAR. Everett and Watson find that it is associated with the *Journal of Accounting and Economics* and JAR. Beattie and Ryan explain the grouping of second cluster (excluding AOS and *Financial Accountability and Management*) by the common element of these journals having a general focus and being sponsored by professional accounting associations. A study by Brown, Gardner and Vasarhelyi (1987) of the contribution of AOS also finds that it is complementary to rather than in competition with other significant accounting journals (TAR and JAR). They analyse the base disciplines used in articles in the three journals over the period 1976 to 1984 and find that:

> In sum, AOS draws its research primarily from accounting, psychology, multiple-disciplinary, management and sociology/political science. JAR and TAR base their research primarily upon accounting and finance, mathematics/decision sciences/game theory, psychology and statistics. AOS seldom draws upon economics and finance, mathematics/decision science/game theory, and engineering/communication, and never bases its research on statistics or law. JAR and TAR occasionally use a multi-disciplinary approach, and rarely draw upon management, sociology/political science and engineering/communication research. (pp. 197-198)

Williams and Rodgers (1995) also find evidence of a difference in the types of citation patterns between the major journals classified into distinct groups in the majority of other studies. They comment that in comparing TAR, JAR, *Journal of Accounting and Economics,* and AOS:

> . . . the three journals published in the US each had the same top five citations: themselves plus the *Journal of Finance,* and the *Journal of Financial Economics.* They construct their texts in virtually the same ways. On the other hand, AOS presents a rather different pattern of textual construction. Authors in AOS use books much more extensively. And, rather than economics and finance,

> management and administrative science are the other fields relied on for authority. (pp. 279-280)

This analysis supports the other findings of a split between the research published in the two groups of journals. Furthermore it suggests that there is a link with reference disciplines and that cohesion as well as homogeneity may be a factor in the fragmentation problem.

There is also evidence that the split in the journals' research publication is mirrored in the specialisation in departments in the US. Windal (1981) finds that particular departments tend to publish in particular journals, either as a result of a predetermined policy or because the skill sets of their researchers match the preferred type of research for that journal or set of journals. Similarly, Williams and Rodgers (1995) find that the authors and editorial boards of two major journals, TAR and JAR, are dominated by faculty representing a small number of schools they term the élite.

A number of journal studies also comment on the way in which accounting literature draws on economics, finance, and other social science disciplines but rarely is referred to by those disciplines (Williams & Rodgers, 1995). This suggests that the research output is not perceived by those other disciplines as relevant to extending their work.

The citation type research and studies of publication patterns indicate that there is fragmentation in the accounting discipline, and furthermore it appears to have become institutionalised in the isolation of communication lines into specialised journals and into departments.

3.5.7 Summary

In summary, many accounting researchers over an extensive period have identified a problem with accounting research being fragmented. These views have been linked to ethnocentricity in the discipline. Coupled with the multiplicity of methodologies this creates a difficult environment for an integrated approach to research. More recently, Bricker's (1987) citation study and a number of citation and publication studies have

provided empirical support for the existence of fragmentation in the accounting literature.

3.6 SUMMARY

This chapter has reviewed the literature relating to fragmentation by organising the features of fragmentation into causes, characteristics and outcomes. The existence of fragmentation in other disciplines as well as in accounting has been demonstrated from the literature. In summary, the dislocation and isolation of areas of a research base which is termed fragmentation, may be identified in a research literature through the characteristics of low cohesion and non-homogeneity. Other factors that may be observed are institutionalised barriers to integration such as over-specialisation in journals and academic departments. The outcomes of fragmentation have been described as a lowering of efficiency in research, a lack of relevance outside the narrow research boundaries, and the potential disintegration of the discipline.

The next chapter explores the issue of the disciplinary status of accounting to define the sense in which accounting, at a disciplinary level, may be considered fragmented. Chapter Five uses the knowledge accumulation model and Bricker's (1987) co-citation analysis to specify the nature and areas of fragmentation in the accounting discipline. The discussion in this chapter has highlighted the pervasive and structural nature of the fragmentation problem, so possible strategies for re-integration with a view to redressing the imbalance that sustains the fragmentation will be explored in Chapter Six. The purpose is to identify strategies that work with the institutional forces rather than attempt to change the structures or expect researchers to behave against their own best interests. In this way, although the strategy may define only a small step, an awareness of the need for integration and the "multiplier effect" of other researchers extending the initial phases of a strategy may lead to worthwhile outcomes. As Mattessich (1972, p. 484) suggests, defeat should be considered unacceptable.

CHAPTER FOUR

THE DISCIPLINARY STATUS OF ACCOUNTING

> Sometimes defeat is inevitable - perhaps our notion of accounting as a single discipline is basically misconceived - but a defeat without seriously trying to counter it (that is without trying to integrate *all* of accounting), ought to be unacceptable for the academic community of accountants. (Mattessich, 1972, p. 484).

4.1 INTRODUCTION

Chapter Three discussed the nature of the fragmentation that seems to exist in accounting. Two points raised in that chapter were the association of fragmentation with the disintegration of a discipline and the importance of establishing the level at which fragmentation is a concern. The purpose of this chapter is to establish in what sense accounting may be considered as currently existing as a discipline even though a wide variety of authors have already identified fragmentation or its causes or characteristics in accounting. It is also important to establish the meaning and application of the concept of a discipline of accounting since it is at the disciplinary level that fragmentation is considered in this thesis.

The structure of this chapter is to first consider the views of accounting's disciplinary status within the accounting literature. Based on a consistent theme in the majority of approaches adopted in the contentious part of that literature, the term discipline is defined in Section 4.4. Section 4.5 synthesises the relevant literature to identify key indicators of disciplinary status which are applied to accounting in the following section. Finally, Section 4.7 summarises the chapter.

4.2 DISCIPLINARY STATUS OF ACCOUNTING: VIEWS FROM THE LITERATURE

Views within accounting relevant to the issue of accounting's disciplinary status fall into two broad groups. In the first group, accounting is assumed to be a discipline in an unproblematic way. An example of this is the American Accounting Association's mission statement (AAA, 1994) which says *inter alia*:

> Therefore the American Accounting Association:
> . . . Regards accounting as the intellectual discipline concerned with the measurement, communication, and use of decision-oriented information. (p.18)

Even Bricker's (1987) examination of the structure of research in accounting implicitly assumes that there is a common body of knowledge which may be typified as accounting. The unproblematic acceptance of accounting as a discipline is not uncommon in the literature. For example: Accounting Education Change Commission (AECC) (1992, p. 3), AICPA (1988, pp. 3 & 18), Arrington and Francis (1993, pp. 105, 106), Bell (1987, p. 338), Chua (1988, p. 59), Enthoven (1974, p. 114), Gaffikin (1981, p. 25), Hopwood (1985, p. 361 & 1987, p. 210), Morgan and Willmott (1993, p. 5), Mouck (1989), Mueller (1970, p. 67), Prodhan and AlNajjar (1988), Zeff (1989a, p. 170). There is also some confusion about the use of the term discipline, however, as evidenced by the application of it to specialty areas within accounting. For example, Chan (1986, p. 102) describes the work between international accounting and accounting theory as *inter*disciplinary; Funnell (1995) calls accounting history a discipline; and Gibbins and Jamal (1993) similarly describes accounting judgement research as a discipline.

The second broad group is involved in the large and growing debate over the nature of accounting as an area for research. This literature may be subdivided into three categories: differences over accounting's disciplinary type; its disciplinary or scientific status; and the appropriate methodological approaches in accounting. Each of these three categories of debate will be briefly discussed in the following sections.

4.2.1 Disciplinary type

This literature largely takes for granted that accounting is a discipline, but depicts the nature of that discipline in different ways. For example, Mattessich has argued in his writing over the years that accounting is an applied discipline (Mattessich, 1972 & 1995). In a similar vein, Peasnell (1978) argues that accounting is a service activity. Bell (1987) and the American Accounting Association (1994) emphasise accounting as an intellectual discipline. Another variation is Chua's (1988) view of accounting as a derived discipline.

Generally these descriptions have not been controversial, the only exception being the use of the view of accounting as an applied discipline as a basis for sponsoring a preferred methodological approach (see Section 4.2.3). The lack of contention may be largely because the descriptions are not mutually exclusive. That is, accounting could well be viewed as an intellectual, derived and applied discipline. However, the next two areas of debate give rise, at times, to vitriolic disputes because of their potential impact on the acceptability of research.

4.2.2 Disciplinary or scientific status

There was debate in the late 1970s and early 1980s about whether accounting was a science or an art (Stamp, 1981; Sterling, 1979). This debate was never resolved and has evolved into more sophisticated discussions of scientific or disciplinary (used interchangeably) status based on various philosophy of science approaches. AAA (1977), Ball and Foster (1982), Butterworth and Falk (1986), Cushing (1989), Flamholz (1979), Glautier (1983), Hakansson (1978), Hofstedt (1976), Mouck (1993), Previts (1980) and Wells (1976) all apply Kuhn's view of paradigms, normal science and scientific revolution to accounting. Some attribute a paradigmatic status to accounting, which implies that it has passed Kuhn's test for scientific status (Cushing, 1989; Mouck, 1993; Hakansson, 1978; Previts, 1980; Glautier, 1983). Others treat accounting as a multiple paradigm discipline, a loose application of Kuhn's approach (AAA, 1977; Ball & Foster, 1982; Belkaoui, 1985 & 1987; Hofstedt, 1976). Another group describe accounting as being in a state of revolution, with paradigms competing for dominance

(Butterworth & Falk, 1986; Flamholz, 1979; Wells, 1976). Other writers have argued that Kuhn's description of the development of science was intended to apply only to physical sciences and cannot meaningfully be applied to accounting (Danos, 1977; Laughlin, 1981; Peasnell, 1978 see also Blaug, 1975).

Another philosophical approach adopted is that of Lakatos (1970). Mouck (1990) analyses positive accounting theory and concludes that it has achieved scientific status through this view, while failing its own Popperian standards. The Watts and Zimmerman (1978, 1979) lead promotion of Popper and positive accounting theory (PAT) as the only acceptable and scientific approach for accounting has drawn a lot of debate. Mouck (1990) points out the irony that the scientific status he is able to attribute to PAT through Lakatos would be rejected by the proponents of the area as not the valid test.

Mouck (1990, p. 238) summarises the position by agreeing with Hines (1988) and Whitley (1988) that there has been too much emphasis on the philosophy of *natural* science approaches as a basis for arguing methodological legitimacy. This has emerged as a consistent underlying theme in the area, with writers taking different positions regarding whether accounting may be considered a social science but still achieve physical science methodological status, a social science in the pre-science stage of Kuhn's description, or an applied discipline which should aim for pragmatic solutions and not seek scientific status.

One particularly strident exchange on the scientific versus social science conception of the accounting discipline is between Subotnik (1991) and Bricker (1991b). Subotnik argues that it is really up to academics to resolve this issue. Bricker, on the other hand, argues that accounting is science-like but does not want to rule out its characterisation as a social science.

Manicas (1993) explores the role of accounting as a social science and recommends the critical approach as most appropriate. He describes the situation as follows:

> I would offer that differences, both between the mainstream and its critics and between critics, are best seen as turning on two sets of assumptions, firstly,

> assumptions about the philosophy (or theory) of science and secondly, assumptions regarding the nature of society. The differences between the mainstream and its critics define a chasm. (p. 151)

Laughlin (1981) recommends Feyerabend's approach as an alternative way to view the issue of methodological legitimacy by effectively arguing that anything goes. Tinker, Merino and Neimark (1982) offer the philosophical position of historical materialism as appropriate for accounting.

Hoskin (1994) describes accounting as a discipline within the Foucauldian view:

> In particular, there has been an efflorescence of work associated with the name of Michel Foucault, which has begun to demonstrate how instead accounting may be seen as a 'power-knowledge' technology, operating within a 'disciplinary' matrix - i.e. a matrix where it: (1) exerts discipline on people and performance by its forms of calculation, while it (2) emerges as an expert 'disciplinary' field of knowledge. (p. 58).

Williams (1992) comments on the debate between Cooper and Zeff (1992) and Kinney (1986), and suggests that the existence of disciplines are a "symptom of philosophy's failure to resolve" the debate about how a field "justifies its knowledge claims" (p. 99). This, together with Manicas' view, suggests that this fertile area of debate is not likely to be resolved in the near future, if ever.

The next category of literature brings the argument to a more specific level as proponents of different methodological approaches argue the case for their acceptance by or even dominance of the accounting discipline.

4.2.3 Appropriate methodological approaches in accounting

The positive accounting theory school has argued that their methodology is the appropriate one for accounting and that by working within it the research generated constitutes scientific research. Yet, repeated attacks on the failure of PAT to meet its own standards (e.g., Christenson, 1983; Hines, 1988; Mattessich, 1995; Tinker *et al.*, 1982; Whitley, 1988) have been ignored by those researchers. Chua (1986) opens up for consideration alternatives to the hypothetico-deductive approach which she perceives as dominating accounting thought. She offers the critical and interpretative schools for

consideration. Manicas (1993) concludes that the critical school is to be preferred (see also Laughlin, 1987). There are also differences within the critical school over which methodological base to adopt. This is reflected in the devotion of a whole issue of *Critical Perspectives on Accounting* (1994, *5*(1)) to the discourse between proponents of Marx and those who adopt Foucault. The editorial by Cooper and Tinker (p. 2) summarises the position, "Yet, as the clashes between Marxism and Foucauldian analysis intensify, it remains to be seen whether these two projects are fundamentally irreconcilable, or whether fruitful debate and collaboration is possible."

The perspective adopted in this thesis regarding these methodological debates is that they contribute to our understanding of methodological issues and epistemological differences within accounting, while not necessarily resolving them. In developing a model of accounting research as it currently is (Chapter Five), it is important to include and provide a means of capturing the full range of different approaches. The model may be considered descriptive only to the extent that it relates to a subject area which has boundaries which circumscribe, however hazily, the proposed view of knowledge accumulation in accounting. In order to distinguish a body of knowledge and a grouping of researchers, it is necessary to the argument that there exists a common connection which distinguishes the researchers and the knowledge they seek from other academics. To facilitate this, an element which is common to, and generally accepted by, many of the proposed views of methodological legitimacy is isolated from the arguments and used to provide identifying characteristics for disciplinary status.

The next section explores a range of philosophy of science approaches adopted in accounting to identify a common theme. Following that, a definition of the word discipline is provided as a basis for the discussion. The literature relating to factors which indicate disciplinary status is synthesised to identify indicators of the existence of a discipline. The indicators are then applied to accounting.

4.3 A SOCIOLOGICAL PERSPECTIVE IN THE PHILOSOPHY OF SCIENCE APPROACHES

The lack of agreement among accounting researchers about the disciplinary status of accounting and about how to establish it, suggests that a search for an underlying theme in the proposed perspectives may be a way of reducing the argument to a common denominator.

Three perspectives for considering the development of a field into a discipline which have been identified in the philosophy of science literature are: the non-sociological epistemological approach, the sociological view and the psychology of science view. The first approach is based on the notion that knowledge may be studied in isolation from the people who create it, the second considers the social theory and structures associated with knowledge creation, and the third considers the specific aspects of discovery and creativity at the individual level. These perspectives all provide useful insights for both the disciplinary status and knowledge accumulation issues. The latter is discussed in Chapter Five, for now the philosophy of science approaches that have been used to explore the status of accounting as a discipline are compared in Table 4.1 using the tripartite system above to identify areas of commonality.

TABLE 4.1 Common Perspectives in Philosophy of Science Approaches

	Non-sociological Epistemological	Sociological	Psychology of Science
Popper	--	✓	✓
Kuhn	×	✓	✓
Lakatos	×	✓	✓
Critical School	×	✓	✓

The common adoption of a sociological perspective is described by Chalmers (1982, p. 125); "An assumption that is made by Lakatos, as well as by Popper and Kuhn, is that theory change is to be explained by reference to the decisions and choices of scientists."

Kuhn's and Lakatos' emphases on the sociological aspects come from the historical approach adopted. By observing the process of research being conducted in the physical sciences Kuhn developed his views about the pattern of progress in science. The observation was of the interaction of scientists as "invisible colleges" to contribute to the body of knowledge in an area and as a by-product create disciplines of particular subjects. Kuhn's controversial depiction of the incommensurability of paradigms and the need for a gestalt switch like a religious conversion to achieve a paradigmatic change paints a picture of the nature of individuals and groups of researchers involved in a uniquely individual and yet also corporate activity. Masterman (1970, p. 68) describes Kuhn as being "interested in both the rise and fall of science, in the whole process of human beings trying to achieve a scientific explanation." Masterman (1970, p. 66) identifies one of three characterisations of the term paradigm as a sociological one, based on Kuhn's (1962, p. 10) description: "Normal science means research based upon one or more past scientific achievements that *some particular community* acknowledges for a time as supplying the foundation for its further practice" (emphasis added).

Similarly, Lakatos' concept of two heuristics provided to individual researchers within a research programme suggests his emphasis on the social and individual aspects of scientific progress. Chalmers (1982, p. 81) comments; "Lakatos's emphasis on the conventional element attached to work within a research programme, on the need for scientists to *decide* to accept its hard core, has much in common with Popper's position with respect to observation statements . . ." (emphasis in the original).

Writers within the critical school of thought in accounting recognise the importance of the social aspects of research. For example Williams and Rodgers (1995) apply such an approach in their study of *The Accounting Review*. They state:

> There is an extensive theoretical and empirical research tradition within sociology that indicates that the nature of the social organization of an academic discipline will largely determine which knowledge claims of that discipline are validated and allowed to appear in print and which are not. (p. 264)

Tinker and Puxty (1995) explore Popper's views of the sociology of knowledge suggesting that Popper's rejection of this approach was based on an error of understanding. It is important to note for the purposes of this thesis, however, that the discussion Tinker and Puxty are describing relates to the possibility of objective knowledge. This debate does not change the understanding of the necessary social processes involved in producing research, however. Tinker and Puxty include a synthesis of Popper's view of the process which leads to objective knowledge in science.

> And, ironically enough, objectivity is closely bound up with the *social aspect of scientific method*, with the fact that science and scientific objectivity do not and cannot result from the attempts of an individual scientist to be 'objective' , but from the *friendly-hostile co-operation of many scientists.* [p.217] . . . There are two aspects of this method, we are told. One is that 'the scientific attitude means criticizing everything, and they are little deterred by authorities' [p.218]. The other is that scientists try not to talk at cross-purposes; they try to share a language, and to express their ideas in ways that 'can be refuted (or else corroborated) by such experience. This is what constitutes scientific objectivity.' However, he issues a warning later in the paragraph 'Only political power, when it is used to suppress free criticism, or when it fails to protect it, can impair the functioning of these institutions, on which all progress, scientific, technological, and political, ultimately depends.' [p.218]. (p. 248, emphasis in original, page numbers in square brackets refer to Popper, 1945)

Clearly, while the critical approach may disagree with Popper's views on the objectivity of knowledge and the relevance of the sociology of knowledge perspective, the recognition of the process of interaction of the individual and groups of researchers as basic to the production of knowledge is common to both.

The analysis in this section has shown the sociological perspective to be a common feature in the majority of approaches used in the accounting literature to consider the disciplinary status of accounting. The sociological approach captures what researchers do, who they are and how they are organised into groups. It is an approach which has been explored in the sociology literature and applied to knowledge development and universities in particular. It is also an approach which encompasses the many methodological perspectives and epistemological positions adopted regarding the accounting discipline discussed earlier in this section. It is therefore an appropriate

vehicle for considering the disciplinary status of accounting. The next section explores some definitions of a discipline, focussing on the sociological perspective.

4.4 DEFINITION OF DISCIPLINE

The word discipline as it is meant here, is the modern English usage for the Latin *partitiones scientiarum* and was used to refer to the "grouping of subjects or subject areas in branches of learning" (Machlup, 1982, pp. 11, 15). That is, discipline is being used in the sense meant by Lord Denning (1979, p. v):

> In speaking of the Discipline of Law, I use the word in the sense given in the Shorter Oxford Dictionary of 'Instruction imparted to disciples or scholars'. But I have no disciples and scholars are few. Yet I use the word so as to show that I wish to impart instruction - instruction, that is, in the principles of law as they have been, as they are, and as they should be.

Shepherd's (1993) etymological analysis of the meaning of the word discipline echos and extends Lord Denning's description:

> *Discipline* is derived from the Latin *disciplina*: instruction of disciples. Disciplines, in turn, are instructed in a doctrine (and by 'doctors') - they are 'indoctrinated.' Thus, Berkley could write that to be 'undisciplined' is to be 'nurtured to no doctrine' (Oxford English Dictionary, 1971, pp. 741, 3496). (p. 83)

These descriptions of a discipline are consistent with the concept of invisible colleges in which scholars who may be physically located in various places act as a community in their common interest in and approach to researching a particular subject. The definitions are also consistent with the common sociological emphasis in philosophy of science approaches identified in the previous section.

Machlup and Mansfield (1983, p. 3) offer the following definition which brings the idea that a discipline has a common subject more into focus:

> Disciplines (sciences, academic areas of research and teaching) are orderly arrangements (metaphorically called bodies) of coherent thoughts, formulated as propositions, about things (sense-objects or thought-objects) deemed worthy of being known (i.e., being believed with some degree of confidence) and being

> passed on. In other words, disciplines are what a number of people, respected for having read widely and for being read by other widely read people, have claimed to be disciplines.

Storer (1972) explores the difficulty in separating the body of knowledge associated with a discipline and the group of researchers who belong to it:

> Do we mean by discipline a body of knowledge or a group of scientists? The two referents of the term are not distinguished in ordinary usage, but since they represent very different phenomena it is necessary that they be clearly recognized here so that there mutual interdependence can be taken into account. To be specific, it is obvious that 'knowledge' cannot exist in any meaningful sense without men to 'know' it, but it is also obvious that the factors that influence men's awareness of knowledge and their ability to extend it are quite different from those that influence the ways in which pieces of knowledge are fitted together to provide more comprehensive and accurate understanding of the phenomena to which they refer. Yet, . . . the characteristics of a body of knowledge do influence the relationships that develop among those who 'know' it, just as these relationships influence the rate and direction in which that knowledge develops. (pp. 229-230)

This complex interdependency is integral to the understanding of how a discipline develops (see also Bohme, 1977; Mulkay, 1975).

Williams and Rodgers (1995, p. 266) adopt the following definition of a discipline as being, ". . . distinct social organizations which control and direct the conduct of research on particular topics in different ways through the ability of their leaders to allocate rewards according to the merits of intellectual contributions (Whitley, 1984, p. 7)." In contrast to the other definitions, this view highlights the power relationships within a hierarchical structure and plays down the role of individuals and the subject matter itself.

Belkaoui (1987) describes the importance of a sociological view for understanding the research output of a discipline:

> A study of the values and belief systems of academic accountants will explain their preferential behavior when it comes to a choice of accounting research methodology, concepts and interpretation. There are definitely different conflicting styles and areas of inquiry . . . In addition to the conflicts, social processes in the accounting discipline affect the social organization and intellectual outputs of accounting academicians. (pp. 163-164)

The social processes mentioned by Belkaoui include: the increasing number of academic accountants and those terminally qualified; the increasing strength of professional organisation of academic accountants; and the application of varied methodologies for applied and commissioned research (pp. 163-164).

Considering these varied definitions and the perceived importance of the sociological perspective, both as described by Belkaoui and as analysed in the previous section, the following four attributes are common and important in defining a discipline for the purpose of this thesis:

- A knowledge area which is perceived as worthy of investigation by scholars (disciples).
- A "living" discipline which has a group of scholars currently studying in it.
- As a sociological system it has systems for disseminating knowledge for the purposes of instruction and as additions to knowledge.
- These additions to knowledge are adjudicated by an acknowledged peer group who control the rewards since they control what is considered a contribution to knowledge.

So in brief, a discipline is considered to be a sociological grouping of students and scholars who are interested in an area of knowledge and submit their research findings to a peer group for adjudication. Contributions to knowledge in the area bring rewards valued by the researchers.

The next section reviews the literature to distil the factors which are identified as indicators of disciplinary status from a sociological perspective. This perspective identifies the interactions of individuals and groups which also form institutional groupings. It is a useful approach in the case of accounting because the sociological aspect has been identified as an important element in the definition of a discipline and the methodological debates summarised earlier in this chapter suggest that at this point there is insufficient agreement within the researchers associated with the subject area on what the boundaries of the subject area are. On the other hand, there are a significant number of academics who would readily identify themselves as accounting researchers and

teachers. With this in mind the next section reports the results of a literature search for indicators which have been found to be associated with the existence of a discipline.

4.5 SOCIOLOGICAL INDICATORS OF DISCIPLINARY STATUS

A review of a broad range of literature suggests three sociological factors which provide an indication of a general acceptance of the existence of a discipline. They do not necessarily occur in a particular order and do not represent stages in the development of a discipline. The first is the institutional recognition of a subject area as a department or faculty by universities. The second is the development of a "specialised media of communication" and secondary sources. The last is the identification of a common body of knowledge. Each of the three indicators is discussed in the following sections, with particular emphasis given to the body of knowledge indicator because it is a more problematic indicator for accounting as discussed above. Following that, the application of the indicators is discussed.

4.5.1 Institutional recognition

The meaning of an institution in a sociological context is broader than the common use which refers to organisations established for a particular purpose, like hospitals or schools. Previts, Parker and Coffman (1990a, p. 139) identify the possible types of institutions as including, "an established event, law, custom, profession, organization, or other entity." The role of institutions in maintaining and regulating social groups is a feature of sociological study (Barber, 1975). It is not surprising then that the institutional role in creating and maintaining disciplinary boundaries is commonly identified as an indicator of disciplinary status in the literature. The next section discusses the "institutionalisation" of disciplines through the creation of specialised communication media, and also considers the institutionalisation into organisational structures more widely recognised as institutions.

In the case of academic research disciplines, Machlup (1982, p. 88) describes the relevant institutions for distinguishing the branches of knowledge as the academies of sciences and the universities[10]. Machlup describes the role of the universities in comparison with academies, and the recent development of the university structure:

> One might expect to find the existing segmentation of colleges and universities into faculties, schools, colleges, divisions, departments, and other administrative units no less traditional - and perhaps more anachronistic - in its depiction of the different fields of knowledge than the classes and sections of most learned academies. Yet, the development of the two types of institutions was quite different, chiefly because for several centuries universities placed much emphasis on the universality or pansophic nature of higher learning. Although universities in earlier centuries recognized a division between faculties of philosophy and faculties of the learned professions - law, medicine, and theology - it is only in the last century that the specialization and fragmentation of advanced knowledge have made their marks on the universities and left us with the highly complex picture, mirrored in complex organizations, of institutions of higher education. (1982, p. 120)

Storer (1972) describes the role of departments of universities in the legitimising of disciplines:

> Specialties acquire legitimacy as they are recognized in terms of 'sections' of scientific societies, as topics graduate students may choose for intensive training within their disciplines, and as categories in abstracts of the literature and in the National Register of Scientific and Technical Personnel. At the university level, however, disciplines (including some that may be characterized as 'interdisciplinary,' such as biochemistry) are the most specific groupings of scientists that are formally recognized. To subdivide the faculty into smaller groups would require more administrative paperwork and additional problems of organizing and coordinating curricula, while to keep the faculty organized into fewer but larger groups would render more difficult the kind of informal collegial control that seems most effective for such groups. (pp. 233-234)

Other writers also identify this role for the organisational recognition of disciplines within universities (King, 1975, pp. 45-46; Parsons, 1965; Pierce, 1992; Spiegel-Rösing, 1977). The recognition of a subject area as a department or school within a range of universities is accepted in the literature as an indication that the peer group of academics

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[10] Machlup also includes library classification systems in this category. This will be included in the next section on specialised communication media because of the distinction drawn here between commonly recognised institutions and institutional forms recognised in sociology.

within the institution recognise and extend to the area the status of a discipline for the purposes of teaching and research.

4.5.2 Development of specialised media of communication

As mentioned above, the development of specialised media of communication is a type of institutionalisation of an area of teaching and research. As such it has also been found to reflect the disciplinary status of a subject area (Choi & Mueller, 1978; Pierce, 1992, p. 477; Previts, 1975, pp. 5-6; Spiegel-Rösing, 1977, p. 12; Wells, 1976). Machlup (1982) also includes recognition in library cataloguing systems as an institutionalised recognition of a branch of learning.

Spiegel-Rösing (1977) describes the development of the Study of Science, Technology and Society (SSTS) in terms of the specific types of media forms created;

> With the expanding research in SSTS, specialized media of communication, such as journals, publication series, newsletters and information bulletins, have increased. . . . There are some research institutions which have created their own regular media of publication . . .In addition to journals and special series of publications, there is an increasing number of news and information letters in the field which report on institutional developments, on new research programs, on publications, positions, conferences and workshops. . . . With the expansion of the field an increasing need has developed for secondary information sources. Dictionaries of terms have therefore been published, as have regular bibliographies, country reports and international reviews of the institutional development of the field. (pp. 11-12)

This description provides an extensive list of possible communication vehicles which suggest an institutionalisation of a discipline. While it is not argued that every discipline will have all such means of communication, it is expected that an established discipline will display a substantial number of these forms, potentially including recognition in library classification systems.

The existence of communication media specifically for a particular area suggests that there is common material of interest to be disseminated. This aspect of identifying a discipline is discussed in the next section.

4.5.3 Common body of knowledge

Caws (1972) states the relationship of scientific (disciplinary) status to a subject area as follows:

> To have a science of anything is first to have recognized a domain and a set of phenomena in that domain, and second to have devised a theory whose inputs *and outputs* are phenomena in the domain (the first observations, the second predictions) and whose terms may describe the underlying reality of the domain. (Emphasis in original, p. 72)

Clearly Caws' emphasis on prediction and a "hard" reality place his view in the positive school of understanding the development of knowledge. However, it is his emphasis on the need for a domain that is of more general application and it is interesting in the light of Shepherd's (1993) argument that in describing the centrality of a domain, Caws' ontological position is so intimately connected that it also becomes clear. Shepherd (1993, p. 83) argues that the doctrines which the disciples of disciplines share are "views of Being more than cores of knowledge." He goes on to draw on the religious connotation of disciple:

> To be a disciple is to adhere to a particular faith in the nature of existence and, furthermore, to promulgate that ontology. Disciples are defined more by faith than knowledge; their beliefs and practices depend on views of Being which they witness, not cores of knowledge that they claim.
>
> Taking this ontological and foundational sense to the academy allows for understanding academic disciplines as something other than fields of study built around knowledge of particular phenomena or practices. Academic disciplines, in this view, are distinguished not by the parcels of existence that they study, but by the views of existence they afford. (p. 84)

Shepherd is contrasting the subject matter and ontological perspective offered by a subject to demonstrate that the reason that Communication has not gained disciplinary status is not "because of its failure at articulating an agreed-upon core of knowledge. After all, fields of study we consider to be 'established disciplines' also lack epistemological coherence" (pp. 84-85). The point which seems to be most clear from the juxtaposition of these two opposing approaches is that they actually agree. Just as Caws' description of the domain as being central to a discipline is bound up in his particular ontological view, so Shepherd's desire for an emphasis on ontology is intimately connected with the form or content of the "belief" which the discipline will

promulgate. For example, Shepherd contrasts the view of a chair offered by representatives of different disciplines:

> . . . the discipline of art urges an understanding of the chair as essentially aesthetic, while the discipline of economics argues for viewing the chair primarily as an asset, and so on. Thus I can well imagine the physicist, the biologist, the artist, and the economist speaking to me in turn of the chair in my room: 'How sturdy!' 'How natural!' 'How handsome!' 'How much?' (p. 84)

So while Shepherd wants to bring the focus away from just the subject matter and deal with the ontology, the views of both Caws and Shepherd ring true to the observation of many philosophers of science such as Kuhn and Lakatos who strive to define the complex amalgam of subject, ontology and epistemology which become so accepted by a group of researchers that they become virtually unaware of it. This common element that binds researchers has been given various names such as a paradigm, a disciplinary matrix, a core, a domain, or tacit knowledge, however, none of these titles has really managed to capture the notion unambiguously and neither has the concept of a "common body of knowledge." This latter term has been adopted here, however, because of its lack of association with a particular model of scientific development and its less contentious use in the accounting literature.

The existence of a common body of knowledge as an indicator of the existence of a discipline is also found in Easton, 1991; AECC, 1992; Mulkay, 1975. The strength of the bonds it creates between members of a discipline is evidenced by the difficulties which efforts to set up interdisciplinary departments have faced. Lambert (1991) reports on the progress of Area Studies, a field of research and teaching designed to bring together researchers in a range of social and physical sciences in an effort to study a particular geographical area in a wholistic fashion. He concludes however, that the:

> basic reference point for most area specialists is the discipline in which he or she resides, and the long-term tendency is for more and more disciplinary specialization... the most useful way to think of area studies is not to think of it as an interdisciplinary tradition of scholarship but a set of sub-disciplines. (p. 186)

Easton (1991, p. 11) describes the rapid specialization of knowledge in the humanities and social science into many sub-fields. He comments that "the intensity of specialization is so rapid that scholars have difficulty keeping up with the significant

literature in their own niches, let alone with research in even closely adjacent substantive areas within a discipline" (p. 11). This has become a common outcome of the growing number of specialties within disciplines and while it indicates that there is a special knowledge base which belongs to a discipline, it also immediately suggests one of its dysfunctional effects. The body of knowledge is not only constituted by accepted and virtually tacit knowledge but is also constituted by views of what is acceptable in terms of ontologies, epistemologies and methodologies and their relationships (Chua, 1986, pp. 603-605; Easton, 1991, p. 16). While there may not be agreement on all these issues within a discipline, the complex understanding of the different approaches and how they have been applied to the common object(s) of study in a discipline area as well as the accepted knowledge and technologies create both a unifying force and a barrier to entry and interdisciplinary co-operation.

Thus, while the common knowledge element of a discipline is a significant indicator, it is also difficult to identify clearly since it is often taken for granted by those for whom it is foundational. For this reason, it is most often observed when experienced in the negative sense of being excluded from its understandings as it acts as a barrier, as described above.

The next section briefly considers how the three indicators discussed may be applied to an area to identify its disciplinary status.

4.5.4 Application of the indicators: Disciplines on a continuum

As mentioned above, the three indicators are not steps in the development of a discipline and do not constitute hard conditions that must be fully met for an area to meet the requirements. Rather, they are applied in a "soft" way that suggests that if all three are satisfied, then it is reasonable to conclude that from a sociological perspective researchers behave as if there is a discipline.

Greenwood (1957) describes the way in which professions and other social groupings may be seen as exhibiting more or less characteristics on continua:

> As is true of most social phenomena, the phenomenon of professionalism cannot be structured in terms of clear-cut classes. Rather, we must think of the occupations in society as distributing themselves along a continuum [footnote omitted]. At one end of this continuum are bunched the well-recognized and undisputed professions . . . at the opposite end are bunched the least skilled and least attractive occupations. (p. 46)

Similarly, some disciplines are considered to have a greater status than others. For example, the natural sciences, particularly physics, and the humanities with their long tradition as academic areas of study, have a higher standing in most university environments than the social sciences. In order to rank the disciplines, devices such as comparative representation on key university committees could be used to indicate relative status. The purpose here is not to locate accounting in the context of the many academic disciplines, but only to establish its general membership of that group. For example, the indicators distinguish between subjects on which there may be conventions and some literature and even a body of knowledge with its own jargon, for example "Star Trek", and those which qualify as disciplines by also possessing institutional recognition.

In the next section, each indicator will be discussed in turn with reference to accounting.

4.6 ACCOUNTING AS A DISCIPLINE

Accounting has been identified as a discipline as described in Section 4.4 by many writers, and the length of the partial list included in the introduction to this chapter evidences a reasonable acceptance of at least a loose application of the title. In some cases the references to accounting as a discipline may be nothing more than a convenient short-hand for distinguishing between the practice of accounting and the academic pursuits of research and teaching. There does appear, however, that there is an *a priori* acceptance of accounting as a discipline outside the specific domain of

methodological debate. The following sections investigate this assumption by applying the identified sociological indicators to accounting.

4.6.1 Institutional Recognition

Recognition of a subject area by universities as a separate area for teaching and research usually takes the form of the creation of a chair and an associated department in the subject area. This is an indication of the existence of a discipline, since it suggests that there exists research and teaching matter in an area specialised enough to warrant separate administration (Storer, 1972).

It is not always the case that specialised literature and knowledge precede the establishment of a discipline. In some cases a desire to bootstrap a subject for political or equity reasons causes the creation of a department first. An example of this in Australian universities is Womens' Studies[11]. The creation of departments in this case has acted as the catalyst to foster the generation of the literature base.

This signal of the emergence of a discipline isn't reflected in a uniformity of use for the term, discipline, however. For example, Parsons (1965, p. 41) identifies three "intellectual" disciplines: the humanities, the natural sciences and the social sciences (see also Machlup, 1982; Pierce, 1992). Schultz (1989, p. 18) distinguishes between accounting and other **business disciplines** and, at the other extreme, Chan (1986, p. 102) describes the work between international accounting and accounting theory as **interdisciplinary**. The tendency to use the term loosely does not limit the usefulness of the university department indicator. It does suggest the need for the word to be defined clearly in context.

Machlup (1982) surveys the American universities and finds that business schools are widespread:

> The tabulation of the professional and vocational schools of the largest fifty universities shows interesting similarities and differences. Engineering is almost

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11. I am grateful to Professor Paul Weaver, now retired from the University of Tasmania, for this insight.

> ubiquitous; virtually all universities in the sample having engineering programs under one name or another, for undergraduates, graduates or both [footnote omitted]. The next most common vocational school among the fifty universities is the graduate or undergraduate business school. Only eight out of the fifty have resisted the temptation to operate this cost-effective division (cheap per student; high ratio of student fees to instructional expenses). Yet, most of the eight exceptional institutions have good substitutes for explicit programs in business, either in the form of schools of public and international affairs (which are more expensive) or of curricula built into schools of engineering (for example, 'industrial engineering'). (pp. 148-149)

In New Zealand there have been lecturing staff in accounting in universities since 1912 (Gaffikin, 1981, pp. 20-21) and departments were set up in the 1960s and 1970s (Gaffikin, 1981, p. 25)[12]. In Australia accounting was taught at the University of Adelaide as early as 1902 with the other universities following suit within the next 25 years. A major in Accountancy was available through the University of Melbourne from 1945. The first Australian full-time lectureship started in late 1945, and by 1955 there were two chairs in accounting established (Goldberg, 1980).

Zeff (1989b, p. 203) describes the early difficulties faced by academic accountants in achieving acceptance within universities:

> His [Henry Rand Hatfield] mission was to defend the respectability of accounting as a proper subject to be taught in the university, a point that touched the nerve of accounting academics in 1923. He opened his address with the following words:
>
> > I am sure that all of us who teach accounting in the universities suffer from the implied contempt of our colleagues, who look upon accounting as an intruder, a Saul among the prophets, a pariah whose very presence detracts somewhat from the sanctity of the academic halls [Hatfield, 1924, p.241].

Nevertheless, accounting has flourished as an academic subject and while Zeff (1989b) finds it necessary to remind accounting academics of the responsibilities involved, it is now taught in many universities around the world.

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12. Massey is a relative latecomer in this respect, creating a chair in accountancy in 1980 and the department of Accounting and Finance in the following year.

Machlup (1982) also identified academies as indicators of a discipline. Wells (1976) describes the community of scholars which define accounting as:

> . . . comprising the members of academic and research organizations such as the American Accounting Association, the Association of University Teachers of Accounting of the United Kingdom, the Accounting Association of Australia and New Zealand, the Research Division of the AICPA and the Australian Accountancy Research Foundation. (p. 473)

The indicator of institutional recognition as applied to accounting, supports the view that accounting has achieved disciplinary status.

4.6.2 Specialised Media of Communication

The second indicator includes such things as the development of specialised journals, conferences, colloquia, publication series and newsletters as well as secondary information sources such as "dictionaries of terms, bibliographies, country reports, and international reviews of the institutional development of the field" (Spiegel-Rösing, 1977, p. 12). Choi and Mueller (1978) chart international accounting's progress as a specialty area using similar indicators.

The Accounting Review is the oldest of the well recognised journals, dating from 1926, with *Journal of Accounting Research* following in 1963, and *Abacus* in 1965 (Subotnik, 1991, p. 67). Today there is a large range of accounting journals specialising in functional areas such as management and taxation as well as those offering publishing alternatives for particular research methodologies such as *Accounting Organizations and Society*, *Accounting Auditing and Accountability Journal* and the *Journal of Business Finance and Accounting*. Review articles and secondary information sources such as bibliographies and dictionaries are clearly evident (Ball, 1971; Ball & Foster, 1982; Bindon & Gernon, 1987; Brown & Vasarhelyi, 1985; Demski, 1988; Estes, 1981; Hakansson, 1973; Littleton, 1933; Mattessich, 1984; Prodhan & AlNajjar, 1989; Robb, 1988).

Both the Library of Congress and Dewey Decimal classification systems recognise accounting as a distinct subject area. The Library of Congress class numbers for accounting range from HF5601 to HF5689 (Library of Congress, 1995). The Dewey

Decimal classification system is particularly interesting in the current context as it is the concept of discipline which is basic to this classification system (Metcalfe, 1965, p. 24).

> Subject is secondary to discipline. This means that DC [Dewey's Decimal Classification] is what has been called an aspect as opposed to a single place classification; aspects of things, or disciplines in the sense of studies are classes, and subjects in the sense of objects of information such as music, roses, ethics, are in more than one place according to aspect or discipline. (Metcalfe, 1965, p. 24)

Within this system accounting is numbered as 657 (Dewey, 1965).

Conferences are regular and vary in emphasis from specialised taxation topics through to general accounting and interdisciplinary conferences. A partial list of regular conferences is provided below:

- Accounting Association of Australia and New Zealand Annual Conference
- American Accounting Association Annual Meeting
- Asian-Pacific Conference on International Accounting Issues (Certified General Accountants' Association of Canada and The Sid Craig School of Business, California State University)
- British Accounting Association Annual Conference
- European Accounting Association Annual Conference
- Interdisciplinary Perspectives in Accounting Conference (Manchester University)
- International Association for Accounting Education and Research - International Accounting Research: Multinational Enterprises and Global Change
- International Conference on Contemporary Accounting Issues (Taiwan)
- Taxation Institute of Australia and New Zealand Society of Accountants - Trans-Tasman Tax Conference
- Trends in Computerized Accounting Education Conference (Accounting Department of the University of North Texas)

Most universities with accounting departments run research seminars and working paper series, and there are many workshops on specific issues in accounting as well as research- focussed meetings such as PhD colloquia. The recent technological developments have been readily incorporated into the accounting academic's communication system with the development of the Anet on the internet and available through email. Anet is described as:

> . . . a co-operative venture of a number of individuals and institutions around the world which seeks to provide a networked, electronic forum for the exchange of information and the discussion of issues in the broad accounting and auditing

> discipline. It includes a variety of electronic mail discussion groups and an on-line database of information. (Anet@scu.edu.au)

The specialised media of communication are in evidence in accounting and Belkaoui (1987, p. xiiv) provides an accurate summary:

> The publication of journals, proceedings, seminars, and conferences in accounting is witness to the growth of accounting as a full-fledged social science. It also points to the presence of different visions of the field held by the researchers, practitioners, users, and students of accounting. These various visions are the result of a conscious choice made among alternative images and foundations, approaches, methodologies, structures, and paradigms. An appreciation of these alternatives is fundamental to an understanding of the accounting field, its growth, and the various routes it has taken to affirm itself as a social science.

4.6.3 Common Body of Knowledge

The third indicator, a common body of knowledge, is to some extent captured by the other two. In this context the body of knowledge is not that narrowly prescribed by the profession, in the sense that it is used in Brown and Guilding (1993). Foucault (1972) identifies a discipline with what is termed "a particular corpus of knowledge" (p. 15 fn 2).

It is problematic to delineate a distinctive core of knowledge for this more general conception since not all members of a discipline will necessarily perceive it to be the same, and of course, it will be constantly changing. Its existence is important, however, since it poses a barrier to entry for the discipline. Perhaps the best evidence comes indirectly from reported experiences of attempting to cross its boundaries.

Tomkins, Rosenberg and Colville (1980) report the experience of an accountant, a sociologist and an organization development analyst in an inter-disciplinary project. The apparent agreement to tackle the project using a particular method was undermined by underlying differences in the importance placed on the chosen method, the difficulty in communicating and the variation in notions of proof. The effect was subtle and did not emerge as direct conflict over methodological issues, but the unconscious acceptance of certain theories and approaches was missing and this contributed to the difficulty in making progress. This suggests that accounting does have a unique body of knowledge

which creates the basis of a discipline, but also a barrier to co-operation even within the business and social science areas.

At a basic level, the common body of knowledge in accounting is contained and disseminated in the form of text books used at the undergraduate and graduate levels for instruction. While these books may not represent the cutting edge of research, they contain the common core (Cole, 1983) which students educated in accounting in virtually any university in the world will understand and, to a greater or lesser degree, accept. Examples of these texts are many and they represent all levels of education within the university and reflect varied perspectives. Interesting examples which span the methodological differences within accounting and are used at the undergraduate level are Whittred and Zimmer (1992) and Wilson and Chua (1993).

While there are debates in accounting about the level of sophistication of the knowledge base, there seems to be a consensus that a unique set of objects for study does exist (although there is debate over the boundaries of this set), as well as an accepted set of technologies and some theories relating to them.

4.7 SUMMARY

This chapter has considered the issue of the disciplinary status of accounting to establish the sense in which accounting may be understood to be a discipline despite continuing concerns over its lack of integration and scientific status. The sociological perspective was identified as a common theme in the debate within accounting about its status as a science or a discipline. The sociological perspective was then applied to the question of disciplinary status, and three indicators were identified in the literature: institutional recognition, specialised media of communication and a common body of knowledge. The means of applying these indicators in a soft manner such that areas may be considered as belonging to a general class of social groups called disciplines which exist on a continuum was described. Some groups have greater claim to disciplinary status,

and some do not have a significant claim at all. Their placement on the continuum depends on the degree to which they exhibit the indicators.

The indicators were applied to accounting and in all three cases were found to be present to a significant extent. This suggests there is ample evidence to allow accounting to be considered a discipline from a sociological perspective. The next chapter considers how the accumulation of knowledge in accounting at the disciplinary level may be modelled and mapped.

CHAPTER FIVE
A MODEL OF KNOWLEDGE ACCUMULATION IN ACCOUNTING

> If accounting academics, for whom the issue of the very nature of the field is critical, do not trouble themselves to give this question their best shot, who is going to do it? (Subotnik 1991, p. 68).

5.1 INTRODUCTION

The purpose of this chapter is to develop a descriptive model of the process and outcome of accumulating knowledge in the accounting discipline. This model allows insight into the structure of knowledge in accounting, the process of generating this knowledge and some inherent problems. The model is developed by synthesising perspectives about the research process and knowledge accumulation from the philosophy of science and sociology of knowledge literatures, and by incorporating the findings of citation studies in the accounting discipline. Its focus is the process and structure of knowledge accumulation in accounting as observed through additions to the published body of research literature.

The model is the culmination of development of concepts of fragmentation, knowledge accumulation and the identification of accounting as a discipline in accordance with the three sociological indicators identified in the previous chapter. The constructs of the model are embodied on the form of a map of the knowledge accumulation features and the intellectual structure of accounting as observed through Bricker's (1987) co-citation analysis.

The first section establishes some definitions of key terms for the development of the model. Following this, the elements of the model are described and represented using the elements of the map. The process of constructing the complete map is described and finally, its features are detailed, and implications for the potential re-integration of the knowledge base in accounting are explored.

5.2 DEFINITIONS OF KEY TERMS

The terms research and methodology have been used extensively in accounting literature. They are not always used consistently, however, and the sections below clarify their intended meaning in this thesis. The need to consider the meaning of knowledge accumulation, on the other hand, arises out of the lack of reference to it in the accounting literature (with the notable exception of the exchange between Bricker, 1988b & 1991 and Subotnik, 1991).

5.2.1 Research

Research is one of the fundamental activities of academics in universities. It is associated with the accumulation of knowledge, as Tricker (1979, p. 7) describes, "Let us then consider it as the search for answers to questions that widen and deepen existing knowledge in the subject." This describes research at the broadest level of understanding. It has the difficulty, however, of not being observable or necessarily apparent to others in the discipline. Price (1978) adds the requirement that the output be published, and considers the process as well as the output:

> I say, therefore, that when a person with research-front training in any branch of science or technology labors and produces something new, and the principal product is such an open publication, then we must say that research has been performed. (p. 81) (See also Hofstedt, 1976, p.53-54; Subotnik, 1988, p. 96).

For the purpose of developing a model of knowledge accumulation for a discipline it is a necessary requirement that the outcome of the research becomes available openly so that it is observable (see Wright, 1994, p. 172). Merton (1979, viii) expresses it within the scientific view:

> For science is public not private knowledge. Only by publishing their work can scientists make their *contribution* (as the telling word has it) and only when it becomes part of the public domain of science can they truly lay claim to it as theirs.

Garvey, Lin and Nelson (1971) distinguish between the informal and formal process for the dissemination of research. The informal process is any pre-publication dissemination

of the main content of future articles. This may be achieved through conferences, colloquia, meetings, seminars, theses, and the exchange of manuscripts for comment (p. 261). The formal dissemination is the publication of the work. Either the formal or informal processes suggested by Garvey *et al.* (1971) which result in an openly available written report of the research would fulfill Price's (1978) requirement. The private exchange of manuscripts for comment would not, however. A recent development is the availability of research forums on the internet. There are journals and conference proceedings published on the internet after peer review, for example, the *Journal of Accounting Abstracts*[13]. There is no distinction between the research available in a printed medium as opposed to electronically. The critical characteristic is whether or not the material has been reviewed before being made available. Documents circulated by the author on the internet for comment parallels the private exchange of hard copy material and would not qualify as research, while reviewed internet documents do qualify.

The debate over methodological legitimacy in accounting, considered in Chapter Four, reflects the fact that there are a range of views about what constitutes research. For example, at the very narrow end of the spectrum, Henderson and Peirson (1977, p. 1) describe research as simply, "the process of hypothesis testing." This clearly eliminates methodologies other than the hypothetico-deductive approach. In order to include the full range of enquiry in the accounting discipline, but to exclude consulting and practice, a broader definition is appropriate for developing a model of research in accounting.

To summarise, research is defined to mean the process that results in a new idea, experiment, description or any other study or criticism or replication of an existing work which is openly available either in a formal or informal way to other researchers in a discipline.

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[13] Published by the Accounting Research Network, a division of Social Science Electronic Publishing Inc. The internet address is: http://journal.com/ssep/ssrn.html.

5.2.2 Methodology

Methodology was defined in Chapter Two as distinct from method following Chua (1986a); "the research methods deemed appropriate for the gathering of valid evidence" (p. 604). Methodological legitimacy in the accounting discipline was discussed in Chapter Four. The overview of the literature there indicates that there is not one accepted epistemological, methodological or ontological approach in accounting. Indeed, there is even a lack of consensus regarding the appropriate philosophy of science model to assess the progress of the discipline. As explained in that chapter, however, there is a common thread in the sociological perspective in the accounting literature on methodological issues. This perspective will be used later in this chapter to explore how knowledge accumulation may be understood.

Given that there is a plurality of views on what constitutes acceptable truth claims and how accounting should progress as a discipline, it is important that the definition of methodology used in the model is not tied to a Kuhnian perspective of paradigms, to Lakatos' research programmes or to any single model. Rather, an inclusive understanding is used, based on the view that researchers *within* a specialty area will tend to apply the same tests for research and methodological acceptability[14].

The focus for methodology in the model is at the level of the individual article. Each article is written from a methodological basis, but it may be that the full "philosophical framework" (Gaffikin 1987, p. 18) from which it arises may not be observable in each article. Chua's (1986a) definition is also appropriate for this purpose as it offers a more specific definition which she has applied across a broad spectrum of potential approaches to research. It is linked with the broader epistemology underlying a research work and suggests that documents with common epistemological boundaries will tend to be

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[14] Naturally, each researcher must make some decisions regarding methodological position in their research and it is the same for the current research. In Chapter Two, the perspective of this research was placed within an internalist view of the development of knowledge within a discipline and thus accordingly is closer in style to Kuhn (1970) than Whitley (1984). The distinctive differences at the level of specialties are likely to be in methodological assumptions rather than in understandings about the philosophy of discipline development, however, and as a descriptive model of all accounting research it is important that any such views must not be excluded by definition.

grouped more closely in specialty areas than research which derives from significantly different epistemological bases. The extent to which this is descriptive of the state of accounting research will be explored using the fish-scale model later in this chapter.

5.2.3 Knowledge Accumulation

The concept of knowledge accumulation has two aspects. First, how it is determined that something is knowledge, that is a test for acceptability or truth (epistemology). Second, a concept of how knowledge claims which pass the test are accumulated, that is, the nature of the process.

Addressing the first issue leads directly into the question of epistemology which leads back to the question of methodological legitimacy once again. Since there is no methodological basis that is common across all accounting research for accepting or rejecting truth claims, once again the sociological aspects drawn out in the discussion in Chapter Four are used to identify which research has satisfied a test of contribution to knowledge within the accounting discipline. The most widely accepted test is the acceptance of a work for publication. Tinker and Puxty (1995) describes the publication process and particularly the role of journals in disseminating knowledge:

> Over the past century journals have become the accepted form of disseminating academic knowledge. By knowledge we mean the broad range of social understandings and meanings that extends from popular literature to the natural sciences. Hence we refer not just to the results of systematic investigation into the processes of the natural or social worlds, but also to critiques of, and commentaries on, other works, 'literary' or not, as well as to analytic knowledge in journals of mathematics and logic. (p. 243)

In a similar fashion to Tinker and Puxty (1995), the concept of knowledge here is defined widely, but interest is restricted to that which falls into the accounting discipline. Knowledge is also seen as the outcome of research. That is, the active attempts to create knowledge as described in an earlier section. The test that allows research to be considered accomplished is that it becomes publicly available, that it has been accepted by a group of peers as making a contribution validates its claim to being knowledge. The distinction between research and knowledge is a subtle one and for the purposes of this

thesis the term research focuses on *the process* of research, whereas knowledge is the *outcome* of research.

Tinker and Puxty (1995) describe the process of reviewing work for journals as an important factor in policing what is accepted as knowledge in accounting and academe generally. They describe the three generally accepted purposes of refereeing as being: 1. to refine and improve the submitted material and to ensure quality; 2. to increase efficiency for readers by the selection of good quality work through pre-screening by qualified peers; and 3. to provide a stamp of approval for accepted papers. Price (1978, p. 80) expresses it as follows, "the act of creation in scientific research is incomplete without publication, for it is publication that provides the corrective process, the evaluation, and perhaps the assent of the relevant scientific community." Williams and Rodgers (1995, p. 263) cite Hargens (1988, p. 139) regarding the role of journals as being ". . . both a means by which a community certifies additions to its body of accepted knowledge and a means through which individual scientists compete for priority and recognition."

As Tinker and Puxty go on to point out, this process is not purely altruistic nor is it the "critical, friendly-competition" envisaged by Popper. They claim it is used by powerful groups to maintain the position and status of their preferred methodology and therefore of their research reputations. Ritzer (1975) describes the problem within the Kuhnian perspective as follows:

> For example, the paradigm whose supporters control the most important journals in a field and thereby determine what will be published is more likely to gain preeminence than paradigms whose adherents lack access to prestigious outlets for their work. Similarly, positions of leadership in a field are likely to be given to supporters of the dominant paradigm . . . (p. 157)

While the research arguing that this is the case with *The Accounting Review* (Williams & Rodgers, 1995; Tinker & Puxty, 1995) is strong in its claims, the potential hegemony of one approach over research published in *The Accounting Review* does not invalidate the use of the publication test for accounting research. While it is a very highly regarded journal, particularly in the United States, and although this is intended to be representative of the full range of research and is perhaps failing to achieve this objective,

it is far from being the only highly regarded outlet for research in accounting. Indeed the extensive publication lists of representatives of alternative perspectives such as Professors Tony Tinker and Tony Puxty vouch for this. Thus, while individual journals may be dominated by particular methodological considerations (consider at the other end of the spectrum *Critical Perspectives on Accounting*), the broad range and increasing numbers of journals available suggests that the possibility of a good quality piece of research passing the refereeing process as a validation of a truth claim is high.

Naturally, publication is not limited to journals, however, the status accorded the publication of an article in a highly ranked journal is widely considered the highest in the academic world. Beattie and Ryan (1989, p. 267) explain; "in the United Kingdom, for example, the University Grants Council (UGC) and other funding bodies now use publication in 'refereed' journals as the primary component of departmental ranking for funding decisions" (see also Zuckerman & Merton, 1971). Further, Streuly and Maranto (1994) note the increasing use of measures of journal quality in assessments of performance. Other forms of publication such as books, monographs, working papers and conference proceedings may achieve the two critical characteristics of peer review and public availability. The only difference is perhaps in the standards imposed in the case of conference proceedings and working papers. Notably some of the great contributions in accounting have come in the form of books (e.g., Chambers, 1966) and so this source of knowledge is important too.

Further evidence of the usefulness of a published research is whether or not other researchers find it useful. Sometimes this might be in a negative sense, that is, to show the error in the application of a method or piece of logic, or how not to conduct research. Generally, however, the process of accumulating knowledge is achieved by other researchers building on and extending the previous work. Thus the second element in the knowledge accumulation process is the act of researchers putting together previous work and extending or refining or, potentially, discrediting it.

Bricker (1987, p. 16), within his research market model of researcher behaviour, captures the notion of the building upon previous research: "the meaning of knowledge accumulation is restricted . . . to mean the extent to which a body of current work builds directly upon an immediately temporally antecedent body of work." This is not to say, however, that it is necessarily to be expected that the pattern of accumulation of knowledge through research output is regular, highly efficient or focused. Hofstedt's (1976) description provides another perspective:

> The epigenisi of accounting knowledge - the migration of facts and theories and models from basic disciplines of social science through the applied research phase to the accounting practitioner - is obviously complex, helter-skelter and undoubtedly marked by transient fads as much as by revolutionary and durable innovations. Certainly the process is poorly understood. (p. 44)

To summarise, knowledge accumulation is defined as the extension, clarification or replication of the temporally preceding work in a discipline through the publication of research. The publication process is limited in this case to the work made publicly available after the independent evaluation by representatives of the researcher's peers.

The next section combines a description of the sociological nature of the knowledge accumulation process and the features which give rise to creative, but less than ideal pattern of additions to the body of knowledge with the development of mapping constructs to represent the features. The section begins with the first mapping construct which is then used to build representations of the knowledge accumulation features as they are introduced.

5.3 ELEMENTS OF THE MODEL AND MAPPING CONSTRUCTS

The representation of the knowledge accumulation process is developed in four stages. First, the element representing each published work is represented in the shape of a fish-scale. This analogy is useful to reflect the individuality as well as the combined similarity and interdependence of contributions to knowledge. Second, the core or common body of knowledge of the discipline is described and distinguished from the research front. Both of these elements are represented in the fish-scale diagram. Third, the process of

knowledge accumulation that provides the means for growth in accounting knowledge is described. Finally, the range of patterns of knowledge accumulation identified in the literature are described and represented.

5.3.1 The fish-scale element

The vehicle that allows research to be recognised as a contribution to knowledge has been defined in the earlier sections as a published work. The body of such literature in a discipline is representative of its uniquely accumulated knowledge. So the first building block of a model of knowledge accumulation is one that represents individual published works. Bricker (1989, p.46) expresses it: "the building blocks of particular research areas are individual research studies with common attributes whose distinctiveness corresponds to the level of specialization of the research area."

Each published work may be represented by its subject matter and methodology (Bell, 1987; Lehman & Street, 1990). The combination of these two elements has been selected as the key distinguishing feature of a document which captures the distinctiveness to which Bricker is referring. Methodology will be shaped by factors such as ontological view and epistemology (as described by Chua, 1986a) and so the distinctive application of methods in a document will reflect a methodology which it shares with others. Similarly, while the contribution of a document to a subject area will be unique, it will share a broad category of subject area with other documents in the discipline itself or its reference discipline. To reflect the unique combination of these two elements incorporated in each article, a fish-scale[15] shape is used. The analogy of a fish-scale is adopted deliberately to express the essential characteristic of the unique, individual contribution of each document as well as its relation to and reliance upon

FIGURE 5.1 Fish-Scale Element

[15] This fish-scale model of knowledge accumulation was developed independently of Campbell's (1969) "Fish Scale Model of Omniscience" and has a different focus of interest. Note that Campbell's fish-scales represent individual specialties and not additions to the body of knowledge through individual publications. This is in line with his emphasis on collective knowledge.

associated research for its meaning. The shape of closely related scales will thus reflect the need to fit with those surrounding it in terms of subject and methodology; and its colour is used to reflect its disciplinary source (Figure 5.1).

Each fish-scale will find a "home" amongst those with which it has a good fit. The process of publication in which editors select papers submitted on the basis of their preference, the quality of the paper and the guidelines reflecting the particular market niche for each journal play the moderating (or policing) role referred to earlier which ensures there is a reasonable fit for any published works. In short, the chance of a piece of research that could be characterised as coming "out of the blue" being published is very low[16]. Thus, while it is not "formula writing" some very basic similarities between articles published in a journal are to be expected. Over the whole discipline, however, the range of published research varies substantially in terms of both subject matter and methodology. Thus, each fish-scale is added as it finds its acceptable niche in the body of literature.

The location of each article may be identified through bibliometric techniques. In particular, co-citation analysis allows the ways in which subsequent researchers have **used** a published work to identify its perceived place in the discipline's body of knowledge. For example, if a work with a subject matter in auditing judgement risk is frequently cited by other researchers along with other works in auditing judgement risk, the strength of the interconnections created by frequent co-citing of these works would place them, unsurprisingly, in a cluster of auditing judgement risk works. However, the strength of this technique is that sometimes unexpected links are discovered when works apparently in a clear subject area establish strong links into another subject area by virtue of a method or logical approach or surprising relevance of one subject area to another. The co-citation technique allows a big picture perspective to be created without relying on experts' review(s) of a specialist area. Cole and Zuckerman (1975) describe the mechanism as follows:

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16 A well known example of this unusual occurrence is the publication in 1986 of Wai Fong Chua's, "Radical developments in accounting thought," in *The Accounting Review*.

> A growing consensus among specialists on the usefulness of certain publications is a prime indicator that a specialty is developing distinctive problematics and thus a cognitive identity. The extent of convergence of citations to particular papers and to the work of particular authors is a rough measure of such consensus. (p. 146)

Citation analysis does of course have its limitations, which have been discussed in Chapter Two; however, it is a useful tool in the current context for creating an intellectual map of the location of published works as perceived by authors of subsequent published works (Bricker, 1989 & 1991; Garfield, 1979; Hofstedt, 1976; Small, 1980; Small & Griffith, 1974; White, 1983).

5.3.2 The core of the discipline

Cole (1983) distinguishes between the core knowledge of a discipline and its research front:

> I would like to suggest, however, that knowledge is not a uniform whole, that it is made up of two principal components that I shall call the *core* of knowledge and the *research frontier*. The core consists of a small set of theories and analytic techniques which represent the 'given' at any point in time. . . . The other component of knowledge, the research frontier, consists of all the work currently being done by all active researchers in a given discipline. (pp. 113-114)

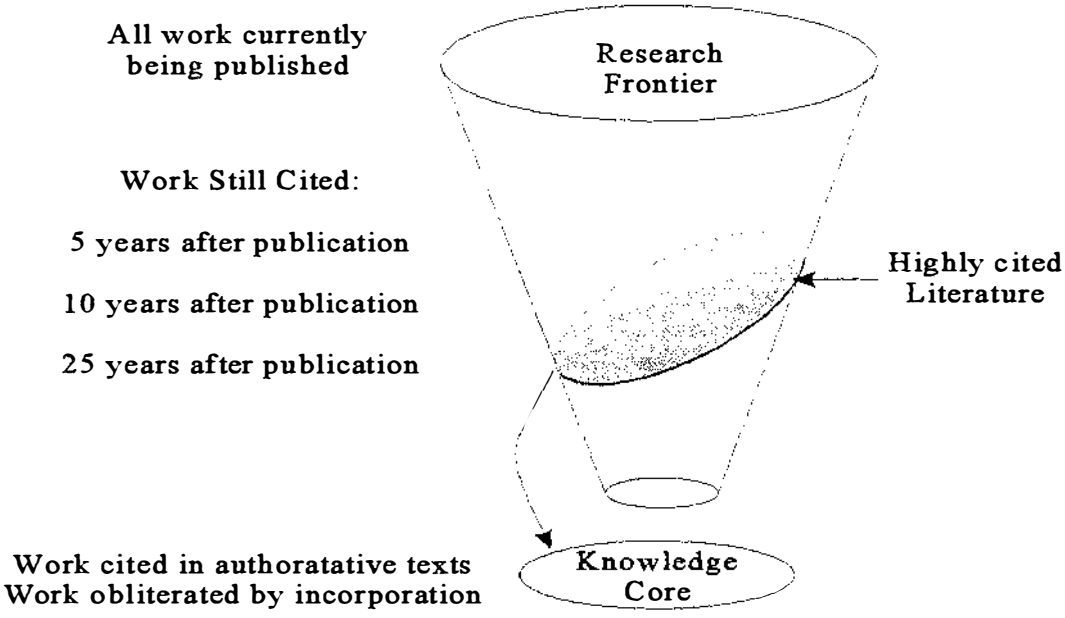
Price's (1965, p. 149) description of the research front mirrors Cole's view, "since only a small part of the earlier literature is knitted together by the new year's crop of papers, we may look upon this small part as a sort of growing tip or epidermal layer, an active research front." Cole uses references to documents in text books as surrogates for the state of core knowledge, but as shown in Figure 5.2, the actual content of this knowledge may be lost as observable citations as it is "obliterated by incorporation" (Merton, 1968; see also Bricker, 1988b; Cole, 1975; Kuhn, 1970; Price 1978; Subotnik, 1991). Garfield (1973) describes the process:

> an uncitedness *par excellence* [is] the uncitedness of distinction that comes to those whose work has become so well known (and presumably been previously so heavily cited) that one finds it at first tedious, then unnecessary, and finally actually gauche to cite such men at all. (Quoted in Cole, 1975, p. 187)

This means that the research front is made up of the most recent research which absorbs the old literature and effectively replaces it. This knowledge may also become so well accepted within a field of study that researchers in it are almost unconscious of it. This

has been described as tacit knowledge (Collins, 1982) and is very difficult to identify. In accounting for example, there have been a number of attempts to identify paradigms based on consensus about central exemplars (Ball & Foster, 1982; Cushing, 1989; Previts, 1980) and yet the several attempts disagreed about what those paradigms and exemplars are.

FIGURE 5.2 Core Knowledge and the Research Frontier



Source: Adapted from Cole (1983)

For the purposes of a descriptive study of knowledge accumulation in accounting, a proxy for the core of knowledge is taken to be the core of the research literature. This core is constituted by the seminal works. A seminal document is defined as being indicated by its high level of co-citation[17] (Downing & Stafford 1981, p. 219) . These documents are likely to contain the knowledge that in time will become the less easily observable core knowledge, as shown in Figure 5.2.

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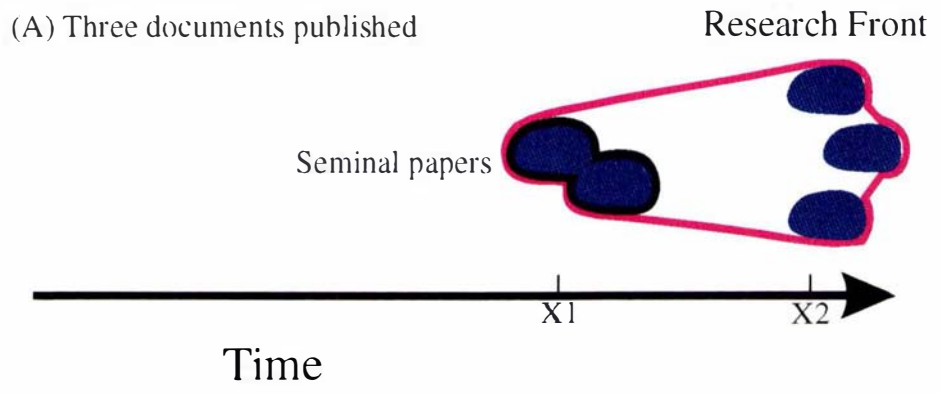
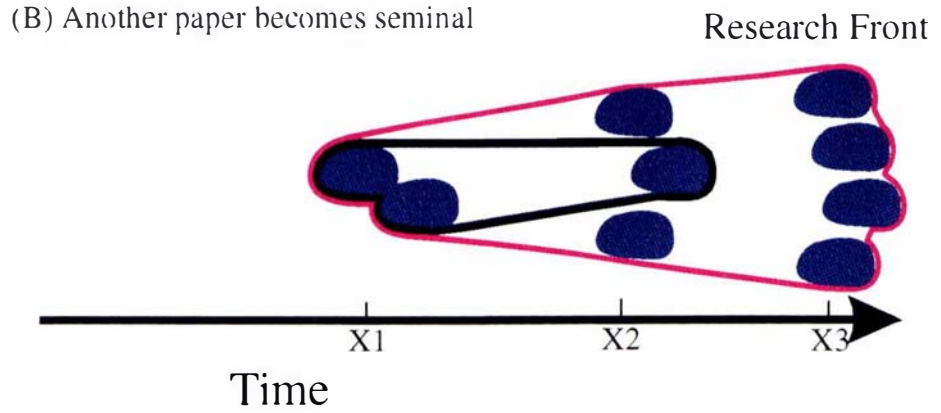
[17] The level of co-citation is directly related to the level of citation since it is not possible for a document which is not highly cited to be highly co-cited.

The seminal publications that are initially instrumental in coalescing a literature into a discipline for the purposes of teaching and research (and in the case of applied disciplines such as accounting, possibly also practice) form the initial core for the discipline. Subsequently, the core is added to by further publications that are considered seminal. Such seminal works move towards the centre of the core as they are drawn upon by increasingly wider specialties within the discipline. Works that are seminal, but limited to one specialty, remain at the centre of that specialty. Those which belong in the accounting discipline, but which are not seminal are attached to the body of knowledge but are progressively sloughed off to the periphery as other papers form stronger links and thus have a greater impact on the literature.

The development of a core literature is modelled in Figure 5.3. Part (A) of the diagram shows an initial snapshot in time at which point there are two seminal papers which are linked weakly to the new papers published at the research front. Over time one of the papers which was just published in Part (A) becomes highly co-cited with the original seminal articles - and itself becomes a seminal document as shown in Part (B) of the diagram. The new additions at the research front join the older documents which were never as highly cited, and the cluster of linked documents grows. The strong links of the highly co-cited documents form the focus about which the related documents cluster.

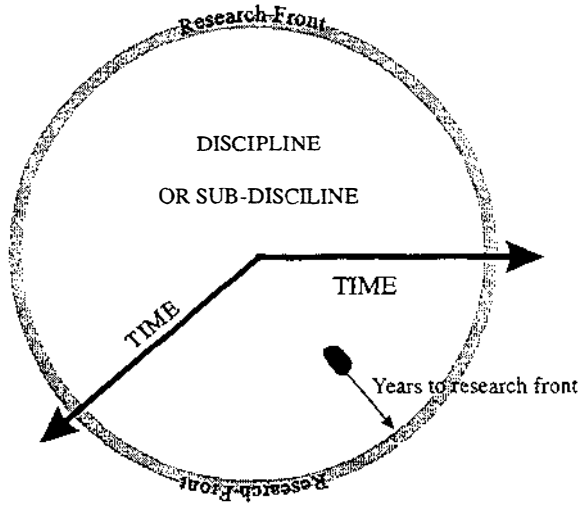
FIGURE 5.3 Core Development Sequence





The research front is represented as a circle. The outer edge simultaneously circumscribes or encompasses the discipline or sub-discipline that it represents and marks the contributions of the most recent research. The research front as represented in a co-citation analysis is constituted by the source documents from which the citations for the study are drawn (Braam, Moed & van Raan, 1991; Persson, 1994). They are the most recent "epidermal layer" (Price, 1965). The placement of the research front at the outer edge implies that time is moving outward from the centre of the circle to the most recent research. The circular shape reflects the expanding literature experienced by ongoing disciplines. The documents are located within the circle based on their relationship with other documents (co-citation links) and their age which is reflected as a distance from the research front. Figure 5.4 outlines these features.

FIGURE 5.4 The Research Front



5.3.3 Pattern of knowledge accumulation

A difference in the pattern of knowledge accumulation between the physical and social sciences has been described by a number of writers (Crawford & Crawford, 1980; Kuhn, 1970; Stauch, 1992; Storer, 1972; Zuckerman & Merton, 1973). The purpose of this section is to review the literature in the area to identify the salient features of the different knowledge accumulation patterns. The impact of possible differences on the

construction of a map of the intellectual structure of knowledge in the accounting discipline is discussed.

As discussed in the previous section, a widely held view of the style of knowledge accumulation in the physical sciences is that new knowledge incorporates all the knowledge that went before and effectively obliterates it by incorporation (Merton, 1968). In the most efficient form of this process, researchers sharing the core knowledge of a discipline with their peers may extend the research front by only referring to the most recent publications in the area as a basis (Price, 1965 & 1970b).

In the social sciences, however, the changing range of problems and views of society mean that no issue may ever be viewed in isolation (Crawford & Crawford, 1980). Therefore the researchers in a social science must constantly be aware of past ideas and issues and the fact that people's perspectives change. So, adding to the current research front requires not only an awareness of the most current literature but also of the body of literature from which it stemmed and its contextual relations.

This does not mean, however, that the obliteration by incorporation characteristic is not observed in the social sciences at all, just that it is claimed that the speed and effectiveness of the incorporation will not be as great as in the physical sciences. This is argued to lead to a slower rate of knowledge accumulation in the social sciences (Cole, 1983; Kuhn, 1970).

Cole (1983) describes the association of different patterns of knowledge accumulation to the major branches of the sciences as a widely held "belief" in academia. The empirical evidence relating to this is, at best, mixed. Cole (1983) reports the culmination of seven years of research into the differences between the social and physical sciences (incorporating the previous work; Cole, Cole & Dietrich, 1978; Cole, Rubin & Cole, 1978 and Cole, Cole & Simon, 1981) and concludes that there is no evidence of differences in citation patterns at the research front. Researchers have considered factors

such as the "immediacy" of the literature (Price, 1970b) to distinguish between different knowledge accumulation patterns, as described in Cole, Cole and Deitrich (1978):

> Rapid incorporation and a correspondingly high immediacy of citations is an indicator of the extent to which a science is growing in a cumulative fashion. The extent to which recent work is utilized in current research may thus be seen as an indicator of the presence of conditions necessary for rapid scientific advance. (p. 222)

Hamilton and Ives (1982), following Price (1970b) suggest a five year efficiency benchmark:

> A high proportion of recent references, defined by elapsed time of less than five years, indicates the presence of an active research front and a greater degree of 'updating ' usage patterns. This is called the immediacy effect, and can be used to characterize a discipline as no science, soft science, and hard science as the age of the material increases. (p. 70, see also Price, 1965, p. 513)

Cole (1983), despite disagreeing with this view regarding clear distinctions at the research front for the physical (hard) from the social (soft) sciences does find, however, that there are differences in the size and stability of core knowledge between the physical and social sciences. Cole used the references in undergraduate textbooks as a proxy for core knowledge. He found that the physical sciences tend to have a smaller, very stable core knowledge on which there was a high degree of consensus among the texts' authors. The social science fields tended to have a larger, unstable core on which there was little consensus (pp. 133-134). Recent research (Glänzel & Schoepflin, 1995) also reports findings which suggest that there is not a clear distinction between the physical and social sciences at the research front. Rather, the characteristics of immediacy and the ageing (obsolescence) of literature is specific to a particular field.

Crawford and Crawford (1980) suggest that their analysis of the immediacy factor "indicate[s] that knowledge grows or changes more rapidly in the physical or biological sciences than in psychiatry and other social sciences." (p. 54). Gustafson and Kuehl's (1974) research into the citation age patterns for three business disciplines, finance, management and marketing, found that marketing had a "more prominent tendency toward" recency of citations than the other two areas (p. 441). Burton and Kebler (1960) found that the literature half-lives for science areas range from metallurgical

engineering at 3.9 years to geology with 11.8 years. They also found that the nature of the field is an important factor, explaining that the literature of

> the *stable* sciences show longer half-lives than do those undergoing major changes in content or technique. . . . Similarly, those subject areas dependent on fresh data because of new problems, i.e. applied fields, will also show short half-lives while those fields which are more theoretical or fundamental may show longer half-lives. (p. 22)

It is this type of evidence that Cole (1983) disputes, however, arguing that the immediacy calculations do not take into account the different age distributions of the literatures in the disciplines (p. 125). Cole explains that estimating the growth rates of a literature to provide an age distribution is difficult, but in his studies after making such an adjustment there were no statistically significant differences between the physical and social sciences. This combined with the mixed evidence suggested by Burton and Kebler (1960) and Glänzel and Schoepflin (1995) suggest that the benchmark figure of an immediacy of between 1-5 years reflecting a physical science knowledge accumulation pattern is not well supported in the literature. What does emerge is that there may be differences in knowledge accumulation patterns between disciplines and sub-disciplines, regardless of whether they are part of the social or physical sciences. Rather than terming literatures which have high immediacy factors as having a physical or hard science pattern, it seems more appropriate to refer to them simply as having a rapid obsolescence rate. Similarly, slower rates of obsolescence may be referred to simply as such without linking the notion to the social sciences.

The notion of a type of core and different research front immediacies suggests a range of combinations for knowledge accumulation styles within the sciences. The two types of core knowledge identified by Cole (1983) may be represented in a citation analysis by their differences in size and distance from the research front. While Cole found that the physical sciences displayed an older knowledge core, as reflected in textbooks, it is likely that these references, because of their very stability, to have been obliterated in the journal literature at the research front as researchers assume it is not necessary to cite this shared knowledge. Thus in terms of the observable documents cited by source documents at the research front, the core is likely to be smaller and appear close to the

research front. The social science pattern on the other hand was unstable, large and ranged over a number of years. This suggests that the level of citation achieved by core documents in social science is likely to be lower than that for the physical sciences, and it is likely to contain more documents, spread over a longer time period. The smaller, stable core of the physical sciences has traditionally been associated with a high level of immediacy at the research front, although the empirical evidence does not support a link with the physical sciences. This combination is referred to here as Type A rather than spuriously associating it with the physical sciences. The other expected combination is a social science type core with a lower immediacy at the research front. This combination is designated Type B.

The significance of the understanding of the different styles of knowledge accumulation and the empirical findings for the current research, therefore, is not for the purpose of classifying accounting as either a physical or social science (Bricker, 1988a & b; Subotnik, 1988 & 1991). Rather, the awareness that there may be different patterns of knowledge accumulation for specific fields suggests that this structural difference may impact upon the ability of the fields to integrate. This is a feature which should be reflected in mapping the intellectual structure of a discipline. To the extent that such differences exist at the sub-disciplinary level it may be that the potential for any sub-disciplinary area to act as a re-integrating agent in a discipline will be affected if it has a distinctively different knowledge accumulation pattern.

5.3.4 Process of knowledge accumulation

The preceding sections have introduced the idea that a model of knowledge accumulation may be constructed by focusing on the process of knowledge accumulation as observed through additions to the published body of research literature. In order to include research methodologies from across the broad spectrum of the accounting discipline, no one epistemological test has been adopted, but the application of appropriate tests in each area are observed as the outcome of the publication review process. Further, the citing of work by subsequent authors reflects the relationship between that work and subsequent publications.

The summary of the development of the model to date emphasises the outcomes of the research process. The purpose of this section is to explore the nature of the process itself from a sociological perspective.

The nature of research is that, unlike other intellectual property (e.g., patents), the creator of the idea only receives recognition by giving it away freely (Merton, 1973; Price, 1978; Watts & Zimmerman, 1979). As Merton (1979) states:

> We can begin with one aspect of the latent social and cultural structure of science presupposed by the historically evolving systematic use of references and citations in the scientific paper and book. That aspect is the seemingly paradoxical character of property in the scientific enterprise: the circumstance that the more widely scientists make their intellectual property freely available to others, the more securely it becomes identified as their property. . . . The greatest ambition of a productive scientist if to do the kind of work that will be much used and much esteemed by fellow scientists best qualified to assess its worth. And, in general, scientific work is esteemed in the measure that others can draw upon it to advance their own future inquiry. (p. viii)

The more it is adopted and used by others, the more credibility and academic standing is accorded the originator of the idea. With the increase in academic kudos comes promotion and a greater ease in obtaining research funding which in turn leads to further research (Lee, 1989, p. 241).

In a research area which has already attracted a great deal of interest it is marginally harder to attract the type of attention that receives the recognition just described. There is more competition to publish in the well-established journals, and the chances to make a significant impact in the area are small. Gamble and O'Doherty (1985, p. 31) describe this as a paradox, "the larger the research subfield or subject area, the less chance a paper has of being highly cited. The reason here is that, '[while] large specialties have more participants, they also have more literature to draw upon' [Cole and Cole, 1974, p. 34]."

With these underlying motivations, it is not surprising that there is a perception (perhaps not a conscious one) that the creation of a new specialty area is an attractive alternative (Bricker, 1991a; Mulkay, 1975). Usually one person will, through great imagination and

creativity, begin a new line of thought related in some way to the original area of the discipline, yet distinct enough to be clearly distinguished from the existing literature (Belkaoui, 1991, p. 169). One source of inspiration and intellectual support for a new approach is to draw upon literature from a related discipline and by linking it into the "base" discipline, begin a new specialty area. Of course this may also happen through researchers "migrating" from the reference discipline to the base discipline[18].

The new area generally attracts "followers" from among the younger faculty, who perceive a greater opportunity to have an impact in a literature which is less well developed (and, of course, is exciting and new). Younger faculty are also less likely to have as much invested in an already existing area. Evidence of the new specialty phenomenon in the accounting discipline is described in Brown, Gardner and Vasarhelyi (1989, p. 799). Gamble and O'Doherty (1985, p. 32) suggest "thus, to be very highly cited, one needs to present a seminal idea or new research method. But even followers, if they choose their research area wisely, can be relatively highly cited."

In some cases the methodology of a new specialty is not yet well defined and is possibly less rigorous in its requirements (Hofstedt, 1976; Hopwood, 1976). This has mixed consequences for researchers in the area. It may be that the research is "easier" to conduct, with fewer boundaries for what is acceptable. On the other hand, knowing when research is acceptable may then be open to individual opinion, and the success of the work in publication or conference forums may be less predictable. Garvey *et al.* (1971) and Williams and Rodgers (1995) suggest that low acceptance rates for publication may be related to a lack of consensus in research areas (see also Crawford & Crawford, 1980, p. 55).

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[18] Note that which discipline is considered the reference and which the base is purely a matter of perspective. For example, from one perspective economics would be considered the base discipline from which accounting "grew." From the perspective of accounting as a discipline, however, economics is a reference discipline from which ideas and concepts are drawn. The idea is basically the same with the different focus only changing the perspective.

The difficulty involved in creating a new specialty may depend in part upon the degree of departure from the already accepted research area(s). Cole and Zuckerman (1975) describe the process:

> The cognitive orientation of new specialty groups should be a strong determinant of its rate of institutionalization and its successful establishment. 'Cognitively radical' specialty groups which reject the legitimacy of established theoretical and methodological orientations should encounter more intellectual resistance, more difficulty in obtaining resources and recruits and engender more conflict in the process of their development than 'cognitively conforming specialties'. (p. 141)

Even in the case where the emerging specialty is not cognitively radical, it may face tremendous obstacles in forming. Initially, there may be very limited publication outlets or other communication forums willing to accept the new approach. Where there is an already entrenched area which has become dominant, as is suggested of positive accounting research in the United States, the social forces which combine to maintain its position create formidable barriers. Whitley (1988) concludes with this description of positive accounting theory's place in academic research:

> Given the way the academic career system operates in the U.S.A., it seems probable that they will be successful even though their analysis is seriously flawed and relies on theories of scientific method that are incoherent and inapplicable to accounting research. (p. 643; see also Tinker & Puxty, 1994)

Cole and Zuckerman (1975) identify the importance of the development of a specialty's social structures for its success. The social structures include, "the routinization of an evaluation and reward system, procedures of communication, acquisition of resources and the socialization of new recruits" (p. 143). As the new area gathers momentum, specialist journals provide a forum for communication and in the context of the knowledge accumulation model, recognition, for contributions in the area (Belkaoui, 1991, p. 167).

The burgeoning number of specialty areas and the commitment of time necessary to become familiar with even a limited amount of a discipline's literature creates a reluctance to abandon an area once the initial investment of time and effort has been made. Specialties tend, therefore, to become progressively more inward-looking as the body of literature associated with them grows. This phenomenon is not only associated

with the commitment in terms of time, but as described by Kuhn and Lakatos, involves the cognitive commitment of the researcher. While Kuhn's use of the analogy of religious conversion may be considered too extreme, there has been a wide acceptance that researchers prefer their current methodologies more "tenaciously" than theories of falsification or "rational" theory selection can explain. Blaug (1975) tentatively suggests that this degree of tenacity may be greater in the social sciences. The example quoted from Whitley (1988) as well as the views of Mattessich (1995), Tinker and Puxty (1994), and others suggests that the researchers in the positivist accounting school are not open to criticism and as a result may end up holding "tenaciously" to a methodology that no longer meets its own epistemological criteria. Mattessich (1995) describes the attitude of the positive school as follows:

> And 'positive accounting theory' refers at least as much to a specific methodology as to a theory. But this fact is usually hidden since its proponents abhor methodological disputes, implying to be in possession of the only proper accounting methodology. (p. 267)

The positivist school is not the only research specialty in accounting to maintain its views in the face of opposition. The critical accounting school would be considered "unscientific" by positivist standards, yet this area of accounting research continues to grow based on its rejection of the basis of this assessment. Similarly, Funnell (1995) describes the entrenched views that exclude the consideration of constructive criticism by groups within the history specialty. The difficulty is to assess the point at which dogmatism gives way to irrational tenacity in the face of overwhelming evidence of the failure of a methodological approach or theory.

Ultimately, the new specialty may become institutionalised by becoming dominant in one or more departments of universities. It is possible that specialist researchers may achieve appointments to chairs and be able to extend and promote the work of the area. As the area gains size and perhaps significance, however, it becomes difficult to "make a name" in the area again and the motivation to create a new specialty area re-emerges.

This process is not perceived as progressing in a linear manner with one new area completely satisfying the need for creative outlets for researchers. Rather, new areas will

emerge and old or unsuccessful ones diminish simultaneously across many specialty areas. The tendency of the literature to grow at an expanding rate suggests that at present new areas are growing faster than old ones are dying.

Within each specialty, knowledge is accumulated according to what is methodologically appropriate for that area. This accumulation may initially be difficult if the area is a "radical" one as described above. Once the specialty survives this phase and becomes institutionalised to the extent of creating its own communication forums, then it may assess contributions to its literature through the refereeing process in journal publication and conference presentation settings. This allows the methodological perspectives of the specialty to be operationalised and its knowledge base to be communicated and expanded.

To summarise, the pattern of knowledge accumulation is seen from a sociological perspective, based on the motivation for researchers to make a significant contribution and achieve a reputation by publishing. This prospect is enhanced by the creation of specialty areas in which the accumulation of knowledge can be observed by the addition of published works in specialist journals, books and conference proceedings.

5.3.5 Mapping knowledge accumulation

The view of the process outlined above may be combined with the patterns of knowledge accumulation described in Section 5.3.3. The description of the process and outcome of knowledge accumulation for each knowledge accumulation style brings together into one model the elements described earlier. The fish-scales represent published works, and the pattern of their contribution to a knowledge base is mapped over time as they move outward from the original core of seminal works.

The review of different patterns of knowledge accumulation above suggested that there may be a range of patterns varying from that called Type A to Type B. It is expected in the case of a Type B pattern that the core literature will be older and larger and that the subsequent literature may return to work not previously recognised as important as

changes occur in the problems facing researchers. In an integrated discipline, it would be expected that these features would be observed within a framework of cohesiveness and homogeneity as described in Chapter Three. The research would consistently add to the subject matter and methodological content of the discipline, while relating back to the earlier work. Figure 5.5 models this type of knowledge accumulation. The seminal core works are clustered using the green outline and may not have relatively high levels of citation. The fish-scale marked *X* represents past documents, currently not highly cited, which may become important in the future. Two clusters are shown emerging from the same core to suggest the diversity of approaches more common in the Type B pattern of knowledge accumulation[19].

A cohesive and integrated body of knowledge in the style associated with a Type A pattern, on the other hand, would suggest a linear progression where the preceding seminal work is more recent (since the earlier seminal work is obliterated by incorporation[20]) and contains a smaller number of documents. The subsequent layers quickly subsume the previous knowledge and add to it, as shown in Figure 5.6.

These are "best outcome models" and as mentioned earlier in the description of the process of knowledge accumulation, there are some inherent characteristics of the nature of research publication and the reward mechanisms for academics which mitigate against these models describing actual practice.

5.3.6 A model of knowledge accumulation and fragmentation

The process of knowledge accumulation in the academic disciplines as described above acts to provide incentives for creative contributions within already established areas of

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19 In single link co-citation analysis this would form one cluster. It would be diverse, however, and difficult to identify the common theme. The clusters of documents are shown separately here to focus on the knowledge accumulation style separately from the details of co-citation analysis.

20 There are two competing forces at work with the level of citation in this case. The higher levels of consensus suggest higher citations while the obliteration tendency reduces the *observable* citations.

FIGURE 5.5 Type B Knowledge Accumulation Style

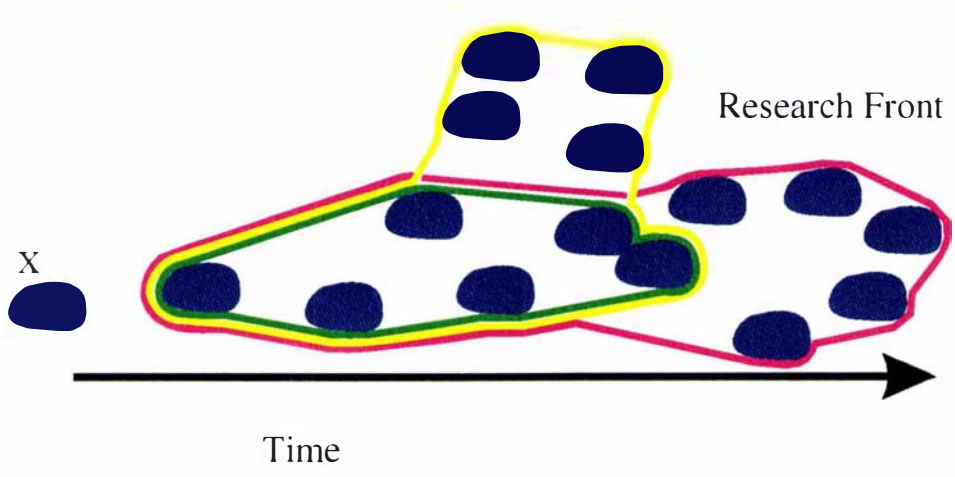
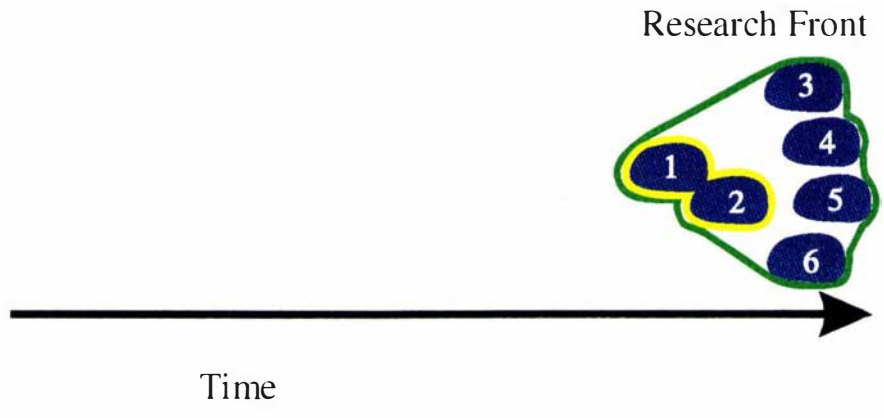
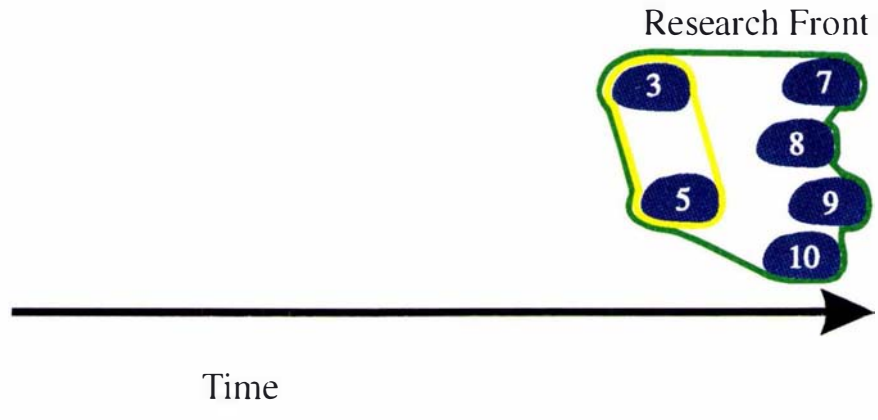


FIGURE 5.6 Type A Knowledge Accumulation Style



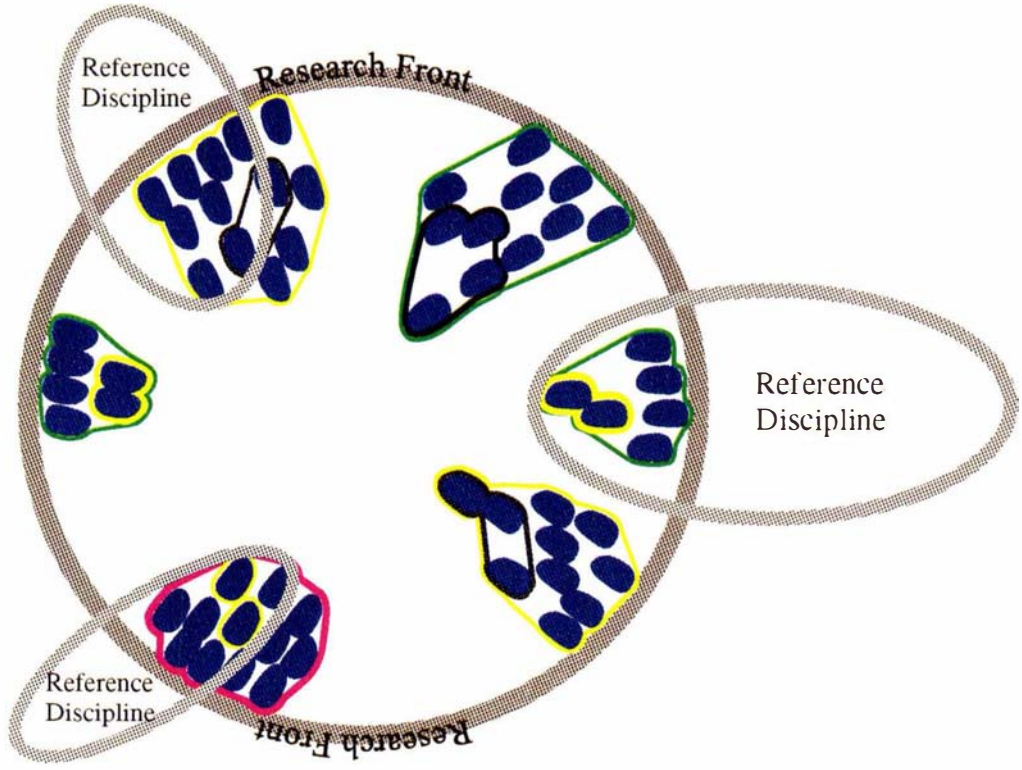


research and also describes why individual researchers may be motivated to break away from the mainstream to begin new areas. This balance of reward for producing in well accepted areas and generating completely new specialties is a delicate one, and when the balance tips in favour of a proliferation of new areas, the increasing specialisation may lead to fragmentation of the knowledge base. Without enough motivation to move into other areas, on the other hand, a discipline may stagnate. The characteristics of fragmentation described in Chapter Three, over-specialisation and ethnocentrism, may now be seen to fit within this balance. Over-specialisation occurs when the emphasis on creating new areas is too great, and ethnocentrism is a characteristic of an inward-looking research area resisting change.

Building upon the components of the model developed thus far, it is now possible to suggest how a fragmented knowledge base may appear in terms of the fish-scale model. Figure 5.7 shows the research front at the outer edge of the circle which defines the boundaries of a discipline. Fish-scales have been arranged hypothetically within the discipline's boundaries showing both a high immediacy pattern (associated with the Type A pattern) and a longer citation age with more diverse clusters (Type B). The fish-scales are contoured in the same fashion as in Figures 5.5 and 5.6 to distinguish the core literature for each specialty. The diagram also shows the identifiable outcome of fragmentation as identified in Chapter Three from Bricker (1987): low cohesiveness and non-homogeneity. Low cohesiveness is reflected in the proportion of documents shown as belonging to a reference discipline. Non-homogeneity is shown in the way the six specialty areas are isolated with no communication between them and no nesting into a large cluster for the discipline as a whole.

The next section extends the discussion specifically into the accounting discipline and provides an application of the above models using Bricker's (1987) co-citation analysis as a basis.

FIGURE 5.7 Knowledge Accumulation and Fragmentation



5.4 A FISH-SCALE MODEL OF KNOWLEDGE ACCUMULATION IN ACCOUNTING

The previous discussion is applied in two stages to accounting as a discipline. First, the process of building a knowledge base through research is applied to accounting, and then the patterns of knowledge accumulation are explored. Finally, the two perspectives are combined to model the output of knowledge in terms of published works in accounting.

5.4.1 The process of knowledge accumulation and the accounting discipline

The three elements of the knowledge accumulation process described above are: that research is effectively given away in order to create a reputation for the researcher; that competition in an attempt to get published creates motivation to specialise which in turn leads to an expanding number of journals, conferences, etc; and that finally a successful specialty may become institutionalised in a school or department.

All three of these elements may be observed in the accounting discipline. First, there is a strong emphasis on publication as a means for establishing a reputation. Beattie and Ryan (1989) state, "Publication and subsequent citation of academic research is taken as a primary indicator of individual, scholastic and institutional reputation" (p. 267; see also Gray & Helliar, 1994).

This may be observed in accounting departments in universities. Also, the significant interest of journals in publishing articles related to department/school publication success and citation studies reflects the perceived importance of publication as an indicator of success (Andrews & McKenzie, 1978; Bazely & Nikolai, 1975; Brown & Gardner, 1985a; Bublitz & Kee, 1984; Chung, Pak & Cox, 1992; Gamble & O'Doherty, 1985; Heck & Bremser, 1986; Heck & Huang, 1987; Heck, Jensen & Cooley, 1991; Jacobs, Hartgraves & Beard, 1986; Reeve & Hutchinson, 1988; Weber & Stevenson, 1981; Windal, 1981). The frequent appearance of journal rankings also suggests an interest in ranking academics' publication performance in quality, based on which journals they

publish in, rather than just by numbers of articles alone (Beattie & Ryan, 1989; Benjamin & Brenner, 1974; Brown & Gardner, 1985b; Dyckman & Zeff, 1984; Houghton & Bell, 1984; Howard & Nikolai, 1983; Nobes, 1985; Weber & Stevenson, 1981). Some articles on accounting research and teaching emphasise the negative aspects of the strength of the "publish or perish" phenomenon in accounting (Gray & Helliar, 1994; Leung, 1988; Morgan & Willmott, 1993; Sunder 1991).

There is also evidence of increasing specialisation (Mattessich, 1972) within the discipline accompanied by burgeoning numbers of journals and other forms of publication outlets (Heck *et al.*, 1991, p. 3). Figure 5.8 below shows the growth in the total number of accounting publications (journals and other more irregular outlets) since 1924. It is based on data collected from *Ulrich's international periodicals directory 1994-1995*, and supplemented by searches of the *Accounting literature index* (ALI), *Australia and New Zealand (A&NZ) directory of academic journals* 1994-1995, *Firstsearch* and *KEA* at Massey University. Periodicals selected for inclusion are listed as academic/scholarly by *Ulrich's* and trade publication or newsletter classifications are not included unless reference to the journal itself suggests the classification is not correct[21]. Initially it was decided, in accordance with the definition of research in section 5.2.1 (see also section 5.2.3), to include both journals and working paper series in the analysis. However, the coverage of working paper series was so small compared with the actual numbers available, that the inclusion of only those listed in *Ulrich's* did not provide representative information. It was therefore decided to omit all working and discussion paper series. In line with the description in the ALI, specialised taxation journals were excluded. While taxation may indeed be considered a legitimate specialty within accounting, adopting the approach taken in the ALI provides a conservative estimate of journal growth. Appendix 5A lists the periodicals and their period of publication; details of foreign language journals are also included. The appendix also provides summary information about the publications as a group.

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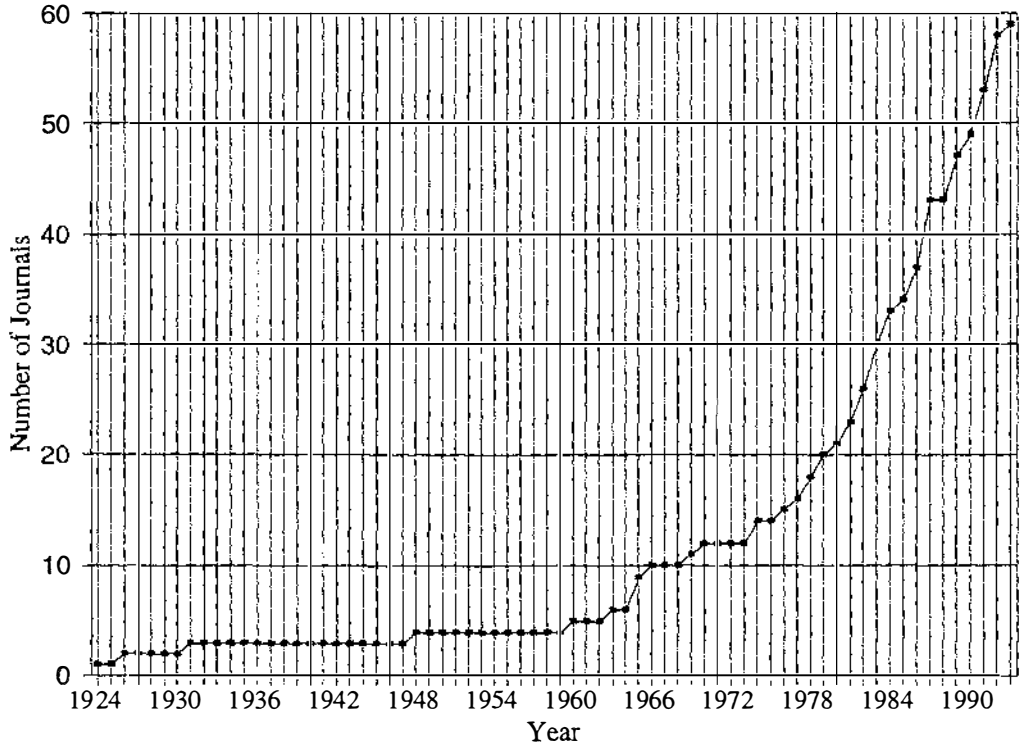
[21] This occurred in only one case. The *International Journal of Accounting* is listed in *Ulrich's* as a trade publication.

FIGURE 5.8 Cumulative Number of Accounting Journals



■ Represents the frequency for each year

The exponential growth in the number of publication outlets in accounting provides evidence of the demand for research outlets, and suggests that a number of specialty areas are represented by dedicated journals.

There are many examples of the development of specialised journals in accounting. *Accounting, Organizations and Society* was one of the early journals to provide a publication outlet for researchers working with non-hypothetico-deductive methodologies, allowing them to communicate their ideas and receive recognition (Heck *et al.*, 1991, p. 12). The focus of the journal on the social, behavioural and organisational aspects of accounting means that it also publishes research in the hypothetico-deductive style as it relates to budgeting in particular. The editor-in-chief of the journal, Anthony Hopwood, clearly provided leadership and encouragement to others in considering alternative ways of researching accounting as a phenomenon (Hopwood, 1976). The journal has become widely accepted and ranks highly in surveys

of journal quality (Brown & Gardner, 1985b; Nobes, 1985; but compare Beattie & Ryan, 1989).

Critical Perspectives on Accounting is a recently established journal which actively seeks to provide an alternative, critical voice in accounting research. Research published in this journal emphasises the hegemony of the "mainstream" (Chua 1986a) hypothetico-deductive methodology over top American journals such as *The Accounting Review* and *The Journal of Accounting Research.* Williams and Rodgers (1995) describe the situation as follows:

> TAR's [The Accounting Review's] status as a creator and exemplar of accounting scholarship is not unproblematic. That TAR and other leading US accounting journals have sustained an undesirable condition of a restricted research 'orthodoxy' has been contended by many within the accounting academy . . . These rifts and disagreements indicate that accounting knowledge production at TAR is contested by those which it is supposed to serve. (p. 264)

Another journal which has recently taken up the theme of accounting as a social phenomenon and the need to assess critically its place in society is the *Accounting, Auditing and Accountability Journal.*

There are also specialist journals that emphasize the quantitative research based on economic and finance models. Examples of these include; *Journal of Accounting and Economics* (JAE) and the *Journal of Business Finance and Accounting.* Beattie and Ryan (1991) comment that the theoretical perspective of the founding editors of JAE, Professors Watts and Zimmerman, dominates this journal and that it "clearly facilitated the development of this theory group" (p. 46).

Some journals specialise in subject areas such as management accounting, international accounting, auditing or education. Others focus on geographical regions or history or a target market in academic/practitioner cross-over research. A few journals still aim for (and seem to achieve) a reasonably wide coverage of the accounting research spectrum (e.g., *British Accounting Review, Accounting and Business Research and Accounting Forum).*

Williams and Rodgers (1995) describe developments as follows:

> But beginning in the mid-1970's new accounting journals began to proliferate. Some were created by 'schools' (e.g. *Journal of Accounting and Economics*), some by special interest sections of the AAA (e.g. *Auditing: A Journal of Practice and Theory*), and some to promote interest in particular lines of academic endeavour (e.g. *Journal of Accounting Education*). These numerous journals potentially represent different discourses about accounting. (p. 275)

It appears, therefore, that not only is the number of journals increasing, but they are specialising and providing outlets for research which would otherwise be outside the publishing interest of the original core of research journals in accounting. This suggests that the description of the process of knowledge accumulation does appear to fit the development of accounting in this aspect.

Individual authors or seminal works are also identifiable as initiating new areas of research as suggested by the outline of the process above. The work of Anthony Hopwood, Tony Tinker, David Cooper and Watts and Zimmerman has already been mentioned. Other outstanding examples are the effect of the Ball and Brown (1968) and Mueller (1963, 1968) works on accounting literature.

There is evidence that some research approaches have become institutionalised, not only through special conferences or journals, but within schools or departments of accounting in universities. For example, the Watts and Zimmerman agency approach has become known as the Rochester School (Mouck, 1990; Whittington, 1987). Tinker and Puxty (1994), somewhat tongue-in-cheek, describe the competition among various schools in the positive theory area:

> From its inception at the University of Chicago, positive accounting theory has fragmented into a series of factions and 'schools'. Rochester, Berkeley, Stanford, Illinois, Texas, UCLA, NYU, and many others (a wag might call them the 'chicagoettes') now compete for the title of 'heir' to the True positive accounting research. Relations are so bad among the factions that some members no longer talk to others. (pp. 5-6)

The University of Manchester in Britain is most closely associated with the social/interpretive approach, being the "home" of the Interdisciplinary Perspectives on Accounting Conference. In general, the British universities have not adopted the positive approach with the enthusiasm of some schools in the United States, resulting in

a trans-Atlantic difference in research styles (Bromwich & Hopwood, 1981, p. xiii; Whitley, 1988; Zeff, 1989).

To summarise, there appears to be a similarity between the posited process of knowledge accumulation and the factors observed in accounting.

To be able to represent the outcome of the knowledge accumulation process in accounting, the technique of mapping developed in the previous sections is applied to Bricker's (1987) co-citation analysis. The contribution of such a map, the process of creating it, and the features it highlights are the subject of the following sections.

5.4.2 A map of knowledge accumulation in accounting

Mapping techniques previously used in co-citation analyses include dendograms and cluster maps. Bricker's (1987) dendogram is reproduced in Appendix 5B, and an example of a recent cluster map from Small (1993) is provided as Appendix 5C for comparative purposes. Small (1993) describes the mapping approaches:

> The results of a cluster analysis are traditionally shown as a tree structure. However, because clusters are constructed from linkages among objects it seems natural to display clusters as networks of connected nodes. The technique of non-metric multidimensional scaling or other methods such as centroid scaling can be used to display clusters by locating each of the objects at a point in space. Ideally, the location should represent the relation of that object to the other objects in the space. However, scaling is used here to obtain an approximate representation of a network, and not to determine precise locations of objects. In this sense, the presence or absence of links is more significant than exact location. (p. 9)

These approaches are relatively easy to construct and reflect important information about co-citation analysis which is not easily communicated in words alone. For the purpose of identifying the intellectual structure and knowledge accumulation processes at work in the accounting discipline, neither of these representations fully impound visually the information available through co-citation analysis. By applying the fish-scale mapping approach developed in earlier sections to the co-citation data provided by Bricker, the aim is to incorporate much more available information about the intellectual structure and process of knowledge accumulation into a visual representation. This is achieved by

providing a greater level of detail than previous citation studies by mapping results down to the document level. This makes the task much more labour-intensive but allows the inclusion of important information regarding the age of the documents in the clusters and their disciplinary source. The clusters are also positioned to reflect, as far as possible, their relative locations as described by Small (1993). This is achieved by positioning the documents that form the clusters so that as the CTL level drops and they link with other clusters, they are between the two clusters they link. So, if hypothetical Clusters 1 and 2 are linked at a lower level by Cluster 3, then Cluster 3 is placed between Clusters 1 and 2. The nesting patterns down to the lowest CTL in Bricker's analysis are considered in placing the clusters, although the clustering is only shown to CTL 4. The positioning of clusters that remain isolated is, however, arbitrary.

5.4.3 The process of constructing the map

The process involves three steps. First, a circle is constructed to represent the research frontier for the discipline. Its radius is then divided to represent time periods moving out from the centre. The size of the circle when constructed was 3.5 inches in radius[22]. Because of the disproportionate numbers of documents published in later years, the time represented by movements away from the centre is not continuous but is divided into two discrete periods - pre- and post-1950. The distance allowed for the pre-1950 papers is one inch, which is not in proportion to the two and a half inches allowed for the 1950-1983 period. This latter period is divided by a ring which marks 13.3 years from the research front. In the case of Bricker's study, the source documents cover the period January 1983 to March 1986 (p. 85).

Next, using the data provided in Bricker's (1987) Appendix 4-6, each of the 237 documents from CTL 12 down to CTL 4 is placed on the map as a fish-scale shape according to its cluster grouping and age. The process begins from the highest CTL (12), and each document clustered at that level is identified as belonging to the accounting discipline or some other discipline, based on the journal or book title

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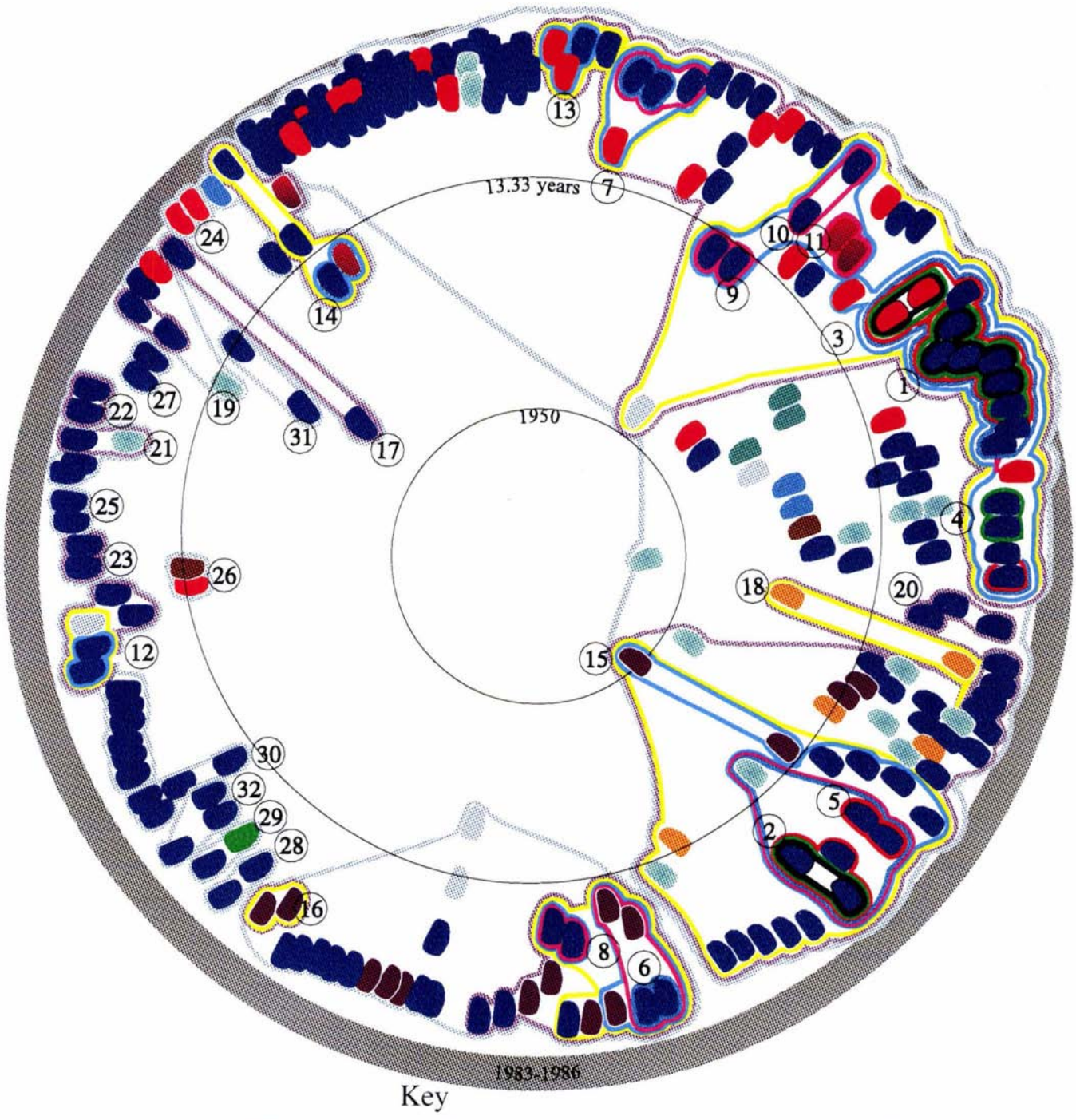
22 The printed circle may not match these dimensions exactly because of the requirements of different printers. The image is adjusted in size to print out within the designated margins.

(following Bricker, 1987). Accounting documents are coloured blue and other disciplines are coloured according to the key provided. The number of years from the research front is then calculated for each document so that it can be placed on the map at the appropriate distance from the research front. For example, a document published in 1979 is four years in from the inner edge of the research front.

As each cluster is completed, the group is contoured using a colour to match the level of the co-citation threshold. The clusters formed at the highest CTL constitute the observable seminal literature which has not yet been obliterated through incorporation. There is no specialist software available to map citation analysis directly in this way, so a more general package, *Corel Draw 4.0*, is used. The process involves the careful placement, colouring and contouring of every document. The map is provided as Figure 5.9, and Table 5.1 is an index linking the cluster number on the map to the descriptions provided by Bricker as at the highest CTL for that cluster.

The next section describes the features of the intellectual structure and knowledge accumulation shown in the map, and briefly indicates how this perspective may be used to compare intellectual structures with other disciplines or specialties.

FIGURE 5.9 Bricker (1987) as a Fish-Scale Model



Key

Reference Disciplines

- Accounting
- Economics / agency
- Sociology/ Organisation theory
- Psychology/ Human Info processing
- Finance
- Statistics
- Legal Regulation
- Political economy
- Business - general
- Philosophy of knowledge
- Management

Contour CTL Levels

- CTL 12
- CTL 11
- CTL 10
- CTL 9
- CTL 8
- CTL 7
- CTL 6
- CTL 5
- CTL 4

TABLE 5.1 Index for Clusters with their Description from Bricker (1987)

Cluster No.	Description	Mode of Reasoning; Treatment; Method; School of Thought	No. of Docs*	CTL Level*
1	Positive accounting theory,: Stnd setting, policy choice, oil & gas	Quantitative Various; Financial; Archival; Misc Statistical EMH (10)	5	12
2	Budgeting & Organisational Structure	Quantitative Various; Managerial; Field/case/lab; Behavioural (10)	2	12
3	Agency theory of the firm	As for 1	2	12
4	Markets based research: Oil & Gas	Quantitative; Financial; Archival; EMH (10)	2	11
5	Budgeting & Org structure - AOS	Qualitative; Various; Analytic; Behavioural (10)	2	10
6	HIP & Behavioural	See cluster 8 at CTL 6	2	9
7	Time Series: Quarterly Earnings	Mixed; Financial; Archival; Time Series (9)	2	9
8	Behavioural: Auditing applications	Various; Auditing; Case/field/lab; Behavioural (8)	2	8
9	Mkt based: Info content of earnings announc.	Quantitative Various; Financial; Archival; EMH (8)	2	8
10	Mkt based: Info content of corporate earnings forecasts	Quantitative Regression; Financial; Archival; EMH (8)	2	8
11	Theory of finance	See Cluster 9	2	8
12	Statistical auditing and sampling	Quantitative Descriptive; Auditing; Archival; Not Identified (7)	2	7
13	Info, moral hazard & mgt control systems	Quantitative Analytic; Managerial; Analytic; Agency (7)	3	7
14	Predicting bankruptcy	Quantitative Descriptive; Financial; Misc Statistical; Not Identified (7)	2	7
15	Budgeting	See cluster 2 at CTL 6 + analytic method	2	7

Cluster No.	Description	Mode of Reasoning; Treatment; Method; School of Thought	No. of Docs*	CTL Level*
16	Cognitive processes & judgement	Not Identified	2	6
17	Income theory, financial reporting and changing prices	Not Identified	2	6
18	Mngrl theory & history: (Chandler)	Not Identified	2	6
19	Actg info economics	Not Identified	2	5
20	Inventory	Quantitative regression & ANOVA; Financial; Archival; EMH (5)	3	5
21	Mkt Based: Info content of inflation adjusted numbers	Quantitative Regression; Financial; Archival; EMH (5)	2	5
22	FASB concepts	Not Identified	2	5
23	Tax	Not Identified	2	5
24	Product info	#	2	4
25	Municipal	#	2	4
26	Managerial compensation & motivation	#	2	4
27	Time series: Annual earnings	#	2	4
28	Auditor judgemen s & heuristics	#	2	4
29	Actg profession and services pricing	#	2	4
30	Studies of academic accounting	#	4	4
31	Actg theory	#	2	4
32	Actg info & collective bargaining	#	3	4

* The Description and Number of Documents are as at the highest CTL level at which the cluster appears. The Mode of reasoning; treatment; method and school of thought are as they first appear for the cluster which may not be at the highest CTL. The CTL at which it is first identified is indicated in brackets. Since classifications may only emerge after the merger of two clusters, the later cluster refers to the main cluster description to indicate it has merged at that level.
# ARD descriptions are not provided at CTL level 4 and below.

5.4.4 Features of the map

Perhaps the most striking feature of the map initially is that it appears very crowded at the research front. This is a potentially deceptive first impression, however, since it is

purely a function of the size of the circle and the fish-scales. The circle has been made as large as will comfortably fit on an A4 page and, after experimentation, the fish-scale size that best allowed for both future development and a clear view of the numbers of documents involved was selected.

The most striking intellectual grouping on the map is the large cluster which takes most of the right hand side which has Cluster 1 at its heart. Considering this group carefully reveals that it is really comprised of two major cluster groups. Clusters 1, 3 and 4 are closely related at high CTLs, as reflected in the dense contouring around this grouping. The grouping with Cluster 2 at its centre is not as strongly related or as immediate to the research front as the other major grouping. It contains fewer documents and these are more widely spread in years from the research front.

Another key difference between the core literatures of these two main groupings is their reference literatures, as indicated by the colouring of the fish-scales. The Cluster 1 group is very strongly influenced by the economics literature, particularly the Jensen and Meckling (1976) and Fama (1980) papers related to agency theory which are highly co-cited at CTL 12 and form Cluster 3. Fama (1980) was cited twenty times, and Jensen and Meckling (1976) was the third most highly cited paper in the analysis with thirty citations (Bricker 1987, p. 123). The impact of the economics literature can also be seen in the high proportion of economics documents in Clusters 7 and 13, and in those documents which emerge to link these clusters at CTL 5. The subject area of this group is a financial, agency theory and capital markets based area. Methodologically, it is highly quantitative.

The absence of the influence of economics in the group around Cluster 2 is in strong contrast the other grouping. This grouping has a management focus. Both Cluster 2 and Cluster 5 were titled "budgeting and organisational structure" and it was noted that there was a strong influence from *Accounting Organizations and Society* by Bricker (1987) (see Table 5.1). The management emphasis is clearly reflected in the map in the range and types of reference disciplines present in the group. Sociology and organisation

theory, political economy and management are the areas drawn into this group. The structure of the citation patterns is also clearly different, with older documents playing a much stronger role in the knowledge accumulation of this area. This grouping is also different in methodological approach. While Cluster 2 is listed by Bricker as quantitative using Brown and Vasarhelyi's (1985) *Accounting Research Directory* classifications[23], there is more emphasis on opinion surveys and case studies within this cluster group than Clusters 1, 3 and 4. Cluster 5 is significantly different in methodological approach, being one of the few classified as qualitative. It is interesting to note that the less quantitative cluster group has a pattern closer to the Type B knowledge accumulation style, with a core that reflects less consensus and a greater variation in age.

As the two major groupings form a large cluster at CTL 4, a range of documents from the economics, philosophy of knowledge, and general business areas emerges to form one large eclectic cluster covering both the financial/agency/capital markets and management accounting budgeting and organisational structure areas. The strong differences between the two groups which finally merge should not be underestimated, however, since they only merge at CTL 4, and single link agglomerative co-citation clustering was used by Bricker to generate the clusters. This is a widely used technique which is also used later in this study. One of its features, however, is that it takes only one common document between two pairs to chain into the cluster a large number of documents (Small, 1993, p. 10). Thus, while the linking of the two groups is encouraging from the point of view of seeking an integrated literature, links at higher co-citation levels would be needed to suggest any real confidence that the work in the two very different clusters is effectively cross-fertilising future research efforts and generating a unified research front.

An interesting minor feature of this major group is Cluster 18 which is focussed on the work of a single author, A D Chandler, who wrote in the area of managerial theory and history (Table 5.1). This cluster rather stubbornly refuses to merge with the rest of the

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[23] Bricker (1987) provides a coding of the classification in the ARD for each document in Exhibit 4-4, pp. 132 - 142.

management group before the large group is formed at CTL 4. While Cluster 18 only forms at CTL 6 it is nonetheless surprising that it does not merge first with the management literature. This is perhaps an area that management researchers could consider linking into the "mainstream" of management accounting research.

The next most sizable grouping is made up of Clusters 6, 8 and 16. This group is focussed more about Clusters 8 and 6, with Cluster 16 not forming until CTL 6 and not merging with the other clusters until CTL 4. The subject area focus of this grouping is human information processing and judgement particularly in relation to auditing. The psychology/human information processing reference discipline has a strong position in this small cluster group. The knowledge accumulation pattern is more similar to the Type B, with the core papers varying in age and further out from the research front.

Out of the remaining 16 clusters which form at low levels of co-citation frequency and remain isolated from the rest of the accounting literature at CTL 4, Clusters 12 and 14 are the most significant. Cluster 12 has statistical auditing and sampling as its common subject area and not surprisingly draws on statistics as a reference discipline. This cluster remains isolated from the larger auditing cluster even at CTL 3, despite the linking of statistics papers at CTL 4 in the Cluster 6 grouping. It appears that approaches in these two related areas are yet to be integrated.

Cluster 14 consists of literature relating to the prediction of bankruptcy. It has a strong link to finance literature and does merge with the large cluster at CTL 3. It is a little surprising that this cluster holds out for so long from the larger cluster, and suggests that this may also be an area for researchers to consider in linking knowledge into their financial/capital markets based studies.

The remaining feature of the map is the large number of small clusters which form at relatively low CTLs and remain isolated from the rest of the literature. These clusters may be either emerging or dying specialties, and if their isolation continues it is a problem for achieving an integrated literature. It is interesting to note that overall the

fragmenting factor does not seem to be a difficulty with cohesiveness (the extent to which the areas rely on reference disciplines) as the greater proportion are accounting documents. This suggests that the underlying process is not one of developing new specialties by seeding the area from new areas in reference disciplines. Rather a review of the titles of the clusters provided by Bricker (see Table 5.1) suggests that they are areas which could be linked with the more dominant clusters but which have not been by the researchers involved. Perhaps the most surprising of the isolated clusters is 31 which is an accounting theory cluster consisting of Chambers (1966) and Sterling (1970). While this cluster does merge at CTL 3, it is clear that the theory which is driving the main cluster grouping is based in economics (Cluster 3) and finance (Cluster 11) and that accounting theory is very much on the periphery.

5.4.5 The map and fragmentation

Bricker's (1987) study provided all the information necessary to generate a fish-scale map of the intellectual structure of accounting. His tests of the cohesiveness and homogeneity of the literature revealed a problem of fragmentation as discussed in Chapter Three. The contribution of the fish-scale map is to reveal visually some relationships and patterns not clearly identified in a dendogram.

The different impact of a lack of cohesiveness and homogeneity in particular clusters and groupings is highlighted by the map's incorporation of the reference disciplines and cluster contours into the one picture. A further extension of the work would be to modify the shape of each fish-scale to reflect the subject area and methodology of the document it represents.

The discussion of the features of the map has also focussed on the issue of fragmentation and identified potential areas for cross-fertilization which would increase integration in the literature.

The ability of the map to incorporate features of the knowledge accumulation pattern, and the cohesiveness and homogeneity of the literature suggest that it could play a role in

comparing literatures to identify possible areas of cross-fertilization and compatibility. This type of application is pursued later in the thesis.

5.5 SUMMARY AND CONCLUSION

A sociological model of the knowledge accumulation process and patterns was developed, and elements of a map designed to reflect visually a number of the key features associated with knowledge accumulation. In particular, the reference discipline, its relationship to the research front, cluster groupings and the level of co-citation frequency are incorporated into the one diagram.

The mapping technique was applied to Bricker's (1987) co-citation study of the intellectual structure of accounting, and features of the map discussed, highlighting fragmentation issues.

Further research possibilities include the replication over a more recent sample of Bricker's co-citation study and the mapping procedure developed in this chapter. A time series comparison of the structures would indicate whether the isolated clusters are progressively being developed and integrated into the literature or are dying out. New cluster formations would also be identified.

The next chapter considers vehicles for reducing fragmentation which have been used in other discipline areas, and then identifies a potential integrating agent for the accounting discipline.

CHAPTER SIX
RE-INTEGRATING A FRAGMENTED DISCIPLINE: ALTERNATIVE STRATEGIES

6.1 INTRODUCTION

The pattern of knowledge accumulation in accounting was modelled and mapped in the previous chapter. Areas of fragmentation were highlighted and some topic areas where further research may help to integrate currently isolated research perspectives were mentioned. Chapters Three and Four discussed the importance and impact of fragmentation on accounting at the disciplinary level. Chapter Three in particular indicated the broad range of disciplines which have been identified as being fragmented. In order to identify a likely strategy for reducing fragmentation, after diagnosing the illness, the preferred next step in academia would be to seek a theoretical basis for structuring a "therapy." More in line with the medical metaphor in this case, however:

> . . . there is no general theory about the best way to integrate major areas of knowledge in the social sciences. . . Success, whenever achieved, can be attributed more to trial and error than to any systematic understanding of the requirements for reassembling decomposed, specialized knowledge. (Easton, 1991, p. 23)

As a result, the best available approach is a case-book style review of previous strategies and their outcomes. Some authors offer a general admonition to researchers in the discipline to be conscious of the need for integration. For example, Mattessich (1972) states:

> I also believe that the concern for integration should not be restricted to a few specialists. Every accounting researcher should have at least a rough vision of the overall framework into which his specific research will have to fit sooner or later. (p. 483)

This recommendation, along with his specification of a methodological approach which he believes will result in accounting becoming an integrated science, is designed to promote integration. While general awareness of the need for integration and an awareness of its importance is fundamental to pursuing the aim, it is not sufficient in itself as goodwill alone is not a strong enough force to take on the institutionalised

tendencies described in Chapter Three. Similarly, even methodological prescriptions may not be sufficient to overcome entrenched views, as discussed in later sections. A specific mechanism is required through which targeted efforts at integration which are appropriate for the individual discipline are operationalised. For this reason the potential strategies are identified and evaluated in this chapter so that a specific mechanism, likely to be effective in achieving an integrated discipline, is identified. The approach identified as having the greatest likelihood of success is then explored in more detail.

The first main section of this chapter reviews previous attempts at re-integration in other disciplines within the physical and social sciences which are relevant as models for re-integrating accounting at the disciplinary level. The strategies identified in the literature are divided into three main categories: integration through disciplines and specialties, interspecialty research, and the development of a general theory. The success of each approach in fostering re-integration is discussed and then evaluated for its potential to achieve re-integration in accounting. Suggestions made within the accounting literature regarding potential approaches to re-integrate the research base are considered under the appropriate category headings, however, the majority have simply urged researchers to change the dogmatic attitudes that accompany fragmentation.

The second section of this chapter considers the option identified as most likely to be effective as a result of the review in the first section. Key features of the approach and contingent factors which may affect its ability to sponsor integration in accounting are identified.

6.2 RE-INTEGRATION STRATEGIES

The first strategy discussed in this section is the use of a particular discipline or specialty as a vehicle for re-integration. The second strategy is to foster re-integration through interspecialty research. This is a very popular recommendation and has achieved institutional support, so it is discussed in detail by considering three different approaches.

The next strategy discussed is the development of a general theory for a discipline. The final part of this section brings together the potential for the proposed strategies for re-integration of the accounting discipline to select the most likely approach.

Before commencing the review of proposed re-integration strategies, it is important to establish the level at which the approaches are proposed and at which they may be useful for accounting. It is also important that the nature of the goal of integration is specified, so that evaluations are carried out in relation to that goal.

6.2.1 Re-integration strategies and the disciplinary level

The aim of this study is to find ways of reducing the fragmentation observed in accounting literature at the disciplinary level. It is not the specific purpose at this stage to encourage integration between accounting and other social science disciplines, as it is not clear that integration within accounting is sufficient to support an increased link with other disciplines without first achieving a corresponding strengthening of accounting's internal structure. In terms of the terminology, it is not *inter*disciplinary integration (i.e., between accounting and other disciplines) which is being sought, rather, it is *intra*disciplinary integration, such that the specialties which are currently identified as isolated from one another (see Chapter Five) coalesce into a meaningful whole. Some of the proposed strategies reviewed in this chapter are discussed in the literature as techniques for improving *inter*disciplinary integration. Rather than rewording quotations from the literature into intradisciplinary terms and perhaps distorting the meaning of the authors' work being reviewed, the term interdisciplinary is retained; however, these strategies are only discussed where they could usefully be "transplanted" to the intradisciplinary level.

6.2.2 Integration outcome

There are two different approaches to an integrated discipline. One is monistic and the other pluralistic. The monistic outcome is consistent with Kuhn's description of a single dominant paradigm in a discipline which through a high level of consensus reaches a state of normal science such that researchers are involved in problem solving activities.

This is certainly an integrated outcome with high cohesion and homogeneity. An alternative view is the pluralistic approach in which integration is achieved without the domination of the discipline by a single paradigm or specialty area. In this scenario a discipline may have any number of active specialty areas which are reflected in clusters forming at high CTLs. To achieve integration to balance the specialisation, however, two offsetting conditions are needed. First, communication between specialties is reflected in an increase in homogeneity and reduces the inefficient recreation of knowledge within the discipline. In this way the pluralistic approach allows creativity of the specialist areas to benefit the whole discipline. Second, the insights from reference disciplines must be grounded in the particular domain of the discipline to maintain cohesiveness (Gibbins & Jamal, 1993). The exchange of knowledge between specialties should, as a by-product, increase cohesion as the impact of imported theories and methods are communicated within the discipline for more general use.

It has been observed in the social sciences that the monolithic dominant paradigm approach leads to an inward-looking, less relevant research product as the social mechanisms of rewards and institutionalisation described in Chapters Three and Five motivate researchers to refine their fundamental research output and methods to the exclusion of the complex problems facing practitioners (Lee, 1989; Mattessich, 1995; Sutton, 1992; Zeff, 1989a). Although more difficult to maintain, the balance between specialisation and integration offers hope of a productive tension that results in more relevant and innovative research both in the short and long term. It is this type of integration which is the preferred outcome for the accounting discipline in this thesis.

6.2.3 Integration through disciplines and specialties

One broad group of approaches to the re-integration of a discipline is to use specialties within the discipline as integrating agents. Similarly, at the interdisciplinary level of integration, particular disciplines are identified as possessing attributes which may be consciously used to enhance integration. The approaches and problems are the same regardless of the level, so both are included in this section for consideration.

There are two distinct strategies within this category of approaches. First is a strategy of encouraging integration within specialties to achieve an increase in integration for the discipline as a whole. Second, specialties with unique characteristics which are perceived as providing an integrating mechanism may be identified as potential avenues for integration for the discipline, and research strategies adopted to achieve this.

6.2.3.1 Integration within specialties

The aim of this approach is to encourage increased integration for each of the specialties of a discipline with a view to increasing the integration of the discipline as a whole. This strategy was briefly discussed in Chapter Three in the context of fragmentation occurring at different levels. If the focus is on integrating a discipline, increasing the integration of specialties will only contribute to this outcome under extreme conditions of fragmentation.

The process and conditions for success for this strategy are represented in the fish-scale diagrams in Figures 6.1 to 6.3 below. The initial state of the discipline depicted in Figure 6.1 is so unclear that its disciplinary status in terms of having a common body of knowledge may be questioned. At this stage, encouraging particular specialty areas within the "discipline" to become more integrated by developing their own theories and methods related to their specific field of the fledgling discipline and developing their own bodies of literature will start the integration process. The monistic approach would be to encourage one most successful area to form a paradigmatic basis for the discipline, with the result that one large core for the discipline would be formed. An alternative outcome is the pluralistic development of a number of specialties within a discipline. In either case, the strategy underlying encouraging integration as specialties within the discipline is to give that discipline form and an identity separate from related disciplines. Figure 6.2 shows how the increasing integration of the specialty areas increases the levels of homogeneity and cohesion for the discipline as a whole. As the specialties develop, they

FIGURE 6.1 Fragmented Field

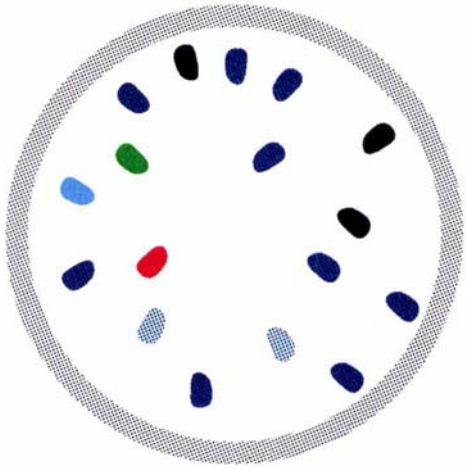


FIGURE 6.2 Integration of Specialties

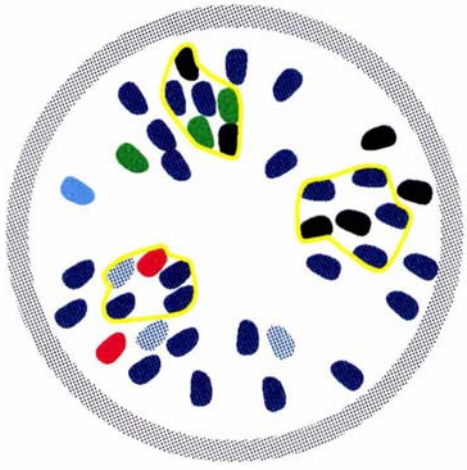
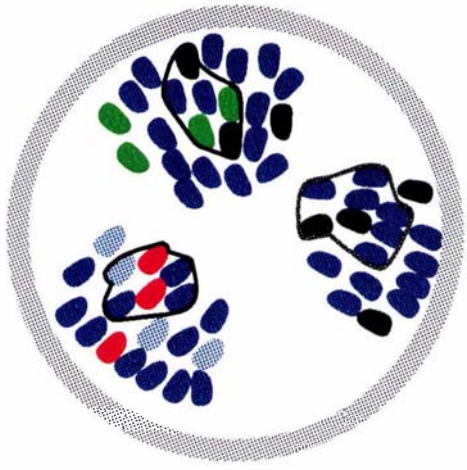


FIGURE 6.3 Isolated Specialties



generate their own literatures and potential publication outlets, allowing an increase in their internal cohesion by providing a reference literature within the specialty. Similarly, as the proportion of literature cited within the discipline grows, homogeneity increases because links between the documents within the specialty are created and strengthened.

However, there is a point beyond which the increasing integration of specialties within a now established discipline begins to split the discipline apart and result in increasing fragmentation. This occurs where the specialties are so concentrated on their own integration that their common disciplinary connections waste away. In this case the focus needs to shift from the specialties back to the discipline to increase disciplinary integration. This stage is shown in Figure 6.3.

The disciplinary status of communication is an example of continuing failure to achieve an integrated discipline. The field is described as having struggled to attain disciplinary status since at least 1977 (Swanson, 1993, p. 167). Two special editions of the *Journal of Communication* (1983 and 1993) address this issue. Writers in these special editions have proposed the strategy of increasing the integration of specialties in the area to trigger a coalescing of the discipline. For example, Beniger (1993) suggests that re-orienting the field around four areas which are yet to integrate as specialties would enhance the disciplinary status of communication.

> Most of these [new developments] have only marginal if not fugitive status in American communication, however, even these footholds exist only thanks to younger scholars and to refugees from other disciplines and countries. It is in this residue of approaches, most not dreamed of half a century ago and all still new to American communication, that we might find the focus of a revitalized field, a focus I shall call the four Cs after its four key elements: cognition, culture, control and communication. (p. 20)

Swanson (1993) describes the outcome of a focus on specialty development within communication. Note that he describes the specialties as interdisciplinary subfields. This is to capture the idea that they are seen as part of the field of communication (subfields

or specialties in the terminology uses here), but draw heavily on multiple reference disciplines, giving each specialty area an interdisciplinary flavour:

> As interdisciplinary subfields grow and develop their own organizations and publication outlets, participants may come to orient to the subfield more than to their parent discipline as the primary site of scholarly work and interaction. The subfield may become inward-looking and self-absorbed as it searches for its own center. As a result, there tends to be perhaps less intellectual exchange than we might expect between the subfields and the core domains of the disciplines out of which they arose, as Berger (1991) has noted. The core domains begin to decompose into narrowly defined subfields that struggle against disciplinary traditions and limitations in order to build more focused, discipline-spanning research communities. Subfields developing in this way transfer the field's intellectual capital from the center to the periphery. This is why, on balance the proliferation of interdisciplinary subfields has been a centrifugal force, straining communication's already problematic disciplinary identity. (p. 166)

So, while Beniger's suggestion may provide the desired integration for communication, if Swanson's perception of the development of the field is accurate, it may result in further fragmentation.

Based on the description of the conditions and process underlying this strategy, its likely effectiveness in the case of the accounting discipline is low. This conclusion is based on the analysis of Bricker's co-citation study provided in the fish-scale diagram in Chapter Five. It is clear that there is a dominant specialty which has economics and finance literature at its heart and which draws heavily on positivist methodologies. A strategy to increase integration in accounting through further integration of a specialty would most naturally involve the expansion and domination of this area to the further diminution of the other specialties. This would be compatible with the positivistic view that only specific types of reproducible, empirical techniques result in contributions to knowledge. Unfortunately, the inward-looking nature of this specialty area has triggered concerns from practitioners seeking relevant research output from academia, and a number of academics, some of whom are not affiliated with opposing methodological views, have expressed concern about the lack of relevance of the research output. Sutton (1992) summarises the position from the perspective of the AIS specialty's struggle for self-definition:

> I am in complete agreement with McCarthy (1987) in that I would not wish the capital markets researcher's 'problems with relevance and overly scholastic

> thinking . . . on any discipline.' At the same time, I am also envious of their 'traditions of excellence and rigor.' (p. 10)

This outcome of a lack of relevance has been associated with fragmentation (Easton, 1991) - in this case related to the high integration of a specific area in isolation from the rest of the discipline. It is argued, therefore, that a strategy of re-integration for the discipline by encouraging further integration of already existing specialties in accounting may lead to a less useful rather than a more relevant discipline at this stage of its development. It is also likely to result in monistic integration rather than the preferred pluralistic outcome.

6.2.3.2 Specialties and disciplines as integrating agents

This strategy involves the conscious policy of encouraging a specialty or specialties with particular characteristics conducive to facilitating integration in a discipline to act as integrating mechanisms. Once again, this strategy has also been suggested at the interdisciplinary level by identifying particular disciplines which may undertake an integration role for the social sciences, for example. Three specialty areas are considered for the integration role in this section. They are history, culturalist studies and international research.

6.2.3.2.1 History

History is perceived to be a potential integrating force by the very nature of its attempts to create whole understandings of events by placing them in their context. This may be achieved by a history-based specialty within a discipline using its particular perspective in a number of ways. For example, historical studies which focus on the development of research in the discipline provide understanding of the social and contextual role of research within the discipline and how that has changed over time. This gives the research developments a common context and may provide insight into why and how different approaches emerged. It also helps to highlight in the current literature research outputs which may be overlooked through their age - reducing the possibilities of inefficient re-invention of past discoveries. Previts, Parker and Coffman (1990a, p. 151) make the observation, "it is not socially cost effective use of our intellectual capital to

have to reinvent solutions that would otherwise be known to us through a well defined historical tradition."

Remenyi (1979, p. 30) describes the attempt to use history within the economics discipline in this way:

> In his History of Economic Analysis Joseph Schumpeter began a search for a new methodology in the history of political economy (HOPE) that has been continued by later historians of thought. . . The search had been prompted in part by what Schumpeter saw as the rapid fragmentation of economics into `an indefinite number of specialties.' Success, however, has been elusive, as evidenced by the single most glaring feature of HOPE today - the lack of comprehensive works that integrate what has happened and why . . . (Remenyi, 1979, p. 30)

Easton (1991, p. 16) suggests that history "might have offered itself as the integrative discipline, *par excellence*;" Tilly (1991) however, argues that there is a strong tendency to specialisation in history which makes it just another specialisation in social sciences rather than an integrating force. Tilly describes the extent of the specialisation:

> With spectacular exceptions, such as William McNeill, professional historians nearly always specialise in one or two combinations of place and time. Even Fernand Braudel (1979), who defined European history very broadly and roamed easily over five or six centuries, ultimately concentrated his research and writing on southern and western Europe during the 16th to 18th centuries. Most historians content themselves with a much smaller range, arguing that learning the languages, sources, historiography, and social context for the competent study of one or two countries over a century or so taxes the human stamina, memory and ingenuity. A few historical fields, it is true, shrug off time and space limits to deal with specialized phenomena, such as science, population change, coinage, or kinship. In those fields, discussions often move quickly from one time-space division to another. But even there, individual researchers commonly specialize in a single area of the world during a single block of time. And historical fields defined by phenomena rather than time and place provide the primary identifications of no more than a small minority of practicing historians. (p. 89)

While Tilly also hopes that sociology as a discipline will dissolve into history, the current trend towards specialisation and epistemological differences between the humanistic and the social scientific approaches limit this integrative possibility (p. 114).

In the case of accounting, a number of authors have been arguing for a stronger emphasis on history (Demski, 1985; Previts *et al.*, 1990a & b; Zeff, 1981 & 1989a). As a specialty area in accounting it has been identified as suffering from a lack of interest. Zeff (1989a)links this with the strength of the positivist approaches in the US:

> Historical research methods, subjective and highly judgemental as they are, have failed to attract a following among leading US accounting researchers, and one fears that historical research, at least in the most highly regarded accounting departments, is a dying species. (p. 171)

Histories or reviews could extend Antle's (1989) "fluid boundaries" through adopting this attitude to create more integration by cementing previously separate views into new understandings.

Previts *et al.* (1990b) describe the benefits of an historical perspective for relevance of research against the backdrop of a positivistic mainstream in accounting thought:

> Previts (1984b) suggests that an intuitive justification for the study of history exists by relating what 'was' (the historical state) to the what 'is' (the positive state) to what 'ought to be' (the normative state). The importance of studying and understanding issues and concepts from such a *was-is-ought* perspective is the recognition that knowledge is a continuum not limited by temporal or environmental isolation (Hopwood, 1985). This *was-is-ought* perspective addresses concerns about narrowness and supports the view of history as a 'cultural product' acquired within the full context of social, economic, political, and temporal environments (Lister, 1983; Hopwood & Johnson, 1986). (p. 3)

In accounting history, as in the discipline of history, methodological schisms have divided the field. In terms similar to Tilly (1991), Previts *et al.* (1990b, p. 1) describe the distinction between "history as a social science, with an emphasis on interpretation, criticism, and method, and history as a descriptive narrative form." Funnell (1995, p.3) identifies the "new accounting history" as associated with Foucault and the "alternative paradigm" in accounting. He provides the following references, amongst others, as examples: Loft 1986, Stewart 1992, Walker 1991 and Willmott 1986. This "new"

history challenges the traditional accounting history and Funnell describes the schism which has formed as occurring in true ethnocentric style:

> Consequently, traditional accounting historians have taken the announcement of the coming of the new accounting history as a declaration that they can expect trouble, with the result that many of the defenders have retreated to the barricades to resist the intruder. Currently foremost amongst the defenders of the place of traditional history in accounting is Tyson (1990, 1993, 1995) while Tinker et al. (1988), Hopwood (1983), Hoskin & Mcve (1986) and Armstrong (1987) are strong champions of the new accounting history. (pp. 10-11)

Funnell does identify that there is hope of a reconciliation between the two methodologies in accounting history, but makes a plea against "dogmatism and intradisciplinary intolerance" (p. 34).

Rather than provide an integrating mechanism for accounting, it appears that history has fallen prey to, and even become the vehicle of, the same divisions that are observed in accounting as a whole. This limits its ability to inform and provide a communication mechanism since outputs from the across the methodological divide will be viewed with suspicion or not observed at all as the divided factions of accounting history find their publication niches in "home" territory. This is not to preclude history from ever having an integrative role in accounting. It is suitable for the role because of its unique perspective as identified by Easton (1991), Remenyi (1979) and Tilly (1991). At the present time, however, it is not regarded as likely to provide fruitful approaches until its own schisms are healed.

6.2.3.2.2 Culturalist studies

A culturalist perspective, incorporating critical and cultural studies and feminist scholarship was heralded in the communication field as a possible means of integration (O'Keefe, 1993; Swanson, 1993), but the outcome was not as expected. Swanson (1993) describes the role of these perspectives in communication:

> At one level, culturalist approaches might be thought to exert a centripetal influence on the field of communication through their contention that every subfield should be redefined to focus on questions of power and representation. That is, the thematic preoccupations of culturalist approaches might be viewed as a meeting ground for uniting disparate, context-based communication subfields. In fact, culturalist approaches turn out to have further fragmented the field by

> their essential posture of critique. In rejecting as wrong-headed or trivial the viewpoints, methods, and questions of other subfields, and in insisting that all subfields be redefined in terms of culturalist themes . . . these approaches have distanced themselves from the context-based subfields and simply added more centrifugal forces to the cacophony in the field of communication. (pp. 166-167)

O'Keefe (1993, p. 77) argues that the essential characteristics of culturalist studies made it unlikely that it would produce consensus in the field: "The very success of cultural studies as an intellectual movement combined with the resistance within cultural studies to identification of a subject matter, makes it unlikely that cultural studies will stabilize into a coherent research tradition."

A related argument in accounting is that a particular epistemological approach, realism, may be able to provide a "lingua franca" between the mainstream and radical elements in accounting thought (Johnson, 1995, p. 503). This suggestion is similar to the view adopted in the communication area where it was believed that the unifying epistemological perspective of the culturalist approaches might have been able to facilitate the convergence of the currently disparate specialties. As Johnson himself indicates, part of the difficulty is that the mainstream would need to abandon its dogmatic stance to embrace such a dialogue.

> However, it would be naive to be optimistic about the probability of such events, for if such a 'lingua franca' were to be adopted, the hegemony of the mainstream would be hampered since such a mode of communication entails discarding the claims of epistemic privilege. (p. 503)

That is, the mainstream has everything to lose and, from the perspective within the area, nothing to gain from dialogue. Schreuder (1984) also notes the immensity of the problem approached from the methodological perspective. Based on analysis of the underlying methodological premises, he concludes "a synthesis, however, cannot be totally achieved in my view. In the final analysis the debate concerns some very basic choices. I am unable to reconcile or transcend the divergent viewpoints involved" (p. 216). Given the "location" of culturalist studies within the "alternative paradigm" in accounting research and the lack of any perceived likelihood of dialogue between the two areas, this specialty area is also unlikely to provide an integrative mechanism in the short to medium term.

6.2.3.2.3 International research

Another specialty area with the potential to promote integration is the international perspective of a discipline. In common with history, it provides a contextual understanding for considering a discipline's role and development. The international perspective of a discipline such as economics or accounting has implications for virtually all the separate subject areas and specialties, for example, international labour economics, international finance, international financial accounting. It also provides a geographical context, incorporating different social, cultural, political and institutional environments. These contexts cut across many specialty boundaries and provide a means for creating understandings between specialties based on common contextual features. Given the discussion of the reason for history not presently fulfilling an integrative role for the social sciences and accounting in particular, the lack of methodological partisanship which is likely within an international perspective is a key feature for the integrative function. Methodological openness may be linked to the need to research aspects of many different subject areas or to the need to span cultures within the area. Schreuder (1984) comments on the effect of internationalisation on the attitudes of researchers in accounting:

> A second reason for the growing awareness of methodological problems in accounting research is probably the internationalization of the accounting research community. Partly as a result of similar trends in accounting practice, researchers are increasingly exposed to other cultures. Thus they encounter different perspectives on accounting research, practice and policy. They come to appreciate how these perspectives are determined by cultural, social and institutional factors. And they learn how much their own perspective takes for granted which isn't equally evident to researchers from other cultures . . . These experiences lead only naturally to a critical reflection upon their *unstated* assumptions. (pp. 213-214, emphasis in original)

The internationally aware researcher cannot help but be sensitive to differing attitudes to truth and knowledge across cultures. With this in mind, the dogmatic ethnocentrism that refuses to accept ideas from another methodological approach may be broken down. Without resulting in less rigorous research, this may ultimately lead to Antle's (1989) fluid boundaries.

In the case of accounting, there is evidence that the international perspective has remained open to a range of influences. For example, the American Accounting Association's International Accounting Section's *Report on research methodologies in international accounting* (AAA, 1993) not only identifies the lack of a dominant research approach, but also indicates that it is not the wish of the committee to suggest that there are a set of preferred approaches (p. 3). The report indicates the breadth of methodologies used in international accounting research, spanning field and case studies, archival research, including capital markets studies, survey research, classification and contingency studies.

The breadth of research methodologies is also understood to exist in an inclusive conceptualisation of the subject area:

> The broadest, if ambiguous, possible definition of international accounting research is any accounting research that transcends national boundaries. Such research need not be explicitly comparative by dealing with more than one country. It could be a single country study that reflects on the experiences of other countries. Our understanding of accounting embraces finance, stock market activities, the work and organization of accountants and auditors and factors that influence and impinge on their role and status in society. Our understanding of research embraces theoretical (normative, positive) as well as empirical. It also includes experimental and behavioral research. We include field and case studies as well as archival research. (AAA, 1993, pp. 2-3)

The pervasive contribution of international accounting across the functional specialties in accounting is the part of the reason it is identified here as potentially playing an integrative role in accounting. This integrative view of international accounting is reflected in the recent debate in the US, sparked by the American Assembly of Collegiate Schools of Business's Accreditation Council's requirement for an international dimension to be included in curricula. Concerns have been raised about the lack of skilled staff to teach the area and a lack of teaching materials, the material which should be covered and the degree of emphasis it should receive. An important issue to come out of the discussion is how international accounting is viewed by academics and practitioners as being "located" in the accounting discipline. The views in the literature vary from recommending specialist courses in international accounting through to the integration of the international perspective into each functional course (e.g., Agami, 1991; Cohen, Pant

& Sharp, 1991; Fleming, Shooshtari & Wallwork, 1993; Gray & Roberts, 1984; Mintz, 1980; Mueller & Zimmerman, 1968; Seidler, 1967; Sherman, 1987; Stout & Schweikart, 1989; Stout, Wygal & Volpi, 1988). The perception of international accounting as an integral aspect of the functional areas of accounting, while not new, is gaining support from academics and practitioners (Agami, 1991; Fleming *et al.* 1993; Gray & Roberts, 1984; Sherman, 1987; McClure, 1988; Stout *et al.*, 1988). It is seen that it may offer, as a result of its unique nature, a "vehicle for improved study and research in domestic accounting" (Seidler, 1967, p. 775).

It is well accepted that there are international aspects of all the major subject areas, but there is also a sense in which an international perspective turns the focus around and puts the subject matter into a new light. For example, the attempts to classify accounting systems internationally has given us a perspective on national accounting systems that would not have been possible otherwise. Another example is the way that Choi (1974) turns the issue of voluntary reporting and stock exchange requirements around by taking an international perspective.

International accounting is developing a literature base and has been identified as an emerging specialty area in accounting (e.g., Choi and Mueller, 1978; Evans, Taylor & Holzman, 1985; Samuels and Piper, 1985), although the nature of this body of literature was still described as eclectic (Leung, 1988) in line with the discussion above. It has achieved a significant level of recognition within the academy, with the international section of the AAA having become the second largest section (Conover, Salter & Price, 1994). International accounting is also potentially well placed to provide an integrative mechanism given that one of the areas of fragmentation identified in Chapter Three was along national lines, particularly between the US and the UK.

In summary, out of the possible approaches considered in this section, the use of international accounting as a vehicle for integration shows many of the positive characteristics of history or culturalist studies without the identified impediments. The next section considers the widely suggested interspecialty research strategies.

6.2.4 Interspecialty research

Encouraging interspecialty research as an integration strategy is most commonly recommended at the disciplinary level, and therefore referred to as interdisciplinary research strategy. The types of approaches recommended and the problems they encounter apply equally at either the interspecialty or interdisciplinary level, so they are reviewed here as potential approaches to the integration of accounting.

Strategies for encouraging interspecialty research fall into two broad categories. One approach is to alter the education of potential researchers or encourage experienced researchers to "re-tool" in additional areas to provide them with an interspecialty background. This is a longer-term strategy and may involve the creation of interspecialty subjects for university study. It also relies on the commitment of individuals to the interspecialty research goal. A second approach is to bring together researchers trained in different areas to collaborate on specific research projects. These strategies, past experience of their success, and their prospects in the accounting discipline, are discussed in the following sections.

6.2.4.1 Individual interspecialty research

Interspecialty research undertaken by individual researchers may take one of two forms. First, the goal may be to cover a number of specialty areas and in so doing achieve (except in rare cases of ability) only a superficial understanding of each. Green (1966, p. 53) noted even at that time that, "there are now more books and journals than any individual can possibly read."

A second possibility, recommended by Campbell (1969), is to have individuals who "specialise in an interdisciplinary" area. In accounting an individual or small group may choose to study a particular "cross-over" area: for example, applying attribution theory to explain market reactions to the release of unexpected earnings figures. Each interspecialty area is itself manageable, but by encouraging many researchers in this style, the structure of knowledge would be "knitted" together.

In the case of either the broad but shallow approach or the specialisation in an interspecialty area, the problems faced by the researcher are inherent in the characteristics of institutionalisation and the motivations for specialisation described in Chapters Three and Five. The researchers and their output belong to no specific specialty area and so there may be no clear publication outlet for the research, or at best a limited number of outlets. Partly as a result of reduced opportunity to publish in the "top" journals in an area and partly because of difficulty in measuring quality of research outside the clearly defined specialty boundaries, the researcher's output may not receive appropriate recognition. This suggests that such roles would be more suitable for already-established scholars who may be in position to attempt research with a less direct link to promotion and research funding. This is a difficult task for researchers who may have spent half of their working lives in very specialised area and achieved a level of recognition. It involves going right back to basics in other areas of the discipline and reading widely in the case of the broad but shallow approach - all for little reward. Experienced researchers may be able to concentrate on particular interspecialty areas related to their first area of interest and with less extensive "re-tooling" be able to produce research output. This is definitely a more likely prospect than the very broad approach. To make a difference in a discipline, however, a reasonable number of researchers would need to be working in the interspecialty areas to produce the "knitting" effect described by Campbell (1969).

In summary, the structure of disciplines institutionalised in universities, including accounting, suggests that achievement of interdisciplinary research output through individuals by broad but shallow training approach or specialisation in interspecialty areas is most likely to be viable for already-established researchers. It is a lot to ask, however, as they may never receive the recognition for their work that they may otherwise have enjoyed. Further, isolated individuals taking on such a task may not be sufficient to make a significant impact in the discipline.

Locker (1994) challenges researchers in the Association of Business Communication to undertake individual "interdisciplinary" research in the field of business communication.

Locker identifies the field as not yet achieving the status of a discipline, and she suggests that even once it does become a discipline it will still be interdisciplinary in nature (pp. 148-149). Even though the field is described as interdisciplinary, Dr. Locker points out that not all the research is interdisciplinary (p. 138) and calls for researchers to read widely and use multiple methods appropriate for addressing their research questions (p. 139). She also identifies four reasons that such research is difficult, even in an interdisciplinary area:

1. Doing interdisciplinary research requires even more time and effort than research in a traditional, narrowly defined discipline.
2. When we work in different paradigms, we disagree about what kind of data is relevant, what kind of analysis is convincing, and indeed what research questions are important.
3. When we import concepts or apply methods from other fields we are more likely to make conceptual and methodological mistakes.
4. Interdisciplinary research is less likely to be cumulative. (p. 139)

The last point is an interesting one, since it based on the concept of accumulation of knowledge in a paradigmatic sense, suggesting that, "when various researchers within business communication are working in different traditions and on different questions, knowledge in the field moves forward much more slowly, if at all" (p. 141). Yet in the very next line Locker argues, "In spite of its difficulty, interdisciplinary research is desirable - perhaps essential if we wish to advance knowledge" (p. 141). This apparent conflict captures the difference between developing specialised accumulations of knowledge within isolated specialty areas (or disciplinary areas in an interdisciplinary field such as business communication) and of bringing together the specialties to create practical, relevant knowledge which can be applied to situations or lay the foundation for new discoveries with "real-world" implications. This is a crucial tension for academic pursuits with reward structures in universities based on publication output, but the need for relevance as socially supported institutions. Kent (1994) in reply to Locker highlights the difficulty in separating these strands within the university environment:

> We avoid and even castigate interdisciplinary research in business communication because interdisciplinary research gets no respect within the academy, not because interdisciplinary research is difficult. One way to garner respect is to conform to the expectations that exist within our institutions, and one way to conform is to specialize. . . . If we truly desire to promote an ecumenical

> disciplinary attitude in the area of business communication, we might begin by inspecting our motives for devaluing interdisciplinary research. We may discover that we privilege specialization and discount interdisciplinariety because the search for truth has been defined for us in advance as a quest that only specialists may undertake. We may discover, in other words, that epistemology takes a back seat to politics. (pp.154-155)

Smeltzer (1994), as part of the same debate, questions the extent to which individuals succeed in producing interdisciplinary research even in an eclectic area such as business communication:

> She [Dr. Locker] states that business communication is interdisciplinary; however, I am not sure that many of us are interdisciplinary. We simply bring our own disciplinary training to the forum and tend to ignore valuable contributions, made by those using a different perspective. Dr. Locker encourages us to be tolerant of interdisciplinary research. I seriously question the extent to which we have much interdisciplinary research. Rather, what we presently have is individual research projects from various perspectives. And these perspectives are not integrated into one research project. (pp. 158-159)

Campbell (1969) describes two cases of attempts to encourage both the broad-but-shallow and the interdisciplinary specialist approaches to interdisciplinary work as in one case "disappearing in an institutional sense" and the other as reverting to the narrow specialist structure.

> The Yale Institute of Human Relations did not fail in any scholarly or achievement sense, it just disappeared in an institutional sense. In very considerable part this was erosion due to the persistent pressures of departmental organization such as we have been describing. The departments remained the dominant budgetary and promotional units. The truly interdisciplinary specialists, no matter what their productivity, were denied and delayed as to tenure and no doubt salary. The route to academic adequacy remained through disciplinary centrality, through achievements respected by X-ologists and Y-ologists at other universities. Even the strikingly successful early interdisciplinary contributors for the most part moved their careers to safety within traditional disciplinary departmental bounds. So through career changes in some departments and personnel changes in others, the interdisciplinary specialists disappeared. (pp. 338-339)

The Social Relations department at Harvard University was Campbell's other example. In this case the internal structure of the department was identified as reverting to a unidisciplinary structure, and the goal of developing courses in specialised

interdisciplinary areas was never put into practice, although "the goal of breadth, of anti-narrowness, continued to receive lip service long after it had begun to be abandoned in practice" (p. 339).

There is limited evidence of an interspecialty approach and the necessary tolerance of different methodologies this implies in accounting[24]. The hegemony over research approaches in America (Tinker & Puxty, 1995; Williams & Rodgers, 1995) suggests that the dominant schools perceive no difficulty or flaw in their methodology which would suggest a need for interspecialty training or broadening of research approaches to accounting. The positivist school has been characterised as particularly dogmatic and unlikely to admit other points of view. Mouck (1990) describes the situation as follows: "In short, the Rochester School exhibits a tendency toward academic imperialism which is clearly contradictory to Lakatos' call for methodological tolerance" (p. 238).

The British and American sectors of the critical school in accounting have remained largely apart from the "mainstream" accounting research to criticise roundly both its political dominance (e.g., Tinker & Puxty 1995; Williams & Rodgers, 1995) and its research methods (e.g., Hines, 1988; Tinker, Merino & Neimark, 1982; Whitley, 1988). There are some notable exceptions. One was the Chua (1986a) article, surprisingly published in *The Accounting Review*. Chua sought to place the mainstream positivist view of accounting in a context of possible epistemologies and ontologies and to encourage a wider range of options in research. The publication of Christenson's (1983) criticism of the methodological premises of the Rochester School of accounting in *The Accounting Review* was also unusual. Tinker and Puxty (1995, p. 260) argue that the publication in *The Accounting Review* of these two articles which threaten the mainstream and at the same time the continued rejection of other such papers "is a more powerful instrument of control . . . for its very isolation points more eloquently than zero publication could, to the repressive processes at work."

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[24] There have been successful inter-disciplinary accounting conferences. However, the nature of these conferences is to bring other disciplinary perspectives into accounting rather than an attempt to unite fragmented accounting research.

Hopwood (1988) provides two reviews of Watts and Zimmerman's (1986) book, which he describes as a "formal statement and elaboration of a research programme" (p. 621). He outlines his reasons for doing so as follows:

> Publishing two reviews side by side in this way is part of an attempt to further encourage the broadening of terrain of accounting research. It suggests a principle of proliferation and plurality of criteria as ways to achieve this, rather than narrowing down. It seems a fruitful way forward for accounting research. (p. 621).

Hopwood's view is supported by other researchers in accounting who argue for methodological and interspecialty tolerance (Antle, 1989; Funnell, 1995; Hakansson, 1978; Johnson, 1995; Mattessich, 1972; Schreuder, 1984; Williams, 1992). Antle (1989) is an example in which the author discusses the application of different methods to an issue - earnings management, and the application to different issues of a method - agency theory. The strategy is consciously to add missing pieces to the puzzle in the specialty gaps. He recommends "fluid boundaries to encourage integration, rather than segmentation, of our perspectives." (Antle, 1989, p. 109).

Unfortunately, to date such attempts at directly encouraging cross-methodological viewpoints has had little effect in reducing the fragmentation of the research in the area. Although accounting has been quite eclectic as a discipline, drawing upon economics, psychology, sociology, and information sciences among other disciplines for theories and methodologies, there has been little move within the discipline to break down the barriers leading to fragmentation by interspecialty work. Analysis of the nature of the divisions suggested by Bricker's analysis (i.e., largely between the agency, positivist approach and the rest of research), is not likely to be perceived as necessary by those within the positivist or other schools, nor is it likely that such work will be seen as contributing to either literature base.

6.2.4.2 Interspecialty team work

Interspecialty team work seeks to overcome the problem of the superficial knowledge of the area which may be achieved by one interspecialty expert by bringing together a range of experts in their fields to work as a team. Creutz (1990, p. 11) defines interdisciplinary research as "two or more scientists of quite different patterns of education and

experience providing individual and nearly equal inputs to the understanding of the matter being researched." Creutz goes on to argue that while this is rarely achieved precisely, especially since there is little likelihood that there will be agreement over what constitutes "equal inputs," it does provide a goal.

Interspecialty team work faces many of the same barriers as identified in the previous section. The teams must be comprised of researchers prepared to work in ways which may not be considered acceptable research in their "home" specialty. The output may once again receive little recognition both in terms of publication outlets and for promotion purposes for the individual researchers. King (1975) describes the problem for future studies in forming multidisciplinary teams:

> In fact the problem of futures research and the universities is part of the larger question of how university structures and attitudes can be modified to allow for an increasing extent of interdisciplinary contact and of multidisciplinary team formation. This need is widely recognized and receives a great deal of lip service, but in fact the results, especially in many of the older and traditional universities, are far from convincing. Amongst other obstacles, career lines in a particular specialization are clear and good work leads to promotion; so time spent in multidisciplinary work is all too often regarded as a diversion from 'serious' research and teaching and detracts from career prospects. (p. 44)

As well as these difficulties, team work by specialists in their respective areas faces the difficulty of breaking down language and concept barriers. Campbell (1969) describes the tendency for specialist groups to form their own languages in the context of disciplines:

> A basic law is that speakers of the same language, once isolated into separate communities, drift into local idiosyncrasies and eventually unintelligibility, once the discipline of common conversation is removed. His tendency produces departmental linguistic idiosyncrasy even for shared contents and referents. Furthermore, as Edmund Leach and others have noted, such idiosyncrasy may be exaggerated as an ingroup solidarity device. What is despised as jargon by the outgroup may be the shibboleth of adequate professional training by the ingroup. (p. 337)

Easton (1991) includes the language problem along with others as a barrier to effective interspecialty team research:

> People who are trained under different traditions about what constitutes an appropriate research question, what kinds of issues are even researchable, what makes for acceptable data against mere opinion, what is adequate evidence, and

> when a proposition is to be considered confirmed or not, are not likely to find it simple to work together on a common project. (p. 16)

Easton uses the experience in multidiscipline teams in area studies to indicate the difficulties and ultimately the lack of cohesion in such attempts at team work. Ultimately a series of perspectives were achieved, each separate and distinct in approach rather than an integrated view (Easton, 1991, p. 16).

Experience suggests that the team seems to only provide a microcosm for the same effect experienced on a discipline-wide level. The case of Tomkins, Rosenberg and Colville (1980) described in Chapter Three, provides an example involving accounting and closely related disciplines in which the difficulties in communication created by the factors described by Campbell (1969) and Easton (1991) played an important role.

The closest example of this type of approach within the accounting discipline has been the use of committees to conduct research, where it was felt that it was necessary to represent a range of alternative views; for example, *The corporate report* (Accounting Standards Committee, 1975); *Report of the Inflation Accounting Committee,* (Sandilands, 1975); *Corporate reporting: Its future evolution*, (Stamp, 1980). The American Accounting Association has produced a large number of committee generated research reports, but perhaps the most famous of these are, *A statement of basic accounting theory* (AAA, 1966) and *Statement on accounting theory and theory acceptance* (SOATATA) (AAA, 1977).

Generally the committee approach has occurred because of competing political interests in the outcome of the research rather than as a means of seeking interspecialty expertise. However, criticism of the success of such projects has been quite common. Stamp (1985, p. 120-121) argues that the committee approach is required when there are political differences which need to be represented, and that the best hope is that the committee will be able to define clearly the areas of difference as a basis for further research. Peasnell (1978), in discussing SOATATA, is generally dismissive of committees as successful mechanisms for research: "Committees of this sort can hardly be expected to break fresh ground; committees cannot efficiently conduct research, as

SOATATA rightly points out (p. 49)" (p. 217). He also indicates that the investment in research perspectives of the members plays a role in the outcome:

> SOATATA catalogues areas where there is a *lack* of consensus. I have tried to show in the previous section that some of the differences identified by the committee are more apparent than real.
>
> This leads one to wonder why the committee should look so hard for differences and inconsistencies in contemporary theory. The high-powered membership of the committee might, I suppose, be partly to blame: Demski, Revsine, Staubus and Sterling are well-known for their advocacy of particular approaches; whereas a committee composed of lesser lights, having given fewer published hostages to fortune, as it were, might have found it easier to identify areas of agreement. (pp. 224-225, emphasis in original)

The difficulties of using less well-published or experienced researchers on the other hand are also numerous, both for their own promotion/publication potential and for the prestige of the report.

Hakansson (1978) also argues that the use of committees, particularly those appointed by academic associations, to conduct research is unlikely to be successful (p. 719). He argues that if the research was worthwhile then in accordance with a free market for research individual researchers or self-selected teams would undertake the research. The difficulty in the context of seeking to integrate the accounting discipline is that self-selected research teams are most likely to be formed from within the one specialty or with closely related areas. This follows from the partly sociological constraints of identifying a common interest with another researcher through contact with him or her or through knowledge of their work. The extra effort required to communicate across specialty boundaries, and the pressure to publish in a timely fashion in better-rated journals, are all factors which mitigate against the spontaneous self-selection of teams for interspecialty work in accounting. As Stamp, Peasnell and Hakansson point out, however, the success of appointed committees has also been limited, suggesting that overall the interspecialty teamwork approach appears to offer little hope of success in the near future.

Stamp (1985) also points out that when research committees are created with representatives of different views there is no method in accounting for resolving disputes

about accounting principle and that many accounting problems are theoretically and pragmatically insoluble (p.119). Stamp describes the difficulty as follows:

> Finally, disputes about accounting principle can rarely be solved by experimentation. Variables cannot be isolated, and it is generally impossible to state unequivocally that one decision is better than an alternative when the choice of one pre-empts that of the other. Thus it is virtually impossible to establish conclusively that one solution will invariably be better than another, except in the most simplistic circumstances. (p. 119)

This leads to the next category of potential strategies to be discussed after this section is summarised, that of establishing a general theory.

6.2.4.3 Summary

Four methods of achieving interspecialty research were discussed in this section: interspecialty research by individuals either in broad areas in which the individual would have limited expertise or in specialist interspecialty areas and interspecialty research conducted by teams, either appointed or self-selecting. Although this broad strategy has received a lot of support in the literature reviewed in terms of its benefits, many researchers refer to this as lip-service and comment on the tendency for researchers to revert to narrow specialisms. This outcome seems to apply even where institutionalisation in terms of recognition by universities and publication of sympathetic journals exists.

In the case of accounting, the prospects of success are identified as being low based on past experience and the already significant institutionalisation of the specialty areas in departments of universities and journals. Also, in common with communication, the chasm which divides some areas of accounting research poses a barrier to the success of this approach; as Swanson (1993) comments, "And, there have been attempts to create connections between subfields . . . In the main, however, these efforts have come to little, which is perhaps an indication of the major differences in orientations and interests that separate the sub-fields" (p. 169).

6.2.5 General theory

The strategy explored in this section is the development of a general theory for the accounting discipline. The acceptance of a general theory offers the hope of a coherent and consistent framework on which to base a common language and perception of the subject area so that the elements of a discipline may be integrated through such a core understanding.

The development of a general theory has been elusive in the physical sciences (Hawking, 1988) and seems significantly less imminent in accounting or business studies, than in the social sciences as a whole. Easton (1991) describes four potential sources of a general theory in the social sciences and notes their failure to achieve widespread acceptance.

> Talcott Parsons long ago proposed the development of a theoretical structure that would provide a common set of concepts for all the social disciplines. General systems theory has moved in the same direction. And, of course, Marxist theory has always laid claim to providing such a body of thought. Most recently comparative historical sociology also has been offering itself as an alternative overarching theoretical approach with pretensions to universality. (p. 17)

A general theory at the level of the social sciences is not required to achieve integration at the disciplinary level for accounting; however, the difficulties experienced at that level and in other social science disciplines are reflected in the accounting discipline which has drawn from reference disciplines in the area.

At the level of individual disciplines, Beniger (1993, p. 22) suggests that the aim of achieving a general theory for a discipline is not realistic because "except for economics and linguistics, after all, none of the social sciences or humanities has achieved anything approaching even theoretical consensus, let alone a grand synthesis theory." While this does highlight the difficulty of achieving this solution, the reference to economics as one of the few disciplines to have been successful is interesting for accounting, which draws on economics and finance within its largest cluster grouping (Chapter Five). It raises the possibility, which proponents of that area would be eager to support, that the best strategy for generating a general theory in accounting would be to draw even further on

the economics discipline and develop those theories for the accounting context. The difficulty with this solution from the perspective adopted in this thesis is that it supports the dominance of a single methodological and epistemological area and would exclude the more pluralistic, creative integration described in Section 6.2.2. The requirement for inclusiveness or alternatively a theory which is so conclusively demonstrated as to achieve the aspirations of a general theory for all research perspectives in accounting seems unimaginable at this time, but then home computers were not imagined a generation ago either.

Researchers in accounting have identified the benefits of a general theory and also the current absence of one (Belkaoui, 1987, p. 212; Hakansson, 1978, p. 722; Mattessich, 1972, p. 483; Stamp, 1985, pp. 119 & 122; Williams, 1992). Henderson and Peirson (1977, p. 35) describe the status of accounting theory: "Whatever the merits of these criticisms, no new general theories were published after 1970. After 170 years of effort the attempt to produce, in one major study, a general theory of accounting appears to have been abandoned." Attempts to develop a conceptual framework for financial reporting indicate that accounting professions of several countries recognise the need for a general framework for one area of accounting. The success (or lack of it) of these conceptual framework projects and the International Accounting Standards Committee's international accounting standards highlight continuing problems achieving a general theory even within the more restricted area of external financial reporting in accounting (e.g, Fleming, 1991; MacLennan, 1989; Nussbaumer, 1992; Taylor, 1987; Taylor, Evans & Joy, 1986).

The continuing debate over whether or not accounting has **any** theories (Williams, 1992) suggests that a general theory is not a solution for the near future. This is not to say that such an aim is not a worthy one, within the broad criteria described earlier. However, at this time the apparent prospects for early success are judged to be low.

6.2.6 Summary

Three broad alternatives have been reviewed for their previous success and possible application in accounting. Each approach suffers from limitations and barriers to successful application in accounting at the disciplinary level. However, each option also holds some promise, and with a task as demanding as the integration of a discipline, no effort should be spurned. Efforts have been made to encourage the adoption of interspecialty perspectives and there is also the possibility that history may still play a useful role. Evaluating each strategy under the three broad groups suggests that the use of international accounting as an integrating agent holds the most potential for success at this point in time. It lacks the methodological schisms and dogmatic approaches which mar other approaches and its breadth of application across the functional areas of accounting are key credentials for its potential success in the integrative role. The specific characteristics and preconditions for the successful use of international accounting are discussed in the next section.

6.3 INTERNATIONAL ACCOUNTING AS AN INTEGRATING AGENT

International accounting has been identified in the previous section as the strategy with the most potential to stimulate integration in the short to medium term. International accounting researchers pursuing their aims may unconsciously achieve the goal of promoting integration in accounting research. However, this process may be enhanced by identifying the preconditions and characteristics of international accounting which will facilitate this role and by recommending ways of protecting and promoting its viability for the task.

This section considers in more detail the characteristics and preconditions associated with international accounting successfully facilitating integration in the accounting discipline. It also discusses methods for establishing the existence of these factors.

The following sections consider first the two key characteristics of international accounting which were identified as important for its integrative role earlier: methodological tolerance and broad subject relevance within the discipline. Following that, more specific preconditions are identified.

6.3.1 Methodological tolerance

The importance of an acceptance of a wide range of methodological approaches within an integrative specialty was discussed in Section 6.2.3.2. International accounting has been identified as eclectic in style (AAA, 1993; Leung, 1988). This tolerance is linked to the relatively recent development of the field (AAA, 1993) suggesting that it has not yet had time to develop a coherent research tradition. For international accounting to continue to be in a position to play an integrative role it is important that the field does not coalesce into a tightly defined specialty with a single acceptable methodology. The potential impact of this on the viability of international accounting as an identifiable area within accounting research is discussed in Chapter Eight. If accounting is to become an integrated discipline within which different specialties provide the creative impetus and are part of the cumulative body of knowledge, then international accounting is the specialty which has been identified here as the most likely one to help promote that integration and also provide a model for the integrated specialty form of disciplinary structure.

With this in mind, past concerns over the lack of rigour of descriptive studies in international accounting and a preference for more statistical rigour are a cause for concern. Even so, Wallace and Gernon (1991), for example, balance a call for more rigorous theory and method with the admonition "ICFAR [international comparative financial accounting research] should continue to be eclectic and researchers should continue to addresses the different descriptive, conceptual, and methodological issues with vigor and open-mindedness" (p. 256). Less encouraging, however, is Prather and Ruesschoff's (1996) mode of assessment of the quality of research in international accounting. Their analysis of quality relies largely on a concept of methodological rigour, and suggests that the types of research which are published in the older,

established journals (AR, JAR and IJA) are of better quality. This is also linked to the reduced propensity in more recent years for the IJA to publish descriptive studies (p. 9). While this type of analysis does have a precedent in the literature, the implied link between quality and the methodology accepted in journals which are recognised to be dominated by the positivist approach (AR and JAR) is likely to import that hegemony into international accounting research. If it is to be a force for integration, quality research methods in international accounting should be judged in a much more individual way as described by Sunder (1991). In particular it will be important that the respected journals in the area, accept a wide range of good quality research.

In order to observe the current state of methodological diversity in international accounting, the variety of areas researched and the methods used may be an indicator. Chapter Seven reports a co-citation analysis and the application of the fish-scale mapping technique to map the intellectual structure of international accounting. This technique is useful in enabling an assessment of the methodological tolerance present in international accounting as it identifies the key literature from the perspective of the researchers in the area and reflects the clusters of related works. The application of classification systems of research method, school of thought, and subject area are considered in relation to the literature clustered, in Chapter Eight.

6.3.2 Broad relevance to subject areas in accounting

For international accounting to be in a position to perform an integrating role it is important that it not only have the capacity to be relevant across a wide range of accounting subject areas, but also that it is actively researched in those areas. While the future applicability of the international perspective allows its integrative role to be extended, its current placement in terms of broad subject relevance is related to its potential impact on the literature in the short to medium term.

It is important from this perspective to establish those areas in which there are significant current clusters of research work in international accounting and that the field and publishers remain open to work in a broad range of areas.

The analysis of the international accounting literature in Chapters Seven and Eight is designed to provide evidence of the range of topic areas currently viewed as important by researchers.

6.3.3 Degree of integration

A key factor mentioned in both the above characteristics is the openness of international accounting. This may be captured in the level of integration of the international accounting field itself. It is paradoxical that to play a role in integrating the discipline of accounting, it is important that the specialty identified for the role is not itself highly integrated. This follows from the discussion above and also from the observation that international accounting would then be just another isolated specialty area in the accounting discipline and would not have existing options for reaching those specialties which are isolated (Figure 6.3). Table 6.1 summarises this precondition for international accounting to act as an integrating agent.

TABLE 6.1 Fragmentation and International Accounting as an Integrating Mechanism

Structure international accounting / Probability of acting as an of integrative agent	Low	High
Fragmented		×
Integrated	×	

In considering the likelihood of international accounting performing the integration role, the current level of integration in the area is a factor to be considered. This may be assessed using the measures of fragmentation, homogeneity and cohesion described in Chapters Three and Five.

6.3.4 Reference disciplines

While international accounting may be shown as incorporating a range of methodological approaches and subject areas within the accounting discipline, it is important that the basis for the research is not drawn from areas unused in the rest of the literature. Take

for example, the hypothetical case in which international accounting research draws heavily from the psychology literature for its theories and methods and the rest of accounting literature largely ignores that reference discipline. It would follow that despite international accounting's methodological tolerance, broad relevance, and low level of integration, it would not have any common methodological or theoretical basis with the rest of the accounting literature. This would make it very difficult for international accounting literature to remain anything but isolated from the rest of accounting, and it would be very difficult for it to fulfill a role as an integrating mechanism.

One way of assessing the underlying frame of reference for research is to consider the school of thought to which it belongs or its reference discipline. The characteristic which is identified as important in this case may be re-expressed as requiring that international accounting have a set of reference disciplines related to the accounting literature as a whole to be in a position in the short term to link currently isolated research areas.

6.3.5 Knowledge accumulation pattern

Chapter Five developed the concept of two different knowledge accumulation patterns which have in the past been associated with the social and physical sciences, but which are called Type A and Type B in this thesis as a result of the lack of recent evidence linking them specifically to either the physical or social sciences. It is argued that for international accounting to be able to integrate existing accounting research specialties, the knowledge accumulation pattern in its research output should not be substantially different from the patterns across which it is trying to integrate. This is because the acceptability of research within areas which have a clear pattern of knowledge accumulation may in part be determined by whether or not the research fits with the pattern. For example, from the perspective of a Type B knowledge accumulation pattern area, if research cites only the most recent literature and fails to consider the context of those ideas or their seminal works, the research may be rejected as superficial or poorly substantiated. Similarly from the Type A perspective, research which refers to older

literature may be seen as out of date. This is symptomatic of the more fundamental underlying differences between the knowledge accumulation styles of the two approaches. Type A is based on the notion that knowledge may be accumulated progressively without reference to the earlier context or environmental/contextual factors surrounding the research. Type B research is more tied to the context and evaluates knowledge contributions in the context of the knowledge that went before.

For international accounting to be well placed to contribute to knowledge across a broad range of accounting areas, and in so doing provide an integrating mechanism, it is important that it is not at the extreme end of either knowledge accumulation types in contrast to the patterns observed in the accounting discipline.

6.3.6 Summary

Five factors have been identified as important in the context of the characteristics necessary for a specialty to perform an integration role and the knowledge accumulation model of Chapter Five. As discussed earlier, there is no theory to guide the selection of an approach to integrate fragmented disciplines, and so these factors have been deduced based on the literature which identifies potential reintegration strategies and the elements of knowledge accumulation developed in Chapters Three and Five. They are qualitative in nature and it is not possible to specify the precise degree to which each must be observed in the international accounting literature. Rather, a general match between the structure of international accounting and the factors identified here is sought. This may be achieved by applying the co-citation method, discussed in Chapter Two, and the fish-scale mapping technique, developed in Chapter Five, to a sample of the international accounting literature. This analysis is reported in Chapter Seven, and the potential for international accounting to act as an integrating agent is analysed in Chapter Eight.

6.4 SUMMARY

In the absence of a theoretical basis for approaches to reintegrating fragmented disciplines, a process of identifying previously recommended or applied approaches was used to develop three broad categories of re-integration strategies. Each strategy's potential for successful enhancement of the level of integration in the accounting discipline was considered and the use of international accounting as a specialty area was identified as most likely to achieve the purpose.

Five key factors which affect the likelihood of international accounting's success in the role were identified. These factors are: methodological tolerance, broad relevance across subject areas, having a low level of integration, having reference disciplines in common with accounting, and knowledge accumulation patterns being similar to accounting as a whole. The co-citation analysis technique provides a means of establishing the current state of the international accounting intellectual structure in conjunction with the fish-scale mapping technique. The next chapter reports the results of a co-citation analysis of international accounting literature, and Chapter Eight draws on other sources of information to identify the current status of international accounting in relation to the five identified factors.

CHAPTER SEVEN
A MODEL OF KNOWLEDGE ACCUMULATION IN INTERNATIONAL ACCOUNTING

7.1 INTRODUCTION

Chapter Five described a model of knowledge accumulation based on a sociological perspective of the process of producing research. A mapping approach was developed and applied to Bricker's (1987) co-citation study of the accounting discipline. The map developed provides a visual representation of the features of knowledge accumulation for each cluster grouping within the discipline. Chapter Six identified international accounting as a sub-discipline of accounting with features and inherent characteristics which suggest it may be an appropriate integrating agent for the accounting discipline.

The purpose of this chapter is to provide evidence of this possibility by reporting the results of a co-citation analysis of international accounting research literature. The co-citation technique has been described and its strengths and weaknesses discussed in Chapter Two. A similar approach to that used by Bricker (1987) is adopted because of its widespread acceptance in the literature, and because it provides a useful basis for the comparison in the next chapter of the intellectual structures of the accounting discipline and international accounting.

The next section outlines the research process and results, beginning with the selection and collection of data. Section 7.3 describes the creation of the database, its preparation for analysis and some of its characteristics. Following that, the processes of analysis and clustering the co-citations are described. The results are presented with a dendogram in Section 7.5. A fish-scale map of the intellectual structure of international accounting is developed in the next section and its key features analysed. Finally, the chapter is summarised.

7.2 DATA

The relevant data for this study are the citations from published work in the international accounting area. Journal articles are the most commonly used source of citations in citation studies. The citations are obtained either directly from the journals or indirectly through indexing services such as the Social Sciences Citation Index (SSCI). Chapter Two reviews some of the large number of studies which use this approach. The focus on journal articles as sources of citations does not prevent other categories of published research from being included as cited works which are the basic data element for the study. However, some researchers choose to limit the cited works for analysis to journal articles only (e.g., Brown & Gardner, 1985a & b). In this study, as in Beattie and Ryan (1991), all citations except references to case law are included. This is in accordance with the definition of research adopted in Chapter Five, and also allows a greater understanding of the full range of research which constitutes the international accounting knowledge base. Concerns over the quality or contribution of documents such as working or conference papers is reduced because, as cited documents, they must have been referenced in a refereed journal article which suggests that they must be of sufficient quality and/or interest to be so cited. The choice of methods for obtaining the citations is discussed below.

7.2.1 Source of citations

Key decisions regarding the source of data are: the selection of source journals, the original entry source (e.g. citation index *vs* original articles), and the time period. Some of these choices are co-dependent and are discussed in detail in the following sections.

7.2.1.1 Identification of important journals

As briefly indicated above and in Chapter Two, there are two main sources of citations. One is a citation index, the other is a manually created database from selected journal articles. A number of factors are important in this decision, and the first one to be discussed is the identification of important journals in the subject area of interest. In this case "important" implies that it has "academic prestige" specifically in the subject area of

interest (Culnan & Swanson, 1986). The outcome of this analysis can then be used to evaluate the available citation indexes to see whether or not they include the relevant literature. If the citation index approach is not viable, the choice of journal for manual data entry also draws on the outcome of this analysis.

The first method adopted to try to identify the impact of journals in international accounting research literature used the Professors Agami and Kollaritsch's (1983) *Annotated international accounting bibliography (The Bibliography).* The frequency with which journals were cited in *The Bibliography* was counted. This reflects the extent to which different journals contributed to the publication of articles in the international accounting area as assessed by the authors of *The Bibliography.*

The *International Journal of Accounting Education and Research*[25] (IJA) was cited most frequently (146 times) with *Accountancy* second (117 times) out of the 35 periodicals included in the bibliography. The IJA also appeared across the broad range of topics covered by Agami and Kollaritsch (1983), suggesting that within the international accounting area it is not narrow in its focus (Gustafson & Kuehl, 1974).

Other indications of peer recognition of a journal are its ranking in studies of journal quality and its use in review and citation studies. Howard and Nikolai (1983) rank the IJA twenty second in a full list of journals, including those from other disciplines, based on a survey of accounting educators (see also Hull & Wright, 1990; Nobes, 1985). Out of the specifically accounting and finance journals included in the list, the IJA ranks tenth (Reeve & Hutchinson, 1988). Benjamin and Brenner (1974) ranked it twelfth, Houghton and Bell (1984) found that it had the ninth highest quality rating. The IJA appears, therefore, the most commonly used specialist international journal in such studies (e.g., Ball & Foster, 1982; Chung, Pak & Cox, 1992; Heck, Jensen & Cooley, 1991; Houghton & Bell, 1984; Leung, 1988; Needles, 1994; Reeve & Hutchinson, 1988; Schwartz, 1984). It is also recognised within the international field as an important journal and as having a long and consistent publication history, having retained the same

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[25] Subsequently renamed the *International Journal of Accounting.*

editor for the life of the journal (Leung, 1988, p.60; Mintz, 1980, p. 140). Needles (1994) describes why he selected the IJA for his study:

> . . . because it has the longest continuous history of published research in international accounting and for most of this time period was, in fact, the only outlet for this type of research in the United States. (p. 75)

The IJA is perceived by researchers in the area as an important, refereed, academic journal in international accounting. Professional journals are not appropriate for the purpose of this study, because the emphasis is on the structure of knowledge accumulation in an area. As Everett and Watson (1991) describe it in the context of a journal ranking based on citation analysis:

> The lowest ranked journals were the more applied or practitioner-oriented journals. This is not surprising as these journals are less likely to cite or be cited. This is not to imply that these journals do not play a significant role in the dissemination of knowledge, but rather that their role in the advancement of knowledge is less important. (p. 9) (See also Culnan & Swanson, 1986, p. 291)

Accountancy, while being highly cited in *The Bibliography* is not a refereed, academic research journal and was therefore not appropriate as a source for citing articles for this study.

A bias in the selection of important international accounting research journals is the possible exclusion of non-English language journals. Restrictions based on language are common in citation studies (e.g., Culnan, 1986; Downing & Stafford, 1981), although it must be recognised that an unknown bias may be introduced. This will be especially true of the current study and others in accounting if Gaffikin's (1987, p. 18) assertion that major theoretical expositions in the English language have had their methodologies derived from English writings in disciplines other than accounting rather than from ideas by writers in foreign languages within accounting. This suggests a strong barrier between the research output of accounting academics on the basis of nationality alone. Therefore, there may be structural differences in reference disciplines and methodologies between research conducted in English-language and non-English language countries.

7.2.1.2 Original entry source

Many citation studies draw their data from existing citation indexes. For example in accounting, Bricker (1987 & 1989), Gamble and O'Doherty (1985), Gamble, O'Doherty and Hyman (1987), and Streuly and Maranto (1994) use samples drawn from the SSCI. For studies such as Small (1993) which cover large numbers of disciplines, the only feasible approach is to use already existing databases. The use of an already existing index has the benefit of producing the data in computer readable form complete and ready for analysis. The disadvantages include the specific problems with how the data may be arranged in the index and the extent to which it covers relevant literature.

The SSCI has been used in previous accounting studies and is the most widely used index in social science citation studies. It does have some problems in that it is structured around the name of the first author only and does not always correct for similar author names or mis-spelled names (Beattie & Ryan, 1989; Brown & Gardner, 1985b). These difficulties may be overcome; however, the question of coverage of the relevant literature is very important.

While the SSCI is the most widely used citation index in the social sciences area, it does not include the IJA as a source for citations (SSCI, 1993). It also does not include other respected journals in the area such as *Advances in International Accounting* or the *Journal of International Business Studies*. So, while it would be possible to extract citations to particular international accounting researchers (which would have to be identified first), the only source of the citations would be from an area of the literature with a low number of international accounting articles (AAA, International Accounting Section, 1993). These difficulties suggest that the citation index is not an appropriate source of data for this study.

The alternative is to enter the citations into a database manually from the source documents. A number of researchers have used this approach in citation studies in accounting (e.g., Beattie & Ryan, 1989 & 1991; Brown & Gardner, 1985a & b; Hofstedt, 1976; McRae, 1974) This clearly has the disadvantage of being time

consuming (Paisley, 1990; Smith, 1981; Usdiken & Pasedeos, 1995). However, it also has the advantage of allowing the researcher to ensure that all due care is taken in creating the database. In particular, it allowed this researcher to allocate a unique identifier to each of the cited documents, and to check thoroughly that they were unique documents and that the ideas cited were as closely identified by that number as possible. This meant that some of the difficulty with the SSCI was overcome - where incorrect referencing by source authors causes confusion - and processing accuracy was heightened by using unique identifiers rather than first author (Garfield, 1979).

7.2.1.3 Number of journals and period

It is not feasible to identify, let alone include in a co-citation study, all international accounting literature. It is necessary carefully to choose a sample which is believed to be as representative as possible. The purpose of this research is to analyse the intellectual structure of international accounting literature from the perspective of research front literature, and to provide results comparable to previous studies; using the literature from journals as a source of citations is preferred. It may be that including citations from books, monographs, conferences, other journals not selected, and foreign journals may have altered the results.

Foreign journals are excluded as possible sources for citations for the practical reason that accurate entry of the citations would be impossible. This does not prevent citations from English language source journals to foreign language articles or books from being included, although other researchers have chosen to exclude them (Downing & Stafford, 1981).

In selecting a sample of source journals there is a trade-off between the number of journals and the number of years for which the citations could be entered, given the resource and time intensive nature of the process. Initially a period of five years with five journals was considered. There are two disadvantages in this approach. First, it does not allow the study of the development of the area over a longer period of time. Second, it means that either mainstream journals such as *The Accounting Review* or

Journal of Accounting Research or otherwise journals in specialist areas such as international taxation must be included in the sample. The difficulty with the mainstream journals is that it would then be necessary to determine which specific articles in the journals are international accounting articles for inclusion in the study. The definitions of international accounting as a subject area vary considerably (Locke, 1992) and an arbitrary approach adopted by the researcher may bias the results. Heck, Jensen and Cooley (1991) choose to exclude journals from their study for a similar reason. They explain that, "Adding such journals to the study would be difficult due to 'gray zone' decisions on many articles as to the degree to which they represent 'accounting' research" (p. 3).

A second reason to exclude mainstream journals is that the number of relevant articles may be quite a low percentage of the articles they publish, as mentioned above. This would mean that over a five year period the number of citations obtained may not be sufficient to analyse meaningfully.

The disadvantage of using additional specialist international journals, such as international taxation journals, is the difficulty of ensuring that the database is not unbalanced by too great an emphasis on one particular area of international accounting purely because there were more articles in a particular journal or because each article tended to cite more documents.

The option selected was to use one mainstream international accounting journal, the *International Journal of Accounting* (IJA), which had been identified as important in the subject area, and to include a longer period of citations to allow a time series analysis of the development of the knowledge base as part of further research. Westin, Roy and Kim (1994) make a similar choice and explain it as follows:

> An argument can be made for the use of several journals to represent a discipline. It is the opinion of these authors, however, that the use of a single, well selected, core journal is better suited for the methodology employed here. Since this method considers all citations stemming from the journal and makes comparisons across time periods, it is believed that the consistency provided by a single

> journal is preferable. (p. 27) (see also Cole, *et al.,* 1978, p. 229; Gustafson & Kuehl, 1974)

A disadvantage of this approach is that it effectively relies on the judgement of the editorial board of the IJA to select articles relevant to international accounting research for publication. It also means that the particular preference by the editorial board of the journal for (or against) a certain type of research may bias the sample. As mentioned above, however, a review of *The Bibliography* (Agami & Kollaritsch, 1983) indicated that the IJA was represented across a wide cross-section of subject areas. Also, since it was the most highly cited journal in *The Bibliography* it appears that the editorial board is successfully selecting international accounting articles of significant interest to key researchers in the area.

The citations from all articles in the IJA were entered for the period 1977 - 1993 inclusive (17 years) except for the last issue in 1993. All citations from these source articles are included in the study except for references to case law. The body of citations which form the data for analysis includes books, conference papers, working papers, official pronouncements, foreign language documents and all from any year before (and potentially including) the last source article year, 1993.

7.2.2 About the International Journal of Accounting

As Westin *et al.* (1994, p. 27) point out, when selecting a single journal it is important to consider the mission and editorial policy of the journal to ensure that it is appropriate. This section provides relevant details about the journal.

First issue: 1965

Editor: Prof. V. K. Zimmerman (for the life of the journal)

Circulation 1,200 (Schwartz, 1984; Spiceland & Agrawal, 1993)

Published by: The Center for International Education and Research in Accounting, University of Illinois at Urbana-Champaign.

Publication Policy:

> The aims of *The International Journal of Accounting* are to advance the academic and professional understanding of accounting theory and practice from an international perspective and viewpoint. The *Journal* recognises that international accounting is influenced by a variety of forces, e.g. governmental, political and economic.
>
> The *Journal* attempts to assist in the understanding of the present and potential ability of accounting to aid in the recording and interpretation of international economic transactions. These transactions may be within a profit or non-profit environment. The *Journal* deliberately encourages a broad view of the origins and development of accounting with an emphasis on its functions in an increasingly interdependent global economy and welcomes manuscripts that help explain current international accounting practice, with related theoretical justifications and identify criticisms of current practice. Other than occasional commissioned papers or special issues, all the manuscripts published in the *Journal* are selected by the editors after the normal refereeing process. (IJA, 1991)

7.3 DATA PROCESSING

The previous section discussed issues relating to sample selection. This section considers the more detailed aspects of the citation data selection and capture. The choice of computer software after an initial pilot study revealed difficulties with using spreadsheets is noted. Finally, procedures for ensuring the quality of the data and characteristics of the raw database are discussed.

7.3.1 Data entry choices

For each source article, the first issue confronting a researcher constructing a manual database, is what constitutes a citation? Since the purpose of the study is to analyse the structure of research in international accounting - specifically identifying the pattern of linked ideas which form the research base - the citations of interest in the source articles are only the ones actually referred to in the body of the article. Conventionally these are distinguished as references as opposed to items included in a bibliography that may not be referred to in the document. The emphasis on the pattern of linked ideas in this study

suggested that it is an important distinction which reduces the possibility of including citations which were only peripherally relevant.

The use of references only is a conservative approach designed to capture specifically linked documents. It means, however, that material which has been obliterated by incorporation (Merton, 1965) is less likely to be picked up since it may have been included in a bibliographical reference if not specifically cited. Since the nature of the obliteration phenomenon is either that authors feel the earlier work is so obvious it is virtually insulting to the audience to cite it or that authors may have been quite unconscious in their use of such a well-accepted concept or approach, there seems to be no clear link between the propensity to include a piece of literature which is fundamental to the work in this way but not referenced in a bibliography. Lacking any clear argument for why this might be so, the logical approach is to include only referenced material, and accept that, as with most other citation studies literature which goes uncited because of familiarity cannot be observed. There have been a number of studies which seek to "read into" the document the literature which is not cited, as reviewed in Chapter Two. This approach effectively involves second-guessing the author(s) of the document and while it may result in a larger number of citations, including material which would otherwise be obliterated, there is no evidence to suggest that this can be done accurately and reliably.

For the earlier years in the sample period, until 1982, the form of referencing adopted is by footnotes. This requires that every page of source article be checked for references. Subsequently, the referencing method is to use name and year bracketed in the text with a list of references (cited in the article) at the end. Unfortunately, editorial policy is not stringently enforced and some articles continued to use the title bibliography for what are actually references, while others used the title references for bibliographies. As a result it was necessary to check the body of each article against the references or bibliography to determine whether or not the citations listed are actually referred to in the article.

As mentioned earlier, all citations identified as specified above are entered into the database regardless of whether they are to working papers, conference papers, books or

foreign documents. Beattie and Ryan (1991) indicate the potential importance of citations to works other than journal articles, and identify a gap left by researchers deliberately excluding non-journal articles (p. 32). Information about the database including the number of books, conference papers and foreign documents cited is included in Section 7.3.6.

Self-citations were not removed from the database. Earlier literature is mixed in its approach to this issue. For example, Brown and Gardner (1985a), in assessing the research contributions of accounting faculty, remove self-citations, whereas Smith and Krogstad (1984), in their analysis of the achievement of the editorial objective of a journal, do not. The purpose of this study is to map intellectual links and not to assess the quality of individual authors, departments or journals. The potential (even if it is limited - Garfield, 1979 p. 245) for researchers to inflate their apparent impact on the literature by extensively self-citing will not significantly influence the linking of specific documents in the current study. This is because it is necessary for a document to be co-cited with another document by more than one source document to be included in the analysis. The refereeing process is likely to reduce the possibility that researchers could repeatedly cite similar sets of documents including their own in a spurious fashion (Garfield, 1979). Information regarding the level of self-citation is provided in Section 7.3.6.

Negative citations are references to earlier works that criticise or indicate the inappropriateness of the work to the current document. Downing and Stafford (1981) argue that it is not necessary to remove such citations:

> An author may cite a work not to acknowledge a source of his thought, but to criticize it. We do not consider this an error in the data as certainly as much intellectual progress is made in arguing against ideas as for them. (p. 221) (See also, Beattie & Ryan, 1989; Cole & Cole, 1973).

7.3.2 Pilot data entry

An initial period of six years, 1977-1982 inclusive, was entered into a spreadsheet using *Lotus 1-2-3*. Two spreadsheets comprised the structure of the database itself; one for

source articles and the other for citations. An original attempt to include all information in one spreadsheet proved too repetitious.

The difficulty encountered in the initial use of spreadsheets was that the capacity for the spreadsheet to be able to manipulate the citations data was very limited and the spreadsheets had to be split over several files and processed sequentially.

An alternative software medium was sought and on advice from the Massey University Computer Centre a data base package, *Paradox*, was adopted for the remaining years to be entered. The *Paradox* software has the advantage of specialist database management techniques such as the ability to restructure tables, better controls to prevent the loss of data, enhanced data handling capacity and the ability to import data from *Lotus 1-2-3* - ensuring that already existing data was not wasted.

The next section outlines in detail the *Paradox* database structure.

7.3.3 Software and database structure

Paradox is a Borland product, described as a relational database management program (*Paradox User Guide,* 1985, p. 1). The data elements are stored in *tables.* For the current study tables are made up of rows representing each observation and columns which are the attributes of the observation. Characteristics of the observations - the source article and their citations - are split over a number of tables to better use the capabilities of a relational database[26].

The central tables constituting the data base for this study are the Author, Source, Cited and Citations tables. These tables are linked using numeric codes. For example, each unique author has a code number which is used in the Author, Cited and Source tables to identify the author. Similarly each source article and cited reference is given a number which is used to represent that source and citation in the Citations table which lists each cited document code number against each source article code number. The structure of

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[26] This is referred to in technical terms as normalisation of the database.

each of these tables is set out in Tables 7.1 to 7.5 below and the database structure is provided as Figure 7.1[27].

Support tables include Sornoref (i.e., source articles which had no references); Foreign citations; Abbrev table to store often used abbreviations; tables constructed to check the internal consistency of the database like Repcheck; and tables to record citations deleted in the checking process as duplicate records, Delcit. The structure of these tables is set out in Appendix 7A.

TABLE 7.1 Structure of Author Table

Field Name	Surname	First Name	Author Id	Nationality	Author Link	Synonym
Field Type	A60	A15	S	A10	A2	S

TABLE 7.2 Key to Field Types[28]

A_	Alphanumeric (eg, A25). Any combination of characters and spaces up to specified width.
N	Numbers with or without decimal digits.
S	Short number - integers only between -32,767 and +32,767
_	Underlining a field name indicates a primary key
*	After field name indicates a foreign key.

Adapted from the *Paradox User's Guide,* (1985) and Simsion, (1994)

TABLE 7.3 Structure of Cited Table

Field Name	Title	Cited Id	Type of publication	Year	Reference	Author Id (5)*	Other Authors ?	New Edition Link

27 The database structure was developed based on advice from the Massey University Computing Centre. After the data had been entered Professor Ron Weber of the University of Queensland suggested a revised structure which would have streamlined the data entry and analysis. Since the improved structure required significant changes to the database it was decided to forgo the revision rather than risk damaging the data. In further work in this area it is intended to undertake the proposed restructuring before proceeding with further data entry. Note that while the proposed structure improves the efficiency of the database, it does not affect the accuracy of the output.

28 A foreign key is a primary key from one table included in another table as a cross-reference (Simsion, 1994).

Field Type	A125	N	A5	N	A60	N	N	N	N	N	A1	N

TABLE 7.4 Structure of Source Table

Field Name	Source Id	Title	Journal Name	Year	Volume	Issue	Author Id (3)*			More authors?
Field Type	N	A100	A20	N	N	N	N	N	N	A1

TABLE 7.5 Structure of Citations Table

Field Name	Source Id*	Cited Id*
Field Type	N	N

Figure 7.1 is an entity-relationship model of the database structure where the boxes represent entities[29] and the lines are relationships. The crows foot represents a "many" relationship indicated by the presence of a foreign key. A single joining line shows a "one" relationship, the circles show an optional relationship and a short line across the joining lines is a compulsory link (Simsion, 1994). The diagram maps the relationships in the database as follows. A Source may have many authors but must have at least one. An author may have a source article, but does not have to. A Cited entry may have many authors, but must have at least one. Each author may be (but does not have to be) an author of a cited document. The Citations entity represents the many to many relationship between the source articles and the cited documents. A source article may cite many cited articles but may cite none. A cited article may be cited by many sources, but must be cited by at least one source.

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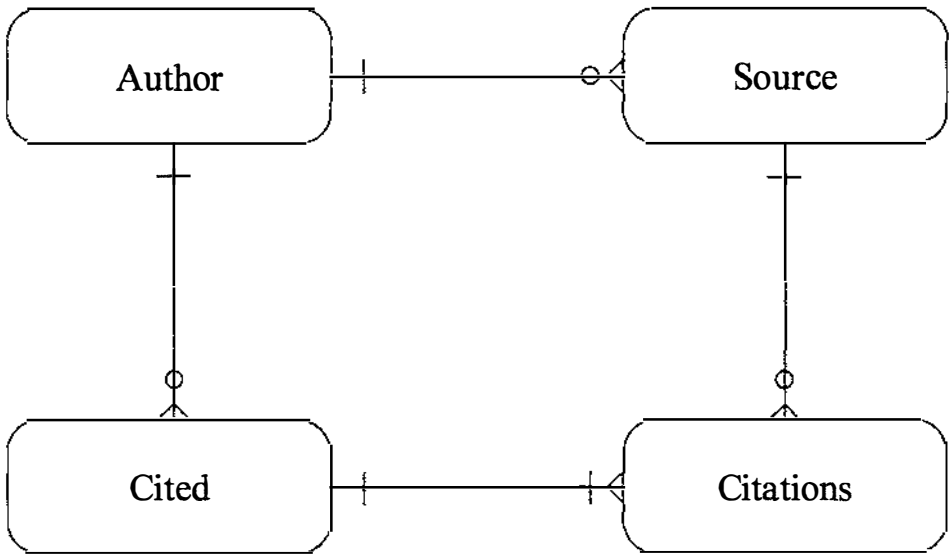
[29] This is problematic in the case of the many to many relationship between the sources and the citeds. In order to resolve this the citations table is effectively a relationship between the citeds and the sources and could be represented as a diamond following the Chen Convention (Simsion, 1994, p. 74).

FIGURE 7.1 Database Structure



7.3.4 Data Entry Procedure

As indicated in Section 7.3.1 the first step in the data entry procedure is to determine which references in the source article are cited in the text. Next, the authors for the source article and the references identified as relevant (Citeds) were written into a notebook. The authors were checked against authors already in the database (also checking for similar names and initials) and where there was no existing entry the next unique Author Id number was written in the notebook for that author. Where an author was already in the database the previously assigned Author Id number was entered in the notebook. Source table entries are necessarily unique except for the Author Id, so those details were entered after checking the author and finding the Author Id or allocating a new one. In the case of the Cited works, where the author (or a similar author) already existed in the Author table, the Author Id was used to search for the work in the Cited table so that only unique citations were entered into the Cited table. As a result of error in the referencing of citations by source authors or an oversight in the process of data entry there were occasions when references with the same titles and different authors (different spelling, for example) were identified. These were either cleared-up at the time

using the *Accounting Literature Index* by Heck, Derstine and Huefner (1992) or removed in the grooming process (see Section 7.3.5). If the reference was already in the database, its unique Cited Id was written into the notebook next to the author's name and Author Id number. The hand-written notebooks were a useful check on the accuracy of the entries in the database. Where no existing Cited entry was found a new Cited Id number was allocated to each cited work. The authors and citeds were then entered into their respective tables. Finally, the Citations table was created using the Source Id number, and entering for that source each of the Cited Ids from the notebook.

This describes the process for developing the main database. As an adjunct to this a number of other tables were created to support the main database. These tables have been illustrated in Appendix 7A. On the whole, their supporting purpose is obvious from their structure. The Sournoref table was created as a check so that only source articles listed in this table are expected to be absent from the Citations table.

7.3.5 Data Grooming Procedure

Although the procedure described above contained many controls, the database was carefully groomed after the data entry process was complete. The grooming procedures were designed to identify data entry errors as well as errors on the part of the source authors in their citations. Some basic checks for consistency in recording were made to ensure that, for example, all Financial Accounting Standards Board (FASB) standards and pronouncements were titled in the same format so that they were listed together alphabetically.

Downing and Stafford (1981) point out that:

> Undercounting can occur if a publication is cited through its metamorphosis from manuscript to article to book. This could result if the articles or working papers leading to a book are cited by some researchers and the book itself is cited by others. (p. 221)

While they make only a "casual attempt" to eliminate this problem, a more thorough effort to remove these multiple citations to essentially the same idea was made in this data grooming procedure. The focus of the study is on the intellectual relationships

between documents, and division of citations across different versions of the same document could reduce the ability of the analysis to identify such patterns. A search for new editions of books and progressions from conference papers or working papers to published articles was made by searching the database by author and title. All developments of a work are treated as "new editions" and while all the citations were retained in the database they were cited as one work by linking them with an additional key, as shown in the Cited table (Table 7.3).

7.3.6 Database characteristics

This section provides a description and some analysis of the features of the database of citations and their relationship with the citing articles. An understanding of the characteristics of the whole data set is important before proceeding to co-citation analysis because of the number of documents which are not clustered. The broad base of citations provide the bigger picture of the character of the research literature, while the co-citation analysis defines the areas of intellectual consensus and current and emerging knowledge structures.

7.3.6.1 Citation rates

For the 16 volumes (42 issues[30]) entered as the sample there were 348 source articles referencing 4,502 unique documents. The total citations were 5,787, an average of 16.63 citations per source article[31]. The source articles in Bricker's (1987) study had an average of 25.6 citations per article. Gustafson and Kuehl (1974) report the average citations per article for one journal from each of the discipline areas of finance, management and marketing. In each case the average increased over the period of the study. The authors suggest that the average rate of citation may be an indirect measure of the growth in the literature of a discipline. In 1971, the latest year included in the sample, the average rate for finance was 13.7 per article, for management, 18.7 per article and for marketing, 13.1 per article (p. 447). This suggests that the average

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30 Note that the IJA changed its system of issuing journals from two per year up until 1988 to four issues per year thereafter.

31 Note this is a similar number to the manual processing undertaken by Usdiken and Pasedeos (1995). Bricker (1987) used the SSCI and had 428 source articles generating 10,911 useable citations.

citation rate per article for international accounting is at a similar level to finance and marketing some 25 years ago, when their literatures were less developed. The higher rate for accounting as a whole may well be similar to the current rates for these other business discipline areas. Apart from a potential link with the growth of the literature, the lower average citation rate per article may have implications for the levels of citation frequency for documents which are discussed next.

Of the unique documents, 680 were cited more than once, with the maximum number of citations being 36 for Choi and Mueller's (1978), *An introduction to multinational accounting*. There were 420 references only cited twice. Table 7.6 shows the number of unique documents cited at each citation level.

TABLE 7.6 Frequency of Multiple Citations

No. of Times Cited	No. of Citeds	No. of Times Cited	No. of Citeds
2	420	11	2
3	130	12	1
4	55	13	3
5	28	14	1
6	16	16	2
7	8	18	1
8	5	20	1
9	2	36	1
10	4		680

The lack of depth in the citation patterns is reflected in the fact that only 15 per cent of the unique documents cited were cited more than once, and further, over 60 per cent of the documents cited more than once were only cited twice. This suggests that within the literature there is a low level of consensus regarding the important documents (Cole, Cole & Dietrich, 1978; Cole & Zuckerman, 1975). This may be a function of the relative youth of the sub-discipline. A related finding is Heck *et al.*'s (1991) analysis of the authorship of the IJA. They found that it was unusual for an author to publish more than one article in the IJA, "with only 21 (8.75%) out of 240 contributors having an adjusted

frequency greater than 1.00" (p. 11). The large number of different authors would contribute to a low level of multiple citations in a sub-discipline lacking in a strong underlying theory or having low consensus. Whether the high level of author "turnover" is a function of the low productivity of international accounting researchers (perhaps related to difficulties in access to data) or is a characteristic of the subject area or purely a characteristic of the journal cannot be established in this study. It is clear, however, that there is a low level of consensus between the source authors regarding the important work in the international accounting area, since a high level of consensus would generate high citation rates even with many different authors. Another related factor, introduced earlier, is the lower rate of citation per source article for international accounting. This may be a factor in the lower levels of citation or may be another characteristic of the same underlying feature, the relative newness of the subject as a sub-discipline. The lack of depth in the citation pattern is also reflected in the pairing of documents, and is discussed further in Section 7.4.2.

7.3.6.2 Non-English language documents

The number of non-English language documents cited by source articles was 205. Out of a total number of unique documents cited of 4,502 this indicates the bias of the sample toward English-language literature. This is not surprising in one sense, but in an area such as international accounting, suggests the need for a vehicle for greater international communication. A possible approach could be to make translations of abstracts of international accounting research articles available on the internet.

7.3.6.3 Highly cited documents and their characteristics

The ten top documents cited in international accounting literature over the period 1977-1993 are as shown in Table 7.7. The dominance of books and standards in the most highly cited literature is interesting in the context of Beattie and Ryan's (1991) argument (following Mullins, 1973) that "the publication of a book is indicative of the fact that a theory group within a discipline has reached an advanced stage of development" (p. 33). They also analysed the accounting and finance literature to identify the extent and disciplinary source of cited books. They found that book citations represent 17.9 per

cent of all cited items (p. 36), and that references to professional and governmental publications were 4.9 per cent of total citations (p. 46). The degree of citation of government and professional publications was seen as an indication of the existence of a gap, widely asserted to exist, between research and practice (p. 33). A difficulty with this type of approach is that there is no way of determining what is a high enough citation rate to suggest a close relationship or a highly formalised theoretical body. However, it is interesting to compare Beattie and Ryan's (1991) results with those of the current study to see how international accounting fares relative to the broader accounting discipline.

In this vein it is noteworthy that the ten most highly cited documents are made up of four standards, four books, and two journal articles. The books are all specifically international accounting books suitable for use as texts. This suggests that international accounting has reached the advanced state of development referred to by Beattie and Ryan (1991). It is also interesting that no book from another discipline plays a significant role in the core literature of international accounting. The standards are all issued by the FASB and suggest the strength of the American influence on international accounting literature as captured through this sample. Two of the standards relate to foreign currency translation and reflect the importance of this topic in the international accounting literature. The other two standards relate to more theoretical issues, and it is interesting to see the significance of measurement issues in accounting reflected in the high citation rates for SFAS 33. The journal articles are closely related, international

TABLE 7.7 Top Ten Highly Cited Documents

Citations	Author	Title	Type	Year	Reference
36	Choi, F. D. S. & Mueller, G. G.	An introduction to multinational accounting	B	1978	Englewood Cliffs, NJ, Prentice-Hall
20	FASB	Statement of Financial Accounting Standards No. 52, Foreign Currency Translation	S	1981	Author, Stamford, Conn.
18	Frank, W. G.	An empirical analysis of international accounting principles	J	1979	JAR, Autumn, 593-605
16	Mueller, G. G.	International accounting	B	1967	London, Collier-Macmillan
16	Nair, R. D. & Frank, W. G.	The impact of disclosure and measurement practices on international accounting classifications	J	1980	AR, July, 426-450
14	FASB	Statement of Financial Accounting Standards No. 8, Accounting for the translation of foreign currency transactions and foreign	S	1975	Stamford, Conn, Author
13	Arpan, Jeffery S. & Radebaugh, Lee H.	International accounting and multinational enterprises	B	1981	NY, Wiley
13	FASB	Statement of Financial Accounting Concepts No. 1: Objectives of financial reporting by business enterprises	S	1978	Author, Stamford, Conn.
13	FASB	Statement of Financial Accounting Standards No. 33: Financial reporting and changing prices	S	1979	Author, Stamford, Conn.
12	Nobes, Christopher W. & Parker, R. H.	Comparative international accounting	EB	1981	Oxford England, Phillip Allan

classification papers which have Professor Werner Frank as a common author. The use of rigorous statistical techniques in these articles in an attempt to address such a broad issue of basic importance to international accounting research attracted significant attention within the specialty.

7.3.6.4 Citations and publication type

Table 7.8 shows the number and percentage of citations by publication type. Compared with Beattie and Ryan's (1991) finding of 17.9 per cent for books, international accounting at 38 per cent is very much higher. Beattie and Ryan do not specify whether or not they included edited books in their classification for books; however, there is an argument to exclude those that are compilations of previously published articles. Even without the edited books, however, the international accounting literature citations were 31 per cent to books. Beattie and Ryan suggest that the use of books will vary between disciplines and it may be that international accounting varies significantly in its use of this publication type compared with the accounting discipline as a whole. This may relate to underlying differences in reference disciplines and this is explored in Section 7.6

TABLE 7.8 Citations by Publication Type

Publication Type	Documents	Percent
Journals (serial publications)	2839	49.06
Books (including edited books)	2171	37.53
Professional Standards	290	5.01
Conference Papers	109	1.88
Reports	107	1.85
Other	105	1.81
Dissertations	69	1.19
Working Papers	68	1.18
Laws & Regulations	29	0.48
Total	5787	100.00

7.3.6.5 Age distribution of citations

Figure 7.2 shows the distribution of citations by years after 1950. The relatively large number of citations in the 1970s and 1980s reflects the growth in available literature, and also a tendency to cite papers which are recent, but perhaps not as immediate as is expected for the physical science or Type A knowledge accumulation style. This point is explored for the clustered documents using the fish-scale map in Section 7.6.

FIGURE 7.2 Distribution of Citations to Documents After 1950

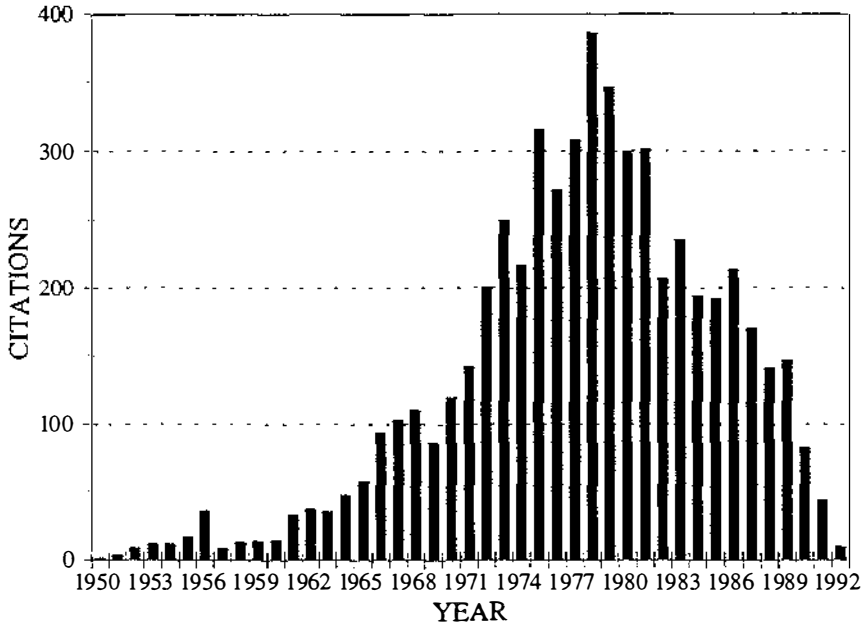
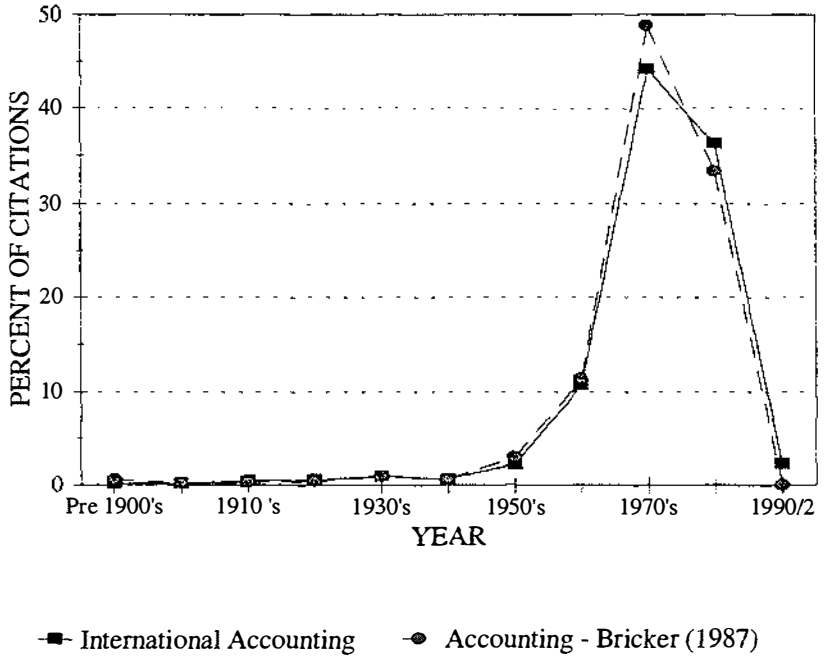


Table 7.9 and Figure 7.3 show the percentage of citations by decade of publication and provides a comparison with Bricker's (1987) study. The patterns are very similar with the larger citations in the later years, with the accounting literature as a whole citing a slightly greater proportion of older documents. The 1980s are shaded in the table to indicate that the comparison for that decade is not completely valid because Bricker's source documents were published between 1983 and 1986, so citations to documents in the latter half of the 1980s was not possible in the prior study. The closeness of the percentage achieved in Bricker's study to the international accounting literature suggests that the emphasis on more recent documents in the accounting discipline as a whole would have been reinforced by the inclusion of later years. Further research on this point could be achieved through a replication of Bricker's work.

TABLE 7.9 Distribution of Citations by Year

Years	Number of Citations	% of Total Citations	Bricker (1987) %
Pre 1900	12	0.21	0.61
1900 - 1909	10	0.17	0.18
1910 - 1919	23	0.40	0.23
1920 - 1929	35	0.60	0.41
1930 - 1939	56	0.97	0.94
1940 - 1949	38	0.66	0.65
1950 - 1959	128	2.21	2.94
1960 - 1969	618	10.68	11.38
1970 - 1979	2557	44.19	48.84
1980 - 1989	2101	36.31	33.39
1990 - 1992	136	2.35	0.00
Unknown	73	1.26	0.41
Total	5787	100.00	100.00

FIGURE 7.3 Percentage of Citations by Decade



7.3.6.6 Self-citation

The issue of self-citations was mentioned earlier. The database was analysed for self-citations by any of the three source authors recorded. There were 83 self-citations to 64 unique documents. This is very close to 1.42 per cent of the base figure in both cases. The low percentage of self-citations suggests that this is not a particularly strong tendency in the literature, despite its relative youth.

7.3.6.7 Summary

This section has examined the features of the total set of citations generated from the source documents. Some similarities with accounting literature as a whole were identified such as the distribution of citations by years. An apparent dissimilarity is the difference in emphasis on books as a cited publication source. This may suggest a different knowledge accumulation style or an emphasis on different reference disciplines. A striking feature of the citations as a whole was the low level of consensus in citing which results in low citation levels and many documents not being cited more than once.

The next section reports on the co-citation analysis conducted on these citations to develop a map of the intellectual structure of international accounting.

7.4 ANALYSIS

The next step in the study was to analyse the database of citations using the co-citation technique. The database first must be transformed into co-cited pairs and the frequency of each pair across all source documents is then counted. Pairs which qualify for inclusion in the analysis are then clustered into groups based on their intellectual links. This process is repeated by stepping through the co-citation threshold levels (CTLs) as described by Bricker (1987). The output of this analysis is a dendogram of the intellectual structure of research in international accounting.

7.4.1 Method of pairing

The process of forming the co-citation pairs was described in general terms in Chapter Two. Garfield (1979, pp. 99-102) following the method of Small and Griffith (1974), describes the process as a matter of sorting the cited documents alphabetically (presumably by author) for each source article and forming unique pairs of citations (that is, AB and not BA). In this study, the manual entry of the data allowed a refinement in the process of identification of documents by using unique identifiers for each document rather than author name (which may be misspelled etc.) and date. The pairing was performed in *Paradox* using a script (list.sc). The process of counting the number of times a pair is co-cited is easily performed in *Paradox* with a count query.

Any document which is cited only once cannot be co-cited more than once. A minimal requirement to reduce the impact of spurious referencing (discussed in Chapter Two) is to require co-citation pairs to be co-cited at least twice before they are used in the clustering procedure. For this reason documents which are cited only once are not included in the clustering procedure.

7.4.2 Analysis of pairs formed

The cited documents formed 11,377 co-citation pairs of which 1,217 were cited more than once (i.e., 10.6% of the total co-citation pairs). There were 9,981 unique pairs giving an average co-citation strength of 1.15. The reduction in the number of cited documents represented in pairs to be included in the clustering is shown in Table 7.10.

TABLE 7.10 Documents Remaining in Analysis

	(1) Total pairs theoretically possible	(2) - (1)	(2) Actual documents cited > 1 - theoretically possible pairs	(3) - (2)	(3) Actual number of unique pairs	(4) - (2)	(4) Actual Number of pairs co-cited more than once
Number of unique documents	4502		680		680		492
Number of pairs	10,131,751		230,860		9,981		1,217
Difference		(9,900,891)		(220,879)		(8,764)	

The theoretically possible number of pairs is calculated as:

$$\tfrac{1}{2}n(n-1)$$

where n is the number of unique documents included in the a pairs. Pairs calculated this way in the table are shaded. The lack of depth in the citation patterns, discussed in Section 7.3.6, causes the reduction in unique documents eligible for pairing to drop from 4,502 to 680. Out of the 680 documents which are included in the pairing procedure 492 are included in pairs which are co-cited more than once. The 188 remaining documents are isolated from those included in pairs which are co-cited more than once by the lack of linkages perceived by citing authors. These links may be built on in the future or they may be examples of spurious citing.

The difference between the theoretically possible number of pairs in column (1) and the theoretically possible pairs based on the actual number of documents eligible for pairing reflects the low consensus in the literature. The actual number of distinct pairs formed from the unique documents, column (3), varies from the theoretically possible pairings, column (2), because not every document is paired with each other document. A large number of combinations are missing and this reflects two possible factors. First, it may be a fragmentation brought about by source authors failing to link papers appropriately and second, it may be that not every paper may be sensibly linked directly with another. This latter aspect may be considered the "natural" fragmentation that occurs as a result of there being no recognised general theory of the universe ("Grand Unified Theory", Hawking, 1988; Campbell, 1969) which acts to link all knowledge. Until such a theory or knowledge becomes available there will be areas of knowledge which are not able to be reconciled. Knowledge accumulation may be improved at this point only by reducing the first category of fragmentation, which may be termed "unnecessary".

The final column of Table 7.10 reflects once again the low consensus in the literature, with a further loss of pairs when those only cited once are removed. The number of unique documents which will be represented in the clustering falls to 492 as a result.

Table 7.10 shows clearly the large reduction in the number of documents included in the further analysis. Small and Griffith's (1974) calculation of a measure of connection provides insight into the impact of this reduction. The number of unique documents included in the co-citation pairs are identified, and the theoretically possible number of pairs which could be formed from that many documents is then calculated. The measure of connection of the actual pairs achieved is obtained by dividing the number of actual pairs by the theoretically possible pairs, given the number of unique documents included in the pairs. That is:

a/t where
a = actual number of co-citation pairs formed, and
t = theoretically possible number of pairs.

The minimum possible number of pairs from n documents is n-1. The result of applying this test is presented in Table 7.11 below.

TABLE 7.11 Connection of Pairs

	1977-1993	1977-1981	1982-1986	1987-1991	1992-1993
Actual Unique Pairs (a)	9,981	1,194	3,796	3,045	1,744
Unique Documents (n)	680	238	390	322	252
Theoretical Maximum No. of Pairs (t)	230,860	28,203	75,855	51,681	31,626
Actual Connection (a/t%)	4.32%	4.23%	5.00%	5.89%	5.51%
Minimum Possible Connection (n-1)/t %	0.29%	0.84%	0.51%	0.62%	0.79%

Note that the number of years included in the last column is smaller than for the others, so the figures for a and n are not comparable with the other five-year time periods. The connection figure as a percentage is comparable, however.

The measures of connection are not similar to a measure of significance in that there is no theoretically "correct" level to be attained. The measure is purely descriptive of the degree of connection between the documents in a sample.

The measure may be understood by comparing the following extreme cases. If four unique documents formed six pairs (the theoretical maximum) by being cited by the same source document, then they would be:

Pairs	from	Source Document
1 - 2		A
1 - 3		
1 - 4		
2 - 3		
2 - 4		
3 - 4		

The minimum pairing for 4 unique documents may be achieved as follows:

Pairs	from	Source Documents
1 - 2		A
1 - 3		B
1 - 4		C

That is, if each source document links only one further document to Document 1, then the minimum number of pairs will be formed. As the number of unique documents becomes larger the minimum percentage of connection gets smaller. Thus for 10 documents the minimum number of pairs is 9, so the percentage connection would be 20 per cent. Therefore, as n increases the minimum number of pairs remains n-1 and the maximum ½n(n-1), so the minimum percentage connection falls. This is reflected in the last row of Table 7.11.

While the levels of connection reported for the international accounting literature are higher than the minimum possible, they are very much lower than 100 per cent. This suggests that a large number of documents are cited by different source articles and so are never paired. This indicates that the authors of source documents in the literature base perceive a great variation in the documents from which they draw ideas for adding to the body of knowledge. Small and Griffith (1974) refer to this as the level of connectedness in the literature.

There is no benchmark level for connection but it may be compared with the levels found in other studies, bearing in mind that there is no theoretical expectation regarding the relationships between measures of connection in or between various disciplines. Small and Griffith (1974) found that the level of connectedness for the whole Science Citation Index citations for the first quarter of 1972 to be 1.2 per cent. They suggest that this indicates that the structure is loose (p. 22); however, the effect of including multiple disciplines in the calculation is not clear. Bricker (1987) does not provide a calculation of the connectedness of the accounting literature, but there is sufficient detail provided to calculate the per cent age at CTL 3, which is Bricker's lowest CTL level. There were 1,513 pairs including 443 unique documents, giving a connectedness measure of 1.5 per cent.

These comparisons suggest that 4.32 per cent connection overall is not low relative to previous results. It appears that the relationship perceived between documents by citing authors is not as loose overall as accounting as a whole, with the rider that the figures for the accounting database as a whole were not available[32].

Another interesting aspect of the pairs is the low level of co-citation frequency, which is directly related to the low levels of individual document citation discussed in an earlier section. The structure of the data with respect to the frequency of pairs at each co-citation level is shown in Table 7.12 below.

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[32] It seems reasonable to conjecture however, that the connectedness measure is likely to be higher at higher levels of co-citation since only more highly cited papers are included in the calculation. This is also an area which has not received much attention in the literature.

TABLE 7.12 Frequency of Co-cited Pairs at each Co-citation Level

Co-citation Level	Number of Pairs
2	1042
3	128
4	26
5	9
6	4
7	4
8	3
10	1
	1,217

The underlying lack of consensus and potential for unnecessary fragmentation which the lack of depth in citing may indicate are factors relating to the low levels of co-citation.

In summary, the pairs have relatively high level of connectedness effectively at the cost of a low level of citation frequency. That is, as the pairs formed are summed across all the source documents, because the co-citation frequency is low, there are more *unique* pairs. Thus, while there is a sense in which the cited documents are more connected by the generation of a greater number of connections in the form of pairs, there is a sense in which there is a lower level of connection between the citing documents because they do not frequently cite the same pairs of documents.

7.4.3 Clustering procedure

There are a number of possible approaches to clustering; however, as discussed in Chapter Two, single link agglomerative co-citation clustering is the most widely used and was applied in Bricker's (1987) study. This clustering procedure was performed over the co-citation pairs cited more than once. Omitting pairs only co-cited by one source article is a minimal requirement to reduce self-citation and spurious citation problems.

The clustering was carried out by a *Paradox* script specifically designed for this purpose[33] (Cluster) using the first document in the first pair qualified to be included as the seed document. As shown in Chapter Two, the document chosen to seed the first cluster has no impact on the outcome of the clustering procedure.

The output tables from the clustering procedure have the form Cited Id 1, Cited Id 2. The next step is to identify the unique documents included in the cluster (script = cluscnt) and then attach the document title to the cited id number to begin the process of characterising the clusters (script = clustitl).

The characterisation or description of the clusters is based on a content analysis of the titles of the cited documents included in the cluster. Where the title was insufficient to identify the subject area or theme of the document, the abstract or complete document was consulted. In some cases, the source articles citing the clustered documents were checked to ensure that the cluster theme related sensibly to the subject of those articles.

The results of the analysis at each of the CTL levels is described in Section 7.5 along with measures of the level of fragmentation of the international accounting literature.

7.5 RESULTS

The clustering procedure was carried out over each CTL from two to five. Clustering at higher levels was not useful because of the small number of documents eligible for inclusion and the resulting small number of clusters generated. At CTL 2 all 1,217 pairs formed 42 clusters, while at CTL 5, 21 pairs formed four clusters. Each of the clusters was described in terms of its main theme. At the higher CTLs, the theme of each cluster was generally clear; however, as the CTL drops to two there were some clusters too diverse to characterise in themselves. In these cases the separation of the clusters into

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[33] Andrew Rowatt, the Accountancy Department's computer consultant, created this script and assisted extensively with the other scripts.

more specific groupings at higher CTL levels casts light on their substantive themes. To facilitate the process of understanding a cluster from its core outwards, they are presented beginning with the highest CTL. Appendix 7B provides details of the individual documents included in each cluster for CTLs 5 to 3[34]. The documents that clustered at CTL 2 are provided with additional information, including citation counts, in Appendix 7C.

7.5.1 Clusters at CTL 5

Table 7.13 shows the features of each cluster formed at CTL 5. Note that the cluster numbers shown are those produced by the clustering routine.

TABLE 7.13 Cluster Characteristics at CTL 5

Cluster Number	No. of Pairs	No. of Unique Documents	Cluster Description
1	18	11	Comparative/classification
2	1	2	Foreign currency translation
3	1	2	Accounting for inflation
4	1	2	Comparative - survey data
	21	17	

Cluster 1 dominates the structure at this level. It contains most of the documents and includes six out of the ten most highly cited documents. It is the only cluster at this level to contain books of the type which act to coalesce a discipline area and may be used as text books. These include: Arpan and Radebaugh (1981), Choi and Mueller (1978), Lafferty (1972), Mueller (1967), and Nobes and Parker (1981). This cluster also includes the key classification studies by Frank (1979) and Nair and Frank (1980) as well as Da Costa (1977/78[35]). Cluster 1 has a strong comparative and international accounting classification theme, and these works are perceived by citing authors to

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34 Clustered documents referred to in the discussion are also included in the references.

35 The IJA was issued in volumes which spanned the second half of one year and the first half of the next. This makes specifying the year of publication difficult. A single year is used in the database to fit with the database structure and calculations necessary.

constitute the heart of the international accounting sub-discipline. Cluster 4 at this level also has a comparative theme, but it contains the survey type studies which, along with Fitzgerald, Stickler and Watts (1979) grouped in Cluster 1, were widely used as data for later studies. Clusters 2 and 3 are dominated by professional body standards and reports. Cluster 2 contains two FASB statements on foreign currency translation. It is interesting that there is such a strong influence from these standards. It suggests both an American dominance in this sample of the literature, as discussed earlier, and also the lack of a major theoretical or empirical research analysis of the issue such as was present in the Comparative/classification literature.

While the professional bodies also dominate the third cluster, the input comes from both the UK and the USA, suggesting a broader influence on the literature. The Sandilands report may also be seen as incorporating an overview of available theoretical approaches and as such perhaps some theoretical basis is captured in this document.

7.5.2 Clusters at CTL 4

The clusters formed as follows:

TABLE 7.14 Cluster Characteristics at CTL 4

Cluster Number	No. of Pairs	No. of Unique Documents	Cluster Description
1	38	20	Comparative/classification
2	3	4	Foreign currency translation
3	2	3	Accounting for inflation
4	1	2	Capital markets
5	2	3	Multinational financial control
6	1	2	Accounting faculty publication
	47	34	

Not surprisingly, the comparative survey data documents of Cluster 4 at the previous level merge into Cluster 1 - Comparative/classification cluster at this level, and the Price Waterhouse (1975) survey is added. The comparative theme is continued with the addition of Mueller (1968) and Barrett (1976). The interest in the empirical approaches

to classification is also reinforced in the cluster at this level by the introduction of Nobes (1981) "An empirical analysis of international accounting principles: A comment." Harmonization and the effects of culture appear for the first time in McComb (1978/79).

The theoretical level of argument in the foreign currency translation cluster emerges at this level with the inclusion of a book by Hepworth (1956) titled, "Reporting foreign operations." The age of this contribution to the area is interesting and suggests that theory development has not progressed substantially from the 1950s. The *Accounting Review* article by Aliber and Stickney (1975) is similarly reasonably old for a journal contribution to the area to be a highly cited document on the topic.

Cluster 3, Accounting for Inflation, continues to have a strong input from the professional bodies with the only addition being another standard.

An interesting new cluster to emerge at this level has been characterised as capital markets literature. It includes Ball and Brown (1968) and Beaver (1968). Both documents are seminal works in the area of the relationship between earnings figures and capital markets. These are the first methodological documents without a specific "international" focus to cluster. The application of this approach to many countries with stock exchanges is an obvious extension of the original work, and of potential interest to international accounting researchers.

Cluster 5 is derived from a broader business literature and has as its focus the management of multinational businesses. This cluster is the first representative of a management perspective in the international accounting literature, which at the previous CTL was dominated by external financial reporting perspectives.

The final cluster at CTL 4 is a self-reflective academic type grouping, about journal rankings. It has an international flavour, including the "International variations in perceptions of accounting journals," by Nobes (1985), and appears to reflect an interest in academic publication and a review of international research in the IJA.

This CTL reflects an expansion in the types of topic areas clustering and is significant in the emergence of the capital markets cluster which is so influential in the accounting discipline as a whole.

7.5.3 Clusters at CTL 3

This cluster run with CTL > 2 required for documents to be eligible resulted in 20 clusters which had the following structure:

TABLE 7.15 Cluster Characteristics at CTL 3

Cluster Number	No. of Pairs	No. of Unique Documents	Cluster Description
1	129	59	Comparative/classification and foreign currency translation
2	1	2	Auditor independence
3	1	2	Foreign currency translation theory
4	4	4	Accounting for inflation
5	5	4	Capital markets
6	1	2	Attitude measurement
7	1	2	Transnational accounting
8	5	4	Developing countries
9	5	4	Multinational financial control
10	1	2	Information needs of users
11	1	2	Non-market economies
12	3	3	Accounting faculty publication
13	1	2	Accounting for inflation
14	1	2	Auditor independence
15	3	3	Accounting for changing prices
16	8	6	Financial disclosure
17	2	3	Developing countries
18	1	2	Professional requirements
19	1	2	Developing countries
20	1	2	Economic development
	175	112	

The foreign currency translation cluster merges with the dominant Comparative /classification grouping at this level. Culture is included in the first cluster at this level with Hofstede's (1980) *Culture's consequences*, Hofstede (1987) and Gray (1988). Foreign currency translation draws in several new documents and a new topic area, cash flow accounting emerges in the form of SFAS 95. Reflection on international accounting as a research area is evident in the inclusion of Scott and Troburg's (1980) *Eighty-eight international accounting problems in rank order of importance: A Delphi evaluation* and Choi's (1981) *Multinational accounting: A research framework for the Eighties.* It is interesting that both of these works appear as books. This suggests a greater degree of formalisation of the issue of what direction international accounting research should take than would publication as journal articles.

The comparative and classification topic areas in this cluster were boosted by the addition of a further eleven documents. Harmonisation and uniformity begin to emerge as an issue in this cluster, with the inclusion of an additional three documents. A new element emerging in Cluster 1 at this level is the subject of financial accounting theory with five documents added to the cluster, including the FASB's (1978) *Statement of financial accounting concepts no. 1*, which was one of the ten most highly cited documents.

Although this cluster has been described as Comparative/classification and Foreign currency, it is clearly diversifying into a range of external financial reporting perspectives with the addition of harmonization and financial accounting theory documents.

Cluster 2 is a new cluster at this level. It has an audit focus, and it appears from the source documents which cite the documents in the cluster that interest is particularly in the role of the accounting professional and independence. It is not integrated with Cluster 14 which has a similar focus, but is based in accounting research literature rather than regulatory or professional bodies' publications.

The emergence of a separate foreign currency translation cluster is indicative of a lack of integration of this material in the literature. The two documents which group to form Cluster 3 appear to differ from the other translation documents in their emphasis on a review or theoretical perspective.

Cluster 4 maintained its clear focus on accounting for changing prices and also remained solely constituted by professional body publications. It added to its international flavour with the New Zealand Society of Accountants' (1982) exposure draft on current cost accounting. It is isolated from Cluster 15 which is also a profession-based, international view of reporting for changing prices. It is surprising that these clusters do not merge, and in fact do not merge at any CTL, given that the Australian and Canadian professional bodies are quite commonly linked with the New Zealand body in discussions of accounting standard setting. This is especially true in the light of the Closer Economic Relations Agreement between Australia and New Zealand. Another inflation cluster which does not merge with the others is Cluster 13. This grouping is a little different in character from the other two in that it is made up of books written by accounting academics rather than publications of professional bodies. It has a more theoretical bias, and it is interesting that this cluster and the professional pronouncements cluster are not integrated in the literature.

The capital markets cluster, 5, begins to show its international character at this CTL with both the documents added dealing with stock exchanges outside the United States.

Cluster 6 is a methodological grouping dealing with attitude measurement. These documents are both drawn from an edited book titled, *Readings in attitude theory and measurement* by M. Fishbein (1972).

The seventh cluster is made up of documents produced by multinational regulatory bodies; the United Nations and the Organisation for Economic Co-operation and Development. The focus is on financial reporting to facilitate international investment.

Clusters 8, 17 and 19 all share a common theme in exploring the role of accounting in developing countries. There is no apparent systematic difference between the different clusters, and once again it appears to be a topic area which is specifically international in character but which has not been integrated in the literature. Cluster 20 is also related to the developing country theme and includes two documents by the same authors, Charles K. Wilbur[36] and K. P. Jameson. The subject area is economic development.

Cluster 9, Multinational Financial Control, increases by only one document and so the dominance of external financial reporting issues remains unchallenged at this level.

Clusters 10 and 16 have an external reporting emphasis. Cluster 10 focuses on the use of financial reports and does not have an international character. Cluster 16 emerges immediately as a relatively large cluster about financial reporting disclosure issues. While overall this cluster is not particularly international in character either by topic or publication venue, Choi's (1973) article, "Financial disclosure and entry to the European capital market" is an exception.

Cluster 11 which is a new one at this level contains only two documents and is clearly focussed on accounting in countries with non-market economies. Both articles were published in the IJA and this is a cluster with an international perspective.

The remaining cluster at this level, Cluster 18, is characterised as dealing with professional requirements. Both publications are by the American Institute of Certified Public Accountants and discuss education and experience requirements for accounting professionals. The specific inclusion of this cluster reinforces the perceived importance of professional issues in the international accounting literature.

At this level the international flavour of many of the clusters is clear, but there are a number which appear to link directly into the accounting literature as a whole. The lack of integration in some key topic areas for international accounting such as developing

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36 Citing authors varied in the spelling of this name, sometimes using Wilber.

countries, is indicative either of the early stage of development of this topic area or of a lack of awareness of the literature by some authors, or potentially there is a distinction being drawn by the citing authors which is not clear. The first possibility seems unlikely given the age of the journal articles included in these clusters, so exploring the other two options would be a useful strategy for writers in the area.

7.5.4 Clusters at CTL 2

At this CTL, the only assurance that the clusters formed for the first time are meaningful is that more than one document cited the co-citation pairs together. The chances of spurious citing by the same author or of less reliable linkages is a concern at this level. It does, however, serve the useful purpose of indicating the patterns of nesting for clusters formed at higher levels, as shown in the dendogram discussed in the next section.

At CTL 2, 42 clusters were generated with the following structure:

TABLE 7.16 Cluster Characteristics at CTL 2

Cluster Number	No. of Pairs	No. of Unique Documents	Cluster Description
1	1007	353	International financial and management accounting
2	1	2	Review of international accounting research
3	2	3	Far East countries
4	1	2	Survey of accounts (data)
5	6	4	Stock exchange disclosure requirements
6	13	8	International accounting education
7	1	2	Transfer pricing
8	4	4	Financial ratios and failure prediction
9	1	2	Research method
10	10	5	Value added reporting
11	1	2	Survey of accounts
12	1	2	Survey of accounts - UK
13	8	6	Information needs of users
14	1	2	Auditor credibility

15	10	6	Non-market economies
16	77	18	Accounting faculty publication
17	1	2	Statistics
18	1	2	Foreign currency translation
19	1	2	Research method
20	4	4	Transfer pricing
21	6	4	Factor analysis (statistics)
22	1	2	Japanese management
23	1	2	Multinational management
24	1	2	Earnings forecasts
25	15	6	Earnings forecasts - accuracy
26	1	2	Earnings forecasts
27	1	2	Capital asset pricing model
28	11	6	Predicting mergers & takeovers
29	1	2	Transfer pricing
30	3	3	Accounting policy change
31	6	4	Interim reporting
32	1	2	Accounting & economic development
33	2	3	Japanese financial accounting
34	1	2	German accounting
35	1	2	Macro accounting
36	6	4	Public sector
37	1	2	Soviet Russia
38	1	2	International diversification
39	1	2	IFAC
40	3	3	Financial accounting theory
41	1	2	Information content of security prices
42	1	2	Professional requirements
	1217	492	

The total number of pairs clustered matches the number included at the beginning of the clustering process (i.e., all those co-cited >1 times). Similarly the number of unique documents was checked for correctness.

Out of the total of 42 clusters, 37 appear for the first time at this level and the majority of these new clusters contain only two documents. This once again reflects the lack of depth in the citation patterns, discussed earlier, and it is important not to draw strong conclusions from the nature of the small clusters emerging at this level.

Of more interest is the nesting of all but one cluster existing at CTL 3 into the large first cluster characterised as International Financial and Management Accounting. This cluster has a strongly international flavour and is clearly the major group of co-citations for the international accounting literature. This cluster includes four more general areas, three of which are drawn directly from the accounting literature, while the attitude measurement cluster is drawn from psychology. The more general accounting areas are auditor independence, capital markets, and accounting for inflation. The other major cluster grouping, Accounting Faculty Publication which includes 18 documents at CTL 2, remains separate from the major international group suggesting that it has been clearly distinguished by citing authors.

Although the cluster does include significant management oriented clusters, especially if the macro accounting approach adopted in the developing countries studies is considered to be more management in style, the financial accounting emphasis is dominant.

The two other significant clusters, formed at CTL 3, which do not merge into Cluster 1 are Information Needs of Users and Non-market Economies. The exclusion of the latter cluster is surprising given that it adds four documents at CTL 2 and still does not merge into the main group.

The fragmentation of topic areas is evident in the clusters which form at CTL 2. Multiple small clusters form for the areas of survey of accounts, research methods, and transfer pricing.

International accounting education forms as a relatively large cluster of eight documents for the first time at this level. It includes four books, one by the American Assembly of

Collegiate Schools of Business dealing with "internationalizing" the business school curriculum.

Earnings forecasts is a fragmented area which forms two two-document clusters and a six-document cluster at this level. Overall, the documents in these clusters reflect broader accounting issues, with the exception of the Ferris and Hayes' (1977) study specifically relating to the United Kingdom, and Mak's (1989) article on the New Zealand situation.

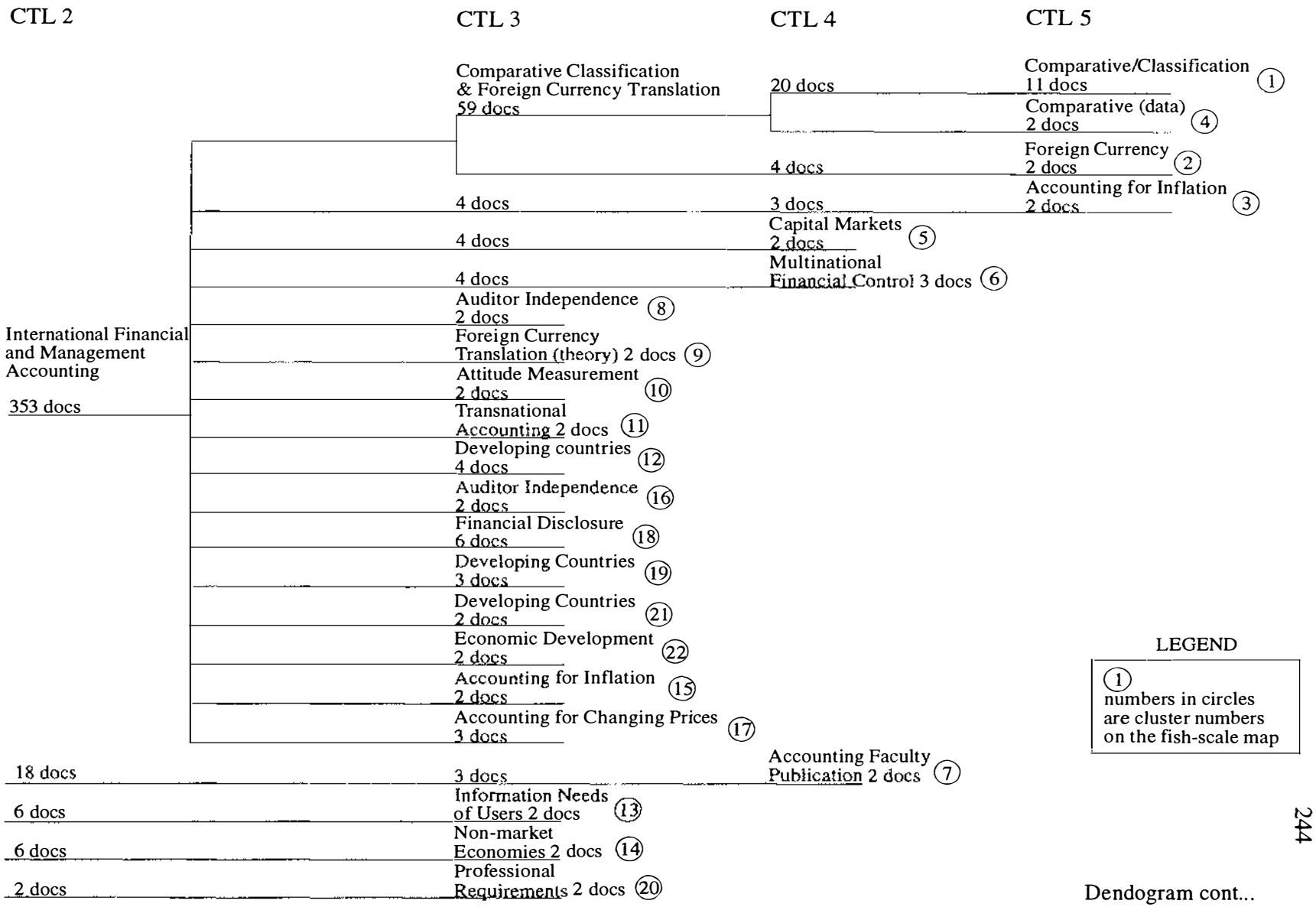
Predicting Takeovers and Mergers forms a large cluster for the first time at this level. This cluster is strongly influenced by the finance discipline with three of the six documents being from finance journals and two of the remaining being from the *Journal of Business Finance and Accounting*. The only potential for an international view in the cluster is a study specifically relating to the United Kingdom (Barnes, 1990).

This section has considered the clusters at each level in some detail. The next section provides an overview of the structure of the clusters in the form of a dendogram.

7.5.5 A dendogram of the intellectual structure of knowledge in international accounting

Bricker (1987) introduced the idea of co-citation threshold stepping. This technique, as discussed in Chapter Two, is the reason that co-citation clusters are formed at a range of CTLs so that the intellectual nesting of ideas may be observed. The underlying idea is that as the co-citation threshold for the inclusion of pairs is lowered, then clusters representing a discipline will merge until they form one common cluster if the discipline is well integrated. The dendogram shows the pattern of this nesting by placing the clusters according to the point at which they form and linking them with lines that reflect the point at which they merge with other clusters or, in the case of many of the international accounting clusters, shows that they remain isolated from all other clusters even down to CTL 2. A dendogram of the clusters formed at each of the CTLs is shown as Figure 7.4 over the next three pages.

FIGURE 7.4 Dendogram of the Intellectual Structure of International Accounting



Dendogram cont...

CTL 2 CTL 3 CTL 4 CTL 5

International Accounting Education 8 docs
Earnings Forecasts - Accuracy 6 docs
Predicting Mergers & Takeovers 6 docs
Value Added Reporting 5 docs
Stock Exchange Disclosure Requirements 4 docs
Financial Ratios and Failure Prediction 4 docs
Transfer Pricing 4 docs
Factor Analysis (Statistics) 4 docs
Interim Reporting 4 docs
Public Sector 4 docs
Far East Countries 3 docs
Accounting Policy Change 3 docs
Japanese Financial Accounting 3 docs
Financial Accounting Theory 3 docs
Review of International Accounting Research 2 docs
Survey of Accounts (Data) 2 docs
Transfer Pricing 2 docs
Research Method 2 docs
Survey of Accounts 2 docs
Survey of Accounts - UK 2 docs
Auditor Credibility 2 docs
Statistics 2 docs

Dendogram cont...

CTL 2	CTL 3	CTL 4	CTL 5
Foreign Currency Translation 2 docs			
Research Method 2 docs			
Japanese Management 2 docs			
Multinational Management 2 docs			
Earnings Forecasts 2 docs			
Earnings Forecasts 2 docs			
Capital Asset Pricing Model 2 docs			
Transfer Pricing 2 docs			
Accounting & Economic Development 2 docs			
German Accounting 2 docs			
Macro Accounting 2 docs			
Soviet Russia 2 docs			
International Diversification 2 docs			
IFAC 2 docs			
Information Content of Security Prices 2 docs			

The dendogram shows that significant clusters at higher CTLs do form a large cluster, International Financial and Management Accounting at CTL 2. The Comparative/classification grouping is the strongest in this cluster, followed by Accounting for Inflation, Capital Markets and Multinational Financial Control which are not large but have a greater depth of citing. Financial Disclosure is a relatively large cluster which nests into the major group, but it only forms at CTL 3 before merging. The Developing Countries clusters all group into the main cluster and could be more significant were it not for fragmentation into many clusters.

There remains quite a large number of clusters which are isolated, however, and this suggests that, along with the lack of integration in particular topic areas discussed above, the literature is fragmented. This is analysed further in Section 7.5.7.

7.5.6 External validity of the intellectual structure

Chapter Two described the wide acceptance and use of co-citation analysis as a means of mapping the intellectual structure of disciplines. Nonetheless, Bricker (1987) uses Multiple Discriminant Analysis to compare his structure based on co-citation analysis with the classification of Brown and Vasarhelyi (1985). The idea is that if the representational structure embodied in the dendogram has validity it "should be possible to construct a discriminant analysis which can successfully classify the documents into their clusters based upon these [Brown & Vasarhelyi] variables" (p. 99). The analysis showed that the clustering based on co-citation analysis could be modelled successfully in the discriminant function for the documents which were common to both studies (pp. 147-148). This result provides further evidence of the robustness of the co-citation technique in general and for accounting in particular.

In the case of international accounting, there is not a single up-to-date, comprehensive classification which adopts an equivalent approach to that used in Brown and Vasarhelyi (1985). Perhaps the closest in style to Brown and Vasarhelyi (1985) is Needles' (1994) classification of articles published in the IJA for the period 1965 to 1990. He classifies the articles according to country, methodology and subject. There are seven categories

of methodology and fourteen subject areas. The source of the particular categories is not discussed, however. The reason this study is not appropriate for validating the co-citation analysis is that, once again, while its coverage is similar to the source articles used to obtain citations in this study, the citations are from a much wider literature.

There are a number of reviews of the literature available. These include: American Accounting Association (1993), Meek and Saudagaran (1990), Wallace (1987), Wallace (1990), Wallace and Gernon, (1991). Wallace and Gernon (1991) provide a comprehensive list of reviews of international accounting. None of these reviews attempt a comprehensive classification of the literature. Wallace (1987) and AAA (1993) take sub-sections of the literature and provide brief descriptive notes about aspects of the studies; however, neither of these provide sufficient numbers of documents nor a clear classification basis for use as a comparison with the results of the co-citation analysis.

An alternative option to test the external validity of the international accounting co-citation analysis would also be to apply the Brown and Vasarhelyi (1985) classification system. There are 103 of the 492 documents which would be eligible for inclusion in Brown and Vasarhelyi, a coverage of 21 per cent. This is substantially less than the 39.5 per cent achieved in Bricker's study, but would perhaps provide a reasonable indication of the validity of the structure. The more fundamental concern with using the Brown and Vasarhelyi classification is that the structure of any classification is a function of that which it seeks to classify. To the extent that there are differences in the structure of international accounting and the accounting discipline as a whole, a correspondence between the characteristics identified from the point of view of the discipline as a whole and the intellectual structure induced from the co-citation analysis may not necessarily support the view that the intellectual structure of *international accounting* has been identified and given external validation. It is important that the classification structure used was developed to classify international accounting literature specifically.

The option which then remains is to use Agami and Kollaritsch's (1983) *Annotated International Accounting Bibliography*, but this classification source suffers from the disadvantage of covering only a limited period (1971 to 1981). The task of attempting a comprehensive classification of a literature, however, is not one to be attempted lightly or frequently by any researcher. This is part of the reason that citation studies have become relatively popular.

Agami and Kollaritsch's classification system is limited for the purpose of using MDS or any other technique to validate comprehensively the intellectual structure based on co-citation analysis. This is a result of the simple nature of their approach, which is to group articles into common subject categories. This is in contrast to Brown and Vasarhelyi (1985) who provide detailed classifications based on mode of reasoning, research method, school of thought, and treatment (topic area). The selection by citing authors of documents to reference on areas relevant to their research is not limited to subject similarities. This is in part the characteristic of co-citation analysis that provides insights into sources and patterns of ideas which are not easily replicated by expert review of a field. The most a comparison using Agami and Kollaritsch can offer is an intuitive feel for a level of agreement between groupings in the co-citation analysis and those provided by Agami and Kollaritsch, recognising that the only criterion used by them is subject area.

This leaves the provision of a robust external validation of the structure to the time when a comprehensive classification of international accounting literature is available. For now, the structure needs to be considered as tentative, although the strength of Bricker's findings for the applicability of the technique to accounting literature and the many other tests of the procedure in other disciplines provides confidence in the analysis.

7.5.7 Fragmentation and international accounting

Fragmentation was discussed in Chapter Three, and its impact on the ability of international accounting to act potentially as an integrating agent for the accounting discipline was outlined in Chapter Six. The measures of homogeneity and cohesiveness

applied by Bricker (1987) are applied to the sample of international accounting literature to extend the analysis of the degree of fragmentation already discussed by observing the lack of integration in topic areas of the clusters in the previous section.

Bricker (1987, p. 108) formulates a measure of homogeneity as:

$$HOM_i = DOCS_1/DOCS$$

where HOM_i is the homogeneity of the cluster structure at CTL_i;

$DOCS_1$ is the largest[37] number of documents in the largest cluster at CTL_i, and

DOCS is the number of all documents at CTL_i.

Bricker suggests a benchmark level of less than 90 per cent at the lowest CTL as indicating fragmentation (p. 109).

TABLE 7.17 Homogeneity of the International Accounting Literature

CTL	2	3	4	5
Unique Documents Clustered	492	112	34	17
Largest cluster	353	59	20	11
HOMi	0.72	0.53	0.59	0.65

The maximum of 72 per cent homogeneity at the lowest level of co-citation strength indicates that the international accounting literature is fragmented in terms of the suggested benchmark level of 90 per cent. It is important to note that the lowest CTL used in this study is also lower than that used by Bricker (1987), suggesting that the lower level of homogeneity is even more indicative of a fragmented literature since the expectation is that as the CTL is lowered the clusters will nest together until at the lowest level the whole discipline is included in the one cluster. The failure of the international accounting clusters to approach this expected outcome indicates its lack of

[37] The specification of the largest number of documents in the largest cluster suggests that there is a joint requirement to be met. It is possible, however, to have the largest cluster in terms of the number of pairs included contain less unique documents than a smaller cluster. Given the way Bricker applies this test (p. 179-180) it is apparent that the intention is to select the cluster with the largest number of unique documents.

homogeneity as a sub-discipline of accounting. It is interesting to note the reversal in the expected trend for CTL 5. Rather than the HOM for each CTL decreasing from the lowest level upwards at CTL 5, the second highest HOM is achieved. This indicates the strength of the dominant comparative classification cluster at this level. This aspect of the intellectual structure is highlighted in the fish-scale model in Section 7.6.

Bricker (1987) also uses a measure of cohesion as an indicator of fragmentation. This measure is based on the number of non-accounting documents cited five or more times (pp. 180-181). The result for the whole sample of citations was only negligibly different (En3, p. 196). Bricker also provides an analysis at each CTL.

Given the lack of depth in the citations for international accounting, the measure of cohesion is provided at each CTL. There is a remarkable degree of cohesion at the higher CTLs, with virtually all documents classified as based in the accounting discipline. This is a particularly strong measure because the method of classifying the reference discipline based on the publication vehicle for the document meant that in the case of international accounting, a number of documents were classified as business rather than accounting because of the particular journals in which they were published. The method does not distinguish between accounting ideas feeding into other disciplines and *vice versa.* Naturally, the reverse may be true, for example that finance based papers are published in accounting journals, however, as the classification was undertaken this bias did not seem as strong in the data as the alternative.

TABLE 7.18 Interdisciplinary Fraction at CTL 2 - 5

CTL	2	3	4	5
Interdisciplinary Fraction	0.19	0.12	0.09	0.00

Overall, the picture of the fragmentation of international accounting literature is mixed. Clearly there are topic areas which have not integrated at this point. There is also a low level of homogeneity, which reflects the first finding. However, the strong emphasis on the accounting literature at high CTLs suggests a reliance on accounting literature at the

core of this sub-discipline. At CTL 4 the comparison between Bricker's finding of an interdisciplinary fraction of .42 and the .09 for international accounting suggests that there is a substantial difference between the nature of the two literatures.

7.5.8 Summary

The analysis of international accounting literature provided in this section includes a review of the types of publication sources used, the age of the literature cited, the depth of citation patterns, the top ten highly cited documents and a co-citation analysis of the intellectual structure of the area. A dendogram showing this structure is provided.

International accounting literature forms a major cluster grouping characterised as International Financial and Management Accounting at CTL 2. This group is dominated by the Comparison/classification cluster and has a heavy emphasis on the financial rather than management aspects of international accounting.

An analysis of the indicators of fragmentation and the topics as clustered at the various levels suggests that international accounting is fragmented in both its level of homogeneity and in the isolation of subject clusters from one another. However, in the case of cohesion, international accounting literature, unlike accounting as a whole, is highly cohesive. A larger proportion of accounting documents are present at each CTL.

The next section applies the same approach used in Chapter Five to model knowledge accumulation in international accounting using a fish-scale model.

7.6 A FISH-SCALE MODEL OF KNOWLEDGE ACCUMULATION IN INTERNATIONAL ACCOUNTING

As discussed in Chapter Five, the dendogram representation of the co-citation threshold stepping analysis of a literature does not reflect key characteristics of the knowledge

accumulation pattern and process which are made visible in the fish-scale model approach.

Using the same approach as previously, each document clustered from CTL 5 to CTL 3 is placed on a map represented as a fish-scale shape. CTL 2 is not mapped because of the lack of reliability of co-citations at this frequency.

In the case of Bricker's (1987) analysis the source documents were drawn from a narrow time period of three years (1981-1983). It is not difficult in that case to equate the research front directly to the source documents as described in Section 5.4.3. However, in the case of international accounting, the source documents are drawn from a period spanning 17 years and so the research front would be too wide to be meaningful in a mapping representation of the literature. The research front is still considered to be those source articles which cite the earlier documents; however, rather than represent the research front as a single time period, the outer ring of the circle represents the source article irrespective of when it was published, and the documents are placed according to the average number of years difference between the source articles and the cited document. That is;

$$DIS = \frac{\sum_{a}^{n} SourceYear_i - CitedYear}{n}$$

Where: DIS is the distance in years from the research front for a cited document,
Source Year a through n are the years for each source document which cites the *co-citation pair* with which the cited document was clustered, and
CitedYear is the year of publication of the cited document.

In calculating the distance from the research front, DIS, a choice is necessary between using the average (as shown), the maximum and the minimum. The average has been

selected, since the purpose of the map is to provide a general picture of the relative distance of the cited documents from the research front rather than the extremes, as would be represented by minimum or maximum figures.

Another aspect of representing the relative research front as a fish-scale diagram, is that as the CTL drops from 5 to 3 the source documents citing a particular pair stay the same, but particular documents may be linked with new documents as a result of the single link requirement and the lower CTL. This means that new source documents for the new pairs are added to the calculation for the document which was included at a higher CTL. The outcome is that the average (as well as the maximum and minimum) distance from the research front for a particular *document* may change with the CTL level. In mapping the clusters the choice which needs to be made is to provide an overall map using either the CTL at which the document first appears (the highest) or the lowest CTL which is common to all the documents on the map.

The argument for using the highest CTL is that as the clusters are shown contoured at the higher CTLs it does suggest that is the way they were represented at that CTL. Placing them according to the lowest CTL's distance from the research front and then contouring them according to the CTL at which they first appear is implying a mixed message.

The alternative argument is that as the distance measurement and placement on the map imply distance from *the* research front rather than multiple research fronts, the distance from the common research front for all documents to be clustered is the more meaningful choice.

The latter view seems to be more useful in the current study since the lack of depth in the citation pattern in international accounting means that at the higher CTLs the source documents which constitute the research front may be limited in numbers and may be significantly different from all the source documents included as citing documents at CTL 3. For an overall picture this seems to be the most useful strategy. An alternative

would be to provide a series of maps for each CTL, so that the position of documents in clusters at higher CTLs would move in placement between maps. This latter approach is not worthwhile in the current study because there are only four documents whose positions on the map would be affected by greater than one year.
Once again, colour is used to represent the reference discipline from which the document was drawn, with accounting being blue. The cluster levels are represented using coloured contour lines. The map is presented as Figure 7.5 below, and the key to clusters and their descriptions is provided in Table 7.19.

Unlike the map of accounting as a whole, this map appears less populated by documents. This is a function of the smaller size of the literature and the large reduction in documents clustered at higher CTLs as a result of the lack of depth in international accounting citations.

The distance between the clusters and the research front and the general spread of documents within the clusters, even at CTL 5, suggests a knowledge accumulation pattern which is overall more like the Type B pattern described in Chapter Five.

The high level of cohesion is clear from the small number of non-accounting documents, and further, it is apparent from the diagram that many of the non-accounting documents are clustered together rather than being interspersed among the clusters. Notably, Clusters 6, 10 and 22 are dominated by non-accounting documents. The non-accounting

FIGURE 7.5 International Accounting as a Fish-Scale Model:
Relative Distance from Research Front

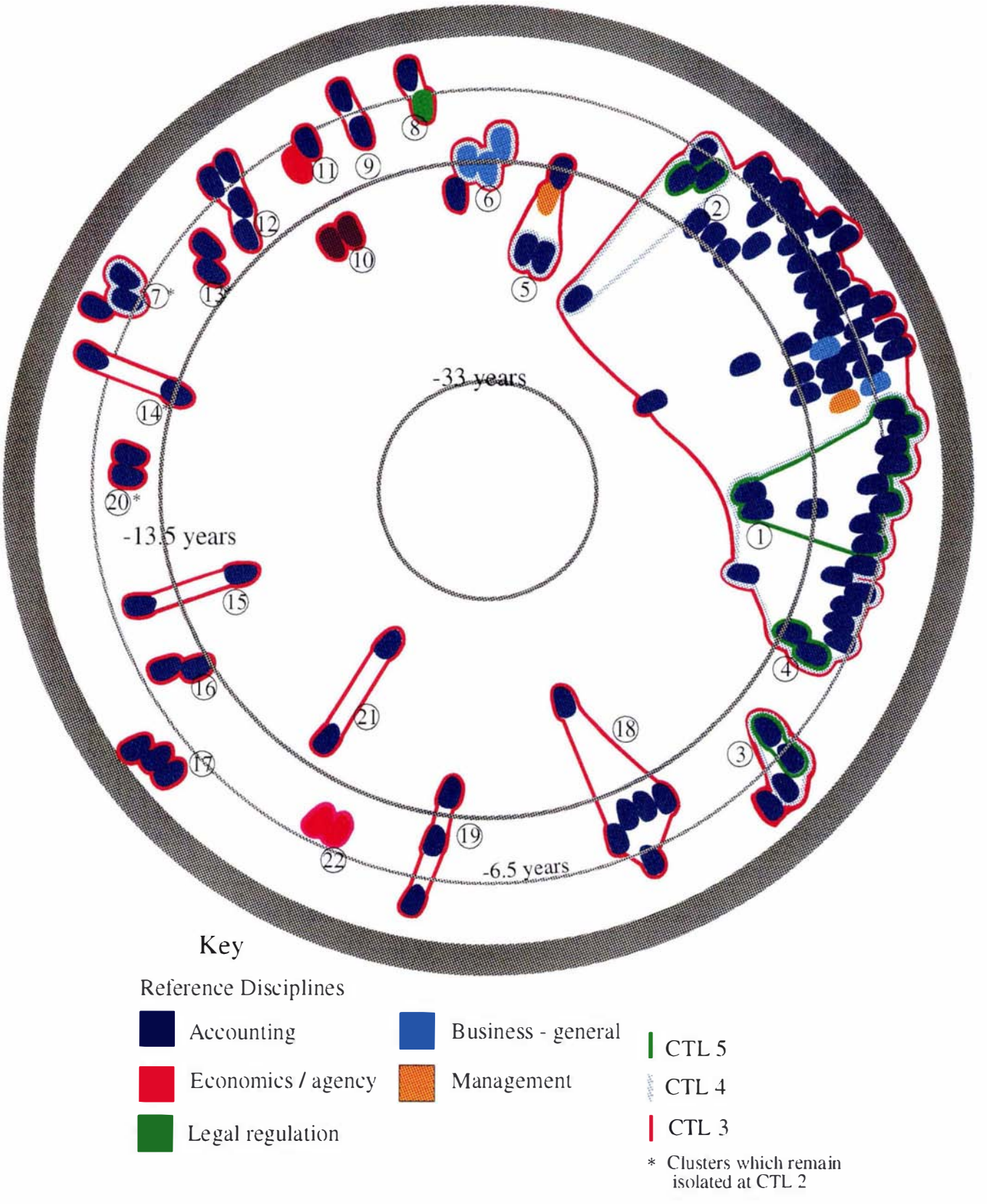


TABLE 7.19 Index for Clusters and their Description - International Accounting

Cluster Number	Description	Number of Documents*	CTL Level*
1	Comparative/classification	11	5
2	Foreign currency translation	2	5
3	Accounting for inflation	2	5
4	Comparative data	2	5
5	Capital markets	2	4
6	Multinational financial control	3	4
7	Accounting faculty publication	2	4
8	Auditor independence	2	3
9	Foreign currency translation - theory	2	3
10	Attitude measurement	2	3
11	Transnational accounting	2	3
12	Developing countries	4	3
13	Information needs of users	2	3
14	Non-market economies	2	3
15	Accounting for inflation	2	3
16	Auditor independence	2	3
17	Accounting for changing prices	3	3
18	Financial disclosure	6	3
19	Developing countries	3	3
20	Professional requirements	2	3
21	Developing countries	2	3
22	Economic development	2	3

* The description, number of documents are as at the highest CTL level at which the cluster appears.

documents which cluster in the main group centred on Cluster 1 only appear at CTL 3 and so do not dominate the nature of the group.

The high level of fragmentation in the form of non-homogeneity is clear from the map. There are a large number of clusters which remain isolated from the largest cluster at CTL 3. Within the Cluster 1 grouping, the importance of Cluster 1 at CTL 5 is clear in the comparison of its size relative to Clusters 2 and 4 which also form at CTL 5. Although Cluster 3 is small, its depth of citation is reflected in the contouring, and is significant in that it remains isolated from the main cluster. Along with Clusters 5 and 6, this cluster merges with the Cluster 1 group at CTL 2; however, the looseness of the connection between Cluster 3 which forms at CTL 5 and the rest of the group is significant. It is interesting also that Cluster 5, which is the Capital Markets cluster, is also late to merge with other main group, suggesting that its methodology has not achieved a dominance in international accounting literature. This relatively weak influence is also reflected in the lack of economics and finance documents in the clusters at higher CTLs. The economics documents in Cluster 22 are also related to economic development rather than the micro-economic literature which is drawn on for the agency and contracting approaches in accounting.

In summary, the most striking features of the map are the looseness of the relationships between the clusters, reflecting the low homogeneity of the structure and the dispersed pattern within the clusters which suggests a Type B knowledge accumulation structure.

7.7 SUMMARY

This chapter has presented the results of a citation analysis of international accounting literature. While the overall age of the literature appears very similar to the results of Bricker's (1987) study, the fish-scale map shows that at the higher CTLs the distance in years from the research front is greater overall for the international accounting literature.

The international accounting research pattern appears more closely to follow the Type B approach widely believed to be applicable to the social sciences. The low impact of

reference disciplines outside accounting itself is a key feature of the literature, resulting in high measures of cohesion.

The homogeneity of international accounting literature is not high, and indicates that this is a significant source of fragmentation. This is supported by an analysis of the subject matter in which clusters with a similar subject focus remain isolated even at CTL 2.

The next chapter integrates the discussion of accounting literature as a whole from Chapter Five and the analysis of this chapter by comparing the knowledge accumulation structures of accounting and international accounting to examine whether or not international accounting is well placed to redress the fragmentation occurring in accounting literature.

CHAPTER EIGHT
INTERNATIONAL ACCOUNTING AS A CATALYST FOR RE-INTEGRATING THE ACCOUNTING DISCIPLINE

8.1 INTRODUCTION

Fragmentation of research in accounting has been identified as an issue for concern for accounting academics. A model of knowledge accumulation and a fish-scale mapping approach have been developed in earlier chapters. Fish-scale maps of the international accounting research literature and of the literature of accounting as a whole have been constructed and described.

The purpose of this chapter is to evaluate whether or not international accounting is likely to be able to act as an integrating agent and if so, to identify how this may be achieved. A comparison of the fish-scale maps contributes to an understanding of differences and similarities in the knowledge accumulation processes and styles of the two areas and also facilitates the identification of areas in which international accounting may be able to create research bridges to reduce the fragmentation in accounting research overall. The analysis is supported and supplemented with other citation-based measures and views expressed in the accounting literature.

A preliminary step in analysing international accounting literature's potential role is to provide another construction of the fish-scale knowledge accumulation map for international accounting. This map plots international accounting documents against the same years as accounting literature and is provided to facilitate a direct comparison with the accounting literature for identifying bridging opportunities. Section 8.3 compares the results of the citation analysis of international accounting with those features which were identified in Chapter Six to be likely pre-conditions for it to act as an integrating agent for accounting research literature as a whole. Section 8.4 identifies bridging areas through which directed international accounting research may be able to contribute to

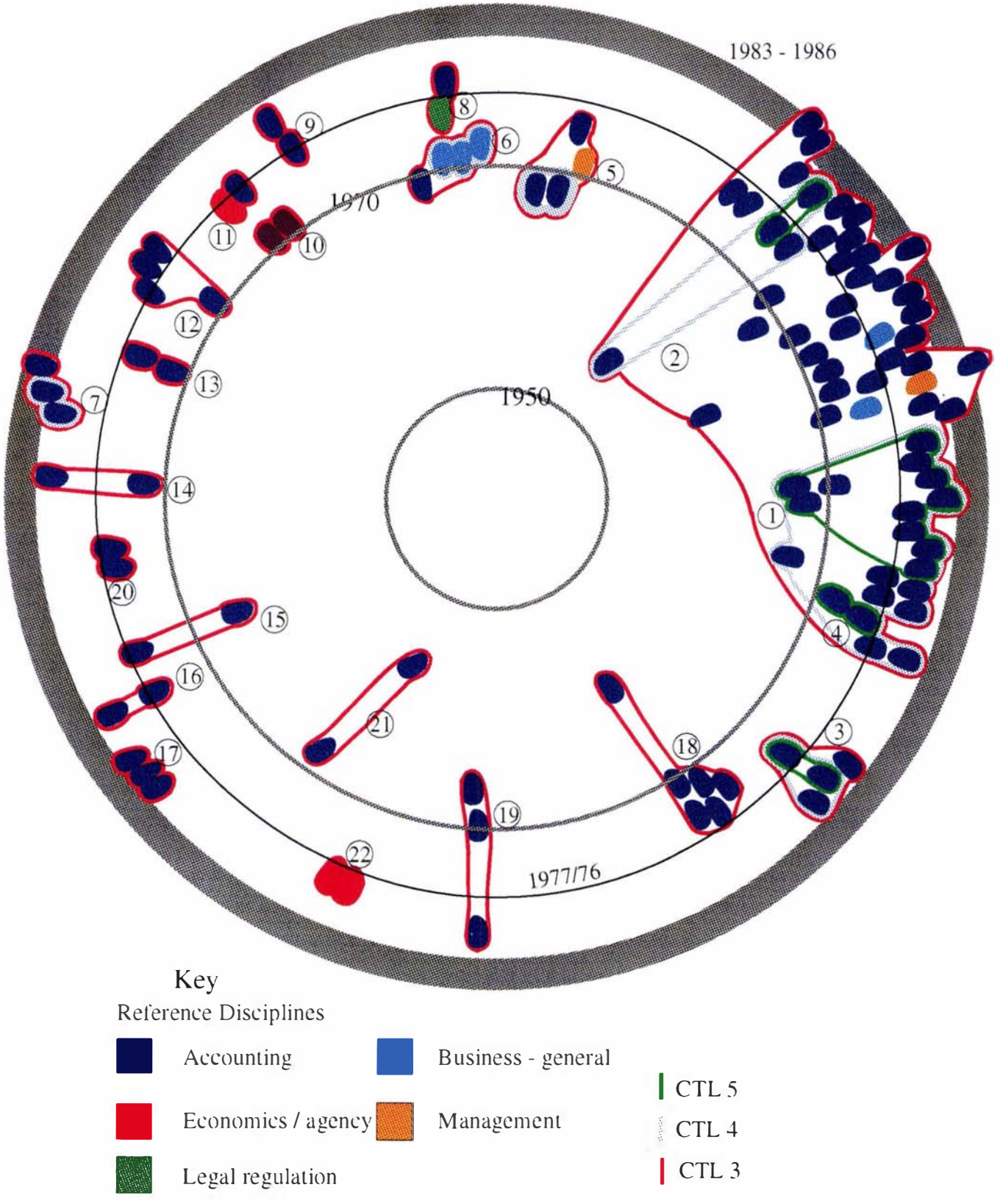
the reduction in fragmentation of accounting research. The limitations of the analysis and implications of the recommendations for international accounting are discussed. Finally, Section 8.7 summarises and concludes the chapter.

8.2 AN ALTERNATIVE MAPPING OF INTERNATIONAL ACCOUNTING

Chapter Seven reported the results of a co-citation analysis of international accounting literature and applied the mapping technique from Chapter Five to produce a fish-scale map of knowledge accumulation for international accounting. As explained in Figure 5.4, the outside circle represents the research front and, in the case of Bricker's (1987) study, the short span of years used from which source articles were drawn (1983-1986) meant that the representation of the research front as equivalent to that period of time posed no problem for the construction of the map (Figure 5.9). In the case of international accounting literature, however, the research front is constituted by source documents which were drawn from a period of 17 years - thus the mapping would be complicated by overlapping cited documents with the research front. The map provided in Chapter Seven used a relative distance from the research front based on the average number of years difference between the cited and source documents at the lowest CTL. This provides a meaningful comparison with the map for accounting as a whole, especially in terms of knowledge accumulation patterns and cluster structures.

One purpose of this chapter, however, is to identify specific topics for potential bridging by international accounting perspectives and in some cases comparison of specific years for clusters and documents rather than years away from the research front. For this reason another construction of the fish-scale map which shares a common outer circle representation of 1983-1986 is provided as Figure 8.1. This figure has been constructed in an identical fashion to Figure 7.3 in that the documents are all placed at a distance

FIGURE 8.1 International Accounting as a Fish-Scale Model



from the outer circle which reflects the number of years difference between their date of publication and 1983-1986. Since the source literature for international accounting was as recent as 1993, some of the cited documents are placed outside the outer circle in this diagram. It is important to interpret this diagram carefully, remembering that it does not reflect knowledge accumulation patterns since the outer circle is not the research front. This diagram is useful, however, for an appreciation of the age in actual years of the documents cited in the literature. It is used in the following analysis.

8.3 CHARACTERISTICS OF INTERNATIONAL ACCOUNTING

The preconditions identified in Chapters One and Six for international accounting research to be potentially useful as an integrating agent were:

- The research should not itself be tightly integrated - this would suggest that the literature was inward-looking rather than still developing in an eclectic style.
- The reference disciplines should be similar to those for accounting as a whole - if international accounting relied on completely different reference literatures, the likelihood of compatibility across methodological approaches is reduced.
- The knowledge accumulation styles of the two areas should be similar.
- Dogmatic views about methodological correctness are counter-productive for the purpose of integrating disjointed research areas, so evidence of the acceptance of many methodological styles without strongly clustered groups based on methods is desirable.
- There should be potential to bridge and integrate subject areas within accounting as a whole because of the applicability of the international perspective to virtually all accounting subject areas.

Evidence relating to each of these areas is discussed in this section to establish whether or not international accounting is broadly structured to be a potential integrating agent.

8.3.1 Fragmentation and integration in the international accounting literature

Chapter Seven provided evidence that international accounting literature is fragmented in significant ways. The splitting of closely related subject areas into clusters isolated from one another and the low observed homogeneity are indicators of fragmentation. The low level of co-citations which was described as a lack of depth in the citation patterns also suggests that there is not a strong level of consensus in the area about which documents are important. One striking, contrary feature was the high level of cohesion because of the heavy reliance on accounting documents.

The impact of these findings on the potential for international accounting to act as an integrating agent is positive overall. The lack of a strong consensus and tightly integrated research base suggests that international accounting has not formed its own introspective specialty group. The heavy reliance on accounting documents suggests that the focus of this dissipated research group is still firmly in the accounting subject area, and the approach adopted has not been to develop new research approaches by drawing on methodologies from other reference disciplines.

8.3.2 Reference disciplines and cohesion in the international accounting literature

As mentioned in the previous section, international accounting literature showed high levels of cohesion. This suggests that possibilities for linking with accounting literature to integrate fragmented areas are greater since there will be common ground. It also is important for the potential role of international accounting to increase the integration of accounting as a whole because the expansion of international accounting into bridging currently fragmented accounting clusters will not need to be based on reference disciplines and so will not result in a lower level of cohesion for accounting as a whole. This means that by searching for opportunities to reduce fragmentation in accounting by increasing homogeneity in the accounting research base, the gains there will not be offset by decreasing levels of cohesion. Thus the strategy which seems most likely to be productive is to identify areas where international accounting concepts, methods or general approaches may help integrate clusters by providing bridging analysis for isolated

clusters or analysis which helps to break down the tight barriers around the highly integrated positivist cluster grouping.

8.3.3 Compatible knowledge accumulation styles

Another requirement for successful integration through international accounting is that styles of knowledge accumulation between accounting and international accounting be similar so that the communication process is effective. For example, if a discipline has a Type A knowledge accumulation style, researchers in the area expect to refer only to recent literature, with the knowledge that preceded the current research effectively incorporated in the research front. It would be "foreign" for someone approaching research from this style to see references from ten to fifteen years before the current publication as important or relevant. It might give the impression that the researcher from the Type B approach is actually out of touch or producing poor quality research. Perhaps even more fundamentally, the fact that the Type B style does not function by incorporating the majority of the significant prior literature on an area, is indicative of the more fundamental difference of the lower level of consensus or absence of a state of normal science in Kuhn's terms. Thus, trying to bridge two literature groupings which are distinctly different in knowledge accumulation style is predicted to be very difficult. A closer style is more conducive to integration.

Comparing international accounting and accounting literatures in terms of knowledge accumulation patterns may be done by considering the overall age of the literatures, but this has some difficulties, discussed in Chapter Five, because the different sizes and growth rates between literatures affect the comparison (Cole, 1983). In this case, the knowledge accumulation patterns for the individual clusters are of more interest since it is at the cluster level, representing specialties as perceived by the citing authors, that integration may proceed. In this study the fish-scale map of knowledge accumulation provides a visual reflection of the different knowledge accumulation processes, and this is used as a basis for comparison.

Both the international accounting and accounting maps show the existence of a major cluster grouping. The accounting literature's core[38] areas in this grouping are positive accounting theory, agency studies and budgeting and organisational structure (see Chapter Five, or Bricker, 1987, p. 128), while international accounting has the comparison and classification subject area at its core.

The differences in degree of reliance on reference disciplines suggest a potential difference in the knowledge accumulation emphasis in that accounting has a stronger representation of finance and economics documents in this main cluster grouping, whereas international accounting is largely made up of accounting documents. The influence of economics is expected to be toward the Type A knowledge accumulation style, as it is characterised as a high consensus, "normal science" type discipline (Whitley, 1986).

Figure 8.2 reproduces Figure 5.9, and Figure 8.3 is Chapter Seven's map of international accounting. These figures are provided in this chapter to facilitate easy reference. In the main cluster formation in Figure 8.1 the core literature co-cited at CTL 12 is close to the research front. This is in contrast with the international accounting literature contained in the key clusters 1, 2 and 4 in Figure 8.2. Cluster 1 documents are spread over a period of eighteen years, with most of the documents around 6 years old. The age in years from the research front calculated for Cluster 1 for accounting is 5.3 years based on the centre of the research front being halfway through 1984. In contrast, Cluster 1 for international accounting has an average age in years from the research front of 9.33. This is a valid comparison from the point of view of considering the core literature of the two clusters although there are significant differences in the level of citation involved.

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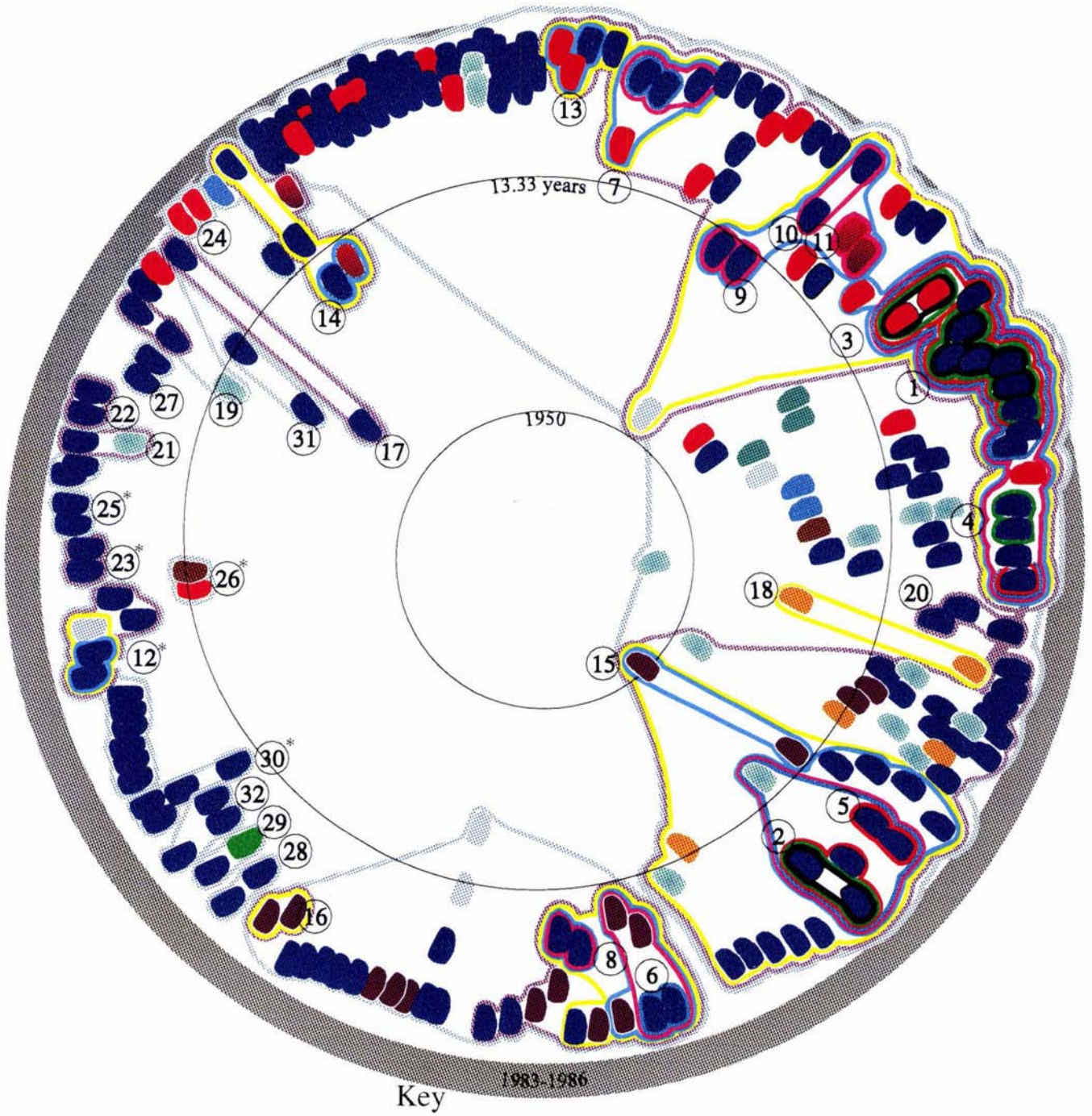
38 Chapter Five included a discussion of the core of a literature. The core documents of a literature may become obliterated by incorporation in the subsequent research publications. From the point of view of citation analysis, the core then becomes unobservable. So the sense in which the documents cited at the highest CTL levels for each of the sets of literature being studied is termed a core is as shown in Figure 5.2: that is, it is expected that some proportion of the documents which are currently highly cited will go on to make up the unobservable core.

FIGURE 8.2 Bricker (1987) as a Fish-Scale Model



Key

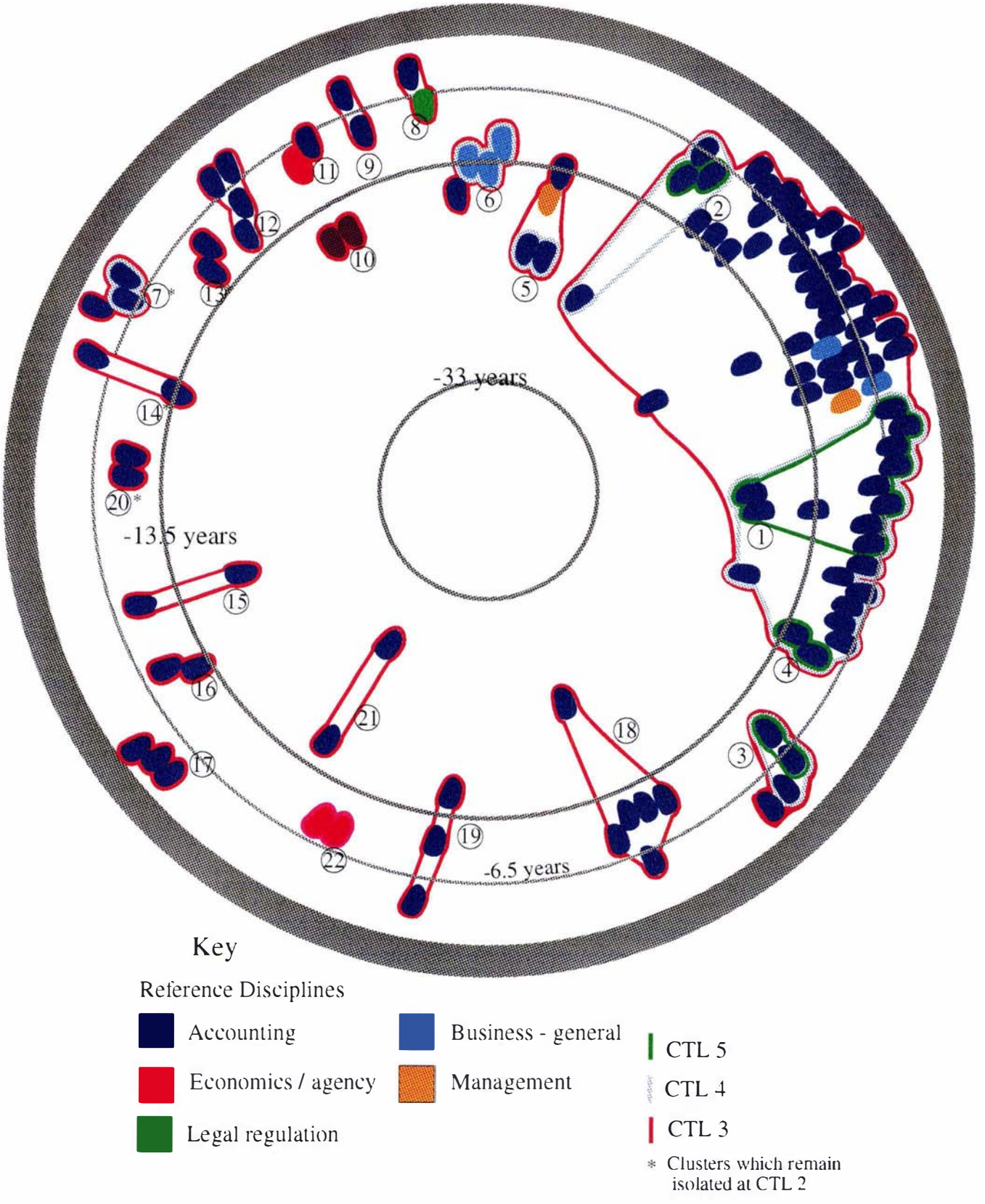
Reference Disciplines

- Accounting
- Psychology/ Human Info processing
- Political economy
- Economics / agency
- Finance
- Business - general
- Sociology/ Organisation theory
- Statistics
- Philosophy of knowledge
- * Clusters which remain isolated
- Legal Regulation
- Management

Contour CTL Levels

- CTL 12
- CTL 11
- CTL 10
- CTL 9
- CTL 8
- CTL 7
- CTL 6
- CTL 5
- CTL 4

FIGURE 8.3 International Accounting as a Fish-Scale Model:
Relative Distance from Research Front



Comparing the average age of all the documents down to the same CTL level does not necessarily provide a more meaningful comparison, since the differences in the size of the two literatures, their rate of growth and degree of underlying consensus, all affect the level of citation. If the core of international accounting literature occurs at a lower CTL level, it reflects these factors and suggests that comparing core with core rather than the same CTL level is more appropriate. Table 8.1 provides a comparison of the average age in years from the research front for international accounting and accounting literatures. Note that there is no particular reason to compare clusters with the same number - the comparison is between the core areas of literature in each disciplinary area.

TABLE 8.1 Average Years from the Research Front

Accounting			International Accounting		
Cl No	Description	Av. Years	Cl No	Description	Av. Years
1	Positive accounting theory...	5.3	1	Comparative/classification	9.33
2	Budgeting & organisational structure	6.5	2	Foreign currency translation	8.4
3	Agency theory of the firm	6.5	4	Comparative data	10.7
4	Markets based research	5.5			

The differences at the core are perhaps offset by the pattern of knowledge accumulation reflected in accounting as a whole, as the clusters grow and merge at lower CTL levels. Since the overall age characteristics for the two samples of literature are so alike (as shown in Figure 7.3) it is to be expected that the younger core literatures are offset in the accounting literature by a significant representation of older documents as the CTL lowers. As described in Section 8.2, Figure 8.1 is a mapping of the international accounting literature based on distance from the 1983-1986 period used in Bricker (1987). Using Figure 8.1 as a comparison with Figure 8.2, the use of older documents within the accounting literature is actually greater than that for the main international grouping. Table 8.2 provides a breakdown by CTL and decade of publication. The table shows the consistently lower proportion of documents from the 1980s. At CTL 5 the averages shown in Table 8.1 for the core areas are reflected in the 11.8 per cent of citations to 1960s documents in the international citations, while accounting as a whole

does not reach this level of pre-1970s literature until CTL 7 - six levels down from the core of the literature. The cumulative percentage of pre-1960s documents for international accounting at the lowest CTL is 2.2 per cent and for accounting as a whole, 2.7 per cent. Thus, the initial tendency for the international accounting core literature to be older than the accounting core, is reversed at lower CTLs with the age distribution becoming similar, with a slightly higher proportion of older documents in the accounting sample. This comparison is even more significant when it is considered that the international accounting source documents spanned the period 1977-1993 and yet resulted in a lower proportion of older documents cited and in more recent documents (especially at the core levels).

TABLE 8.2 Per cent of Documents per Decade at each CTL

CTL	Accounting (Bricker 1987)						International Accounting							
	1930s	1940s	1950s	1960s	1970s	1980s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s
12					55.6	44.4								
11					58.3	41.7								
10					55.6	44.4								
9				4.0	52.0	44.0								
8				8.1	51.4	40.5								
7			1.9	11.3	52.8	34.0								
6			2.6	13.0	53.2	31.2								
5			2.4	11.2	50.4	36.0					11.8	58.8	29.4	
4	0.4		1.3	12.2	47.3	38.8				2.9	14.7	55.9	26.5	
3	0.5	0.2	2.0	10.4	50.6	36.3				1.8	12.5	55.4	30.4	
2							0.4	0.4	0.4	1.0	12.4	48.4	35.9	1.0

Bricker (1988b) expresses concern over the loss of knowledge from earlier years; international accounting literature does not appear to incorporate more of this older literature, although it contains representatives from earlier decades. It appears that this is not a direction with which international accounting is likely to help the accounting

literature as a whole, despite its greater perceived emphasis on historical perspectives (American Accounting Association, 1993).

While there may be differences in the pattern at the core and at lower levels, these are offsetting differences which will not inhibit the ability to communicate of researchers from the different specialties. It does not appear that the idea of relying on literature from up to two decades before the current research will be considered unacceptable or particularly unusual by many accounting researchers.

8.3.4 Methodological style

Some methodological approaches are intrinsically clear-cut about what constitutes acceptable research. The most common example of this is the positivist approach in accounting. As discussed in earlier chapters, researchers within this approach have very definite and specific views about the empirical nature of research. Other alternative methodological views also have their central tenets which create barriers to acceptance if violated. For example, the ontological and epistemological positions which Chua (1986) and Burrell and Morgan (1979) identify as distinguishing features of different paradigmatic views underlying research approaches are important in defining acceptable research. The difficulty comes when adherence to strict and narrow methodological tenets reduces research to isolated enquiry, separate from other sources of knowledge in an area and from other sources of input. This problem is identified by Antle (1989), and is an underlying cause of fragmentation, as described earlier in this thesis.

Some methodological structures formed by consensus among a group of researchers are necessary to distinguish scholarship and productive investigation from opinion and diatribe. However, experience in the western sciences in particular suggests that there is also a balance to be struck that allows relevance and integration of knowledge (Easton 1991).

This is in itself an epistemological and ontological position. A researcher deeply convinced of the validity of the positivist position, or the Marxist view of critical

research, may not see the need to integrate knowledge across the methodological divides because of a firm belief that research based on another methodology does not contribute to knowledge, almost by definition. Clearly then, to accept the need for integration and certainly to be in a position to contribute to it, the group of researchers involved need to be open to alternative methodological approaches and truth claims and not deeply committed to dogmatic positions. The potential for the influence of an international perspective with its emphasis on culture and the contextual nature of knowledge was suggested in Chapter Five as one reason for exploring international accounting for the role of integrating agent. This section seeks to examine evidence relating to this characteristic of international accounting research.

One view of methodological underpinnings of the research literature in accounting is given by Brown and Vasarhelyi (1985). Bricker (1987) used their classification to characterise the clusters formed in his co-citation analysis and also as part of a test for the external validity of the structure for accounting research based on co-citation analysis.

Unfortunately, Brown and Vasarhelyi's (1985) classification does not include many of those international accounting documents which clustered in the co-citation analysis. One reason for this is the large number of books and standards which are included in the clusters; a second reason is the lack of emphasis on international accounting in the mainstream journals from which Brown and Vasarhelyi drew their sample[39] (AAA, 1993). A third possible reason is a self-selection bias which, because of the empiricist emphasis in mainstream accounting journals, means that research which is not in line with the dominant research methodology will not be published in the mainstream journals (Tinker & Puxty, 1995) and so is not subsequently classified. Out of all the documents which clustered at CTL 3, only five are classified. The five documents and their classification are provided in Table 8.3 below.

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[39] The journals covered are: *The Accounting Review, Accounting Organizations and Society, Auditing: A Journal of Theory and Practice, Journal of Accounting and Economics, Journal of Accounting Research, and the Journal of Accounting , Auditing and Finance.* The period covered was 1963 to 1984.

TABLE 8.3 Brown and Vasarhelyi (1985) Classification of International Accounting Documents

Title	Year	Reference	First Author Name	B&V Classification *Mode of Reasoning* Research Method
An empirical analysis of international accounting principles	1979	JAR, Autumn, 593-605	Frank, W. G.	*Quantitative: Factor Analysis* Archival: Primary
The impact of disclosure and measurement practices on international accounting classifications	1980	AR, July, 426-450	Nair, R. D.	*Quantitative: Factor Analysis* Archival: Primary
FASB's statements on objectives and elements of financial accounting: A review	1980	AR, Jan, 1-21	Dopuch, N.	*Qualitative* Analytical: Internal Logic
Accounting measures of foreign exchange exposures: The long and the short of it	1975	AR, Jan., 44-57	Aliber, R. Z.	*Qualitative* Analytical: Internal Logic
Financial Reporting Practices: Disclosure and Comprehensiveness in an International Setting	1976	JAR, Spring, 10-26	Barrett, M. E.	*Quantitative: Descriptive Statistics* Archival: Primary

There are not sufficient documents classified from which to draw any conclusions, although it is interesting that two out of the five are classified as qualitative while the overwhelming majority of clusters and documents in Bricker's study are classified as quantitative. The strongest observation that may be drawn from the search for international accounting documents in the *Accounting Research Directory*, is the effectiveness of the partitioning between international accounting articles and the mainstream journals. This is a factor which needs to be deliberately overcome if international accounting perspectives are to have a significant role in accounting research in any form (see also AAA, 1993, p. 11).

In considering the methodological emphasis in international accounting research, the American Accounting Association's Committee on International Accounting's recent methodological review suggests that there is a wide variety of methodologies encouraged for use by researchers. "Our understanding of research embraces theoretical (normative, positive) as well as empirical. It also includes experimental and behavioral

research. We include field and case studies as well as archival research" (AAA, 1993, p. 3).

Furthermore, the evolving nature of the research process and the importance of not limiting research methods by specifying a set of accepted ones are points the committee was keen to emphasise:

> One has to see the research process as a human one; as a subject of serendipity as well as of plans. International accounting research is an imprecise, creative craft that takes time and requires perseverance. At present, because of the nascent nature of the field, international accounting researchers have to experiment with ideas, methods, and data and make tough decisions . . . Perhaps a better way for the reader may be to ask known and experienced researchers to describe how they conducted research that resulted in their publication of an exemplary piece. One may also ask experienced researchers concerned with accounting issues in national context to reflect on how they would extend their work into the international arena. This suggestion derives from our **conviction that there is no received wisdom in international accounting research** and any effort to document types of research methodology might suggest that some people are aware of these types. (p. 3, emphasis added)

This suggests that the American perspective within the research body of international accounting is taking a very broad methodological stance. This is particularly encouraging in the light of the perceived emphasis on positivist empirical approaches in the United States (Zeff, 1989).

While it is difficult to provide firm evidence of the methodological approaches favoured in international accounting research, indications support the view that at least there is not a strong hegemony within the specialty which prevents researchers taking an open and potentially integrative approach to methodological design in their research studies.

8.3.5 Subject area coverage

Another factor which suggested international accounting as a possible integrating agent was its applicability to virtually all topic areas of accounting. This means that its ability to bridge areas is not confined to specific subjects within accounting. The evidence from the citation analysis is that there is a broad coverage of topics including financial

accounting , auditing, management, academic issues, professional education and experience requirements and the public sector. The emphasis within the structure is on financial accounting as discussed in Chapter Seven; however, the emerging areas in management are present should there be useful opportunities in that area. Just as is suggested in some of the international literature, it does appear that international accounting could be effectively integrated across the curriculum rather than being confined to a specialist area, since it has emerging research areas in the main functional topics (Cohen, Pant & Sharp, 1991). Similarly, this means that it is also well positioned to provide linking research to reduce fragmentation in any of these areas.

8.3.6 Summary

In summary, it appears that in combination with the inherent characteristics of the international perspective discussed in Chapter Six, international accounting is in a good position to assist in the re-integration of accounting research.

The strategy for specifying how this may be achieved is to identify areas where international accounting research may help integrate clusters which are currently isolated from the main cluster grouping, separate even though they relate to the same subject or method area, and help break down the exclusiveness of the highly integrated main cluster group.

Thus one of the approaches to be identified is the opposite to that suggested by the American Accounting Association (1993). Rather than seeking to import accounting research techniques and views into international accounting, the aim is to export international accounting views and findings more effectively into the main body of accounting research.

The following section explores potentially integrative areas for this type of research strategy.

8.4 IDENTIFICATION OF BRIDGING AREAS

This section explores the avenues for integration of the accounting literature. First the clusters which form at higher CTLs and remain isolated at CTL 3 in Bricker's (1987) analysis are considered, and then specific documents which are common to both co-citation studies are investigated as possible seeding areas for bridging the literatures in ways which reduce fragmentation.

8.4.1 Isolated clusters

Accounting literature as a whole has a low level of homogeneity, as discussed in Chapter Five. This reflects the fact that a large number of documents are in clusters which remain isolated from the main cluster grouping at the lowest CTL. Fourteen of these isolated clusters only emerge at CTL 3 (the lowest cluster level in Bricker's study), and five clusters which form at higher CTLs do not subsequently merge with the main cluster. The latter group of isolated clusters are interesting in that they are significant enough in the literature to form at CTLs greater than three, yet distinct enough to not merge with the main cluster grouping. A list of these clusters is provided in Table 8.4 below.

TABLE 8.4 Isolated Clusters in the Accounting Literature

Description	CTL at which the Cluster First Forms	Cluster Number on F-S Map
Statistical auditing and sampling	7	7
Tax	5	23
Studies of academic accounting	4	30
Municipal	4	25
Managerial compensation and motivation	4	26

The isolated clusters in international accounting literature are those which first emerge down to level three and do not merge with the main cluster at CTL 2. They are shown in Table 8.5.

TABLE 8.5 Isolated International Accounting Clusters

Description	CTL at which the Cluster First Forms	Cluster Number on F-S Map
Accounting faculty publication	4	7
Information needs of users	3	13
Non-market economies	3	14
Professional requirements	3	20

There are no documents which are common to the clusters which are isolated in each of the two studies. This eliminates a possible avenue for integration of otherwise isolated cluster areas. However, it is interesting to note that both literatures contain an isolated cluster on the subject of academic accounting. Given the topic, it is logical that the interest in this area does not merge with the mainstream accounting literature. It is possible, however, that literature studies such as Bricker (1987, 1989), which take an overview of the direction of the literature, may reduce the tendency to see academic performance in isolation from the subject matter and direction of research in accounting as a whole, and in so doing make such work more relevant to the core areas of the accounting discipline.

There appears to be little commonality with the remaining clusters which were still isolated at the lowest CTL.

8.4.2 Common documents

Another approach to identifying areas in which international accounting may be in a position to act as an integrating agent for the accounting literature is by analysing the documents common to both co-citation studies and the clusters to which they belong. Table 8.5 is a listing of the documents which occur in both Bricker's (1987) study and the co-citation clusters presented in Chapter Seven. The CTL indicated is the highest

level at which the document appears and the cluster numbers refer to the fish-scale maps. Where the documents appear at CTL 3 for the first time in accounting literature the cluster number provided is the one into which they would emerge on the map.

TABLE 8.6 Documents Common to International Accounting and Accounting

First author name	Year	Title	Reference	International		Accounting	
				CTL	Cl	CTL	Cl
Zeff S.	1972	Forging accounting principles in five countries: A history and analysis of trends	Champaign, Il, Stipes	5	4	3	1
American Institute of Certified Public Accountants	1973	Objectives of financial statements	NY, Author, Group on the objectives of financl stmts	3	1	3	*
Financial Accounting Standards Board	1978	Statement of Financial Accounting Concepts No. 1: Objectives of financial reporting by business enterprises	Stamford, CA, Author	3	1	3	1
American Accounting Association	1966	A statement of basic accounting theory, (ASOBAT)	Comm to prepare ASOBAT, Sarasota, Fl, Author	3	1	3	*
Dopuch N.	1980	FASB's statements on objectives and elements of financial accounting: A review	AR, Jan, 1-21	3	1	3	1
Financial Accounting Standards Board	1980	Statement of Financial Accounting Concepts No. 2: Qualitative characteristics of accounting information	Stamford, CT, Author	3	1	5	22
U.S. Senate	1976	Subcommittee on Reports, Accounting and Management of the Committee on Government Operations of the U.S.: The Accounting Esta	Washington DC, Govt Printing Office	3	8	4	29
Financial Accounting Standards Board	1979	Statement of Financial Accounting Standards No. 33: Financial reporting and changing prices	Stamford, Conn, Author	5	3	5	17
Ball R.	1968	An empirical evaluation of accounting income numbers	JAR, Autumn, 159-178	4	5	8	9
Beaver W. H.	1968	The information content of annual earnings announcements	JAR, Supp., 87-92	4	5	8	9

* These documents emerge as an isolated cluster at CTL 3.

Figures 8.4 and 8.5 highlight the position of the common documents in the fish-scale maps by shading all other documents in grey. The reference for the particular document has also been placed close to it, so that they may be identified exactly. Comparing the two figures gives a sense of the relative "locations" of the documents in the clusters structures of international accounting and accounting as a whole.

8.4.2.1 Capital markets research

The most obvious and pivotal cross-over area is in the international Cluster 5 - Capital Markets. This cluster contains Ball and Brown (1968) and Beaver (1968) and is a link into a very significant area for accounting research, as discussed in Chapter Five. As Cluster 5 expands from its initial emergence with these two seminal articles at CTL 4 to four documents at CTL 3, the additional areas are largely replications of the methodology in different countries (Japan and Singapore). It is interesting that in both cases the studies found, "less efficient absorption of information and impounding of that information on stock prices" (Deakin, Norwood & Smith, 1974, p. 136). Deakin *et al.* also suggest:

> this would tend to indicate that market efficiency may not be a characteristic of stock markets throughout the world, and that individualistic behavior and the slow dissemination of information may have a far more important bearing on stock market prices than they do in the United States. (p. 136)

The direction of argument in this conclusion is that since the outcome of the test was not in line with the hypothesis, the market is not efficient. Another possible approach is to feed back the findings from international application of the EMH and related capital markets tests to enrich and broaden the theory and understanding of how accounting information is used in different capital markets, and why the differences occur. This may then be able to feed back into anomalous findings in the American and other western capitalist economies for a more comprehensive understanding of the area.

FIGURE 8.4 International Accounting as a Fish-scale Model: Common Documents

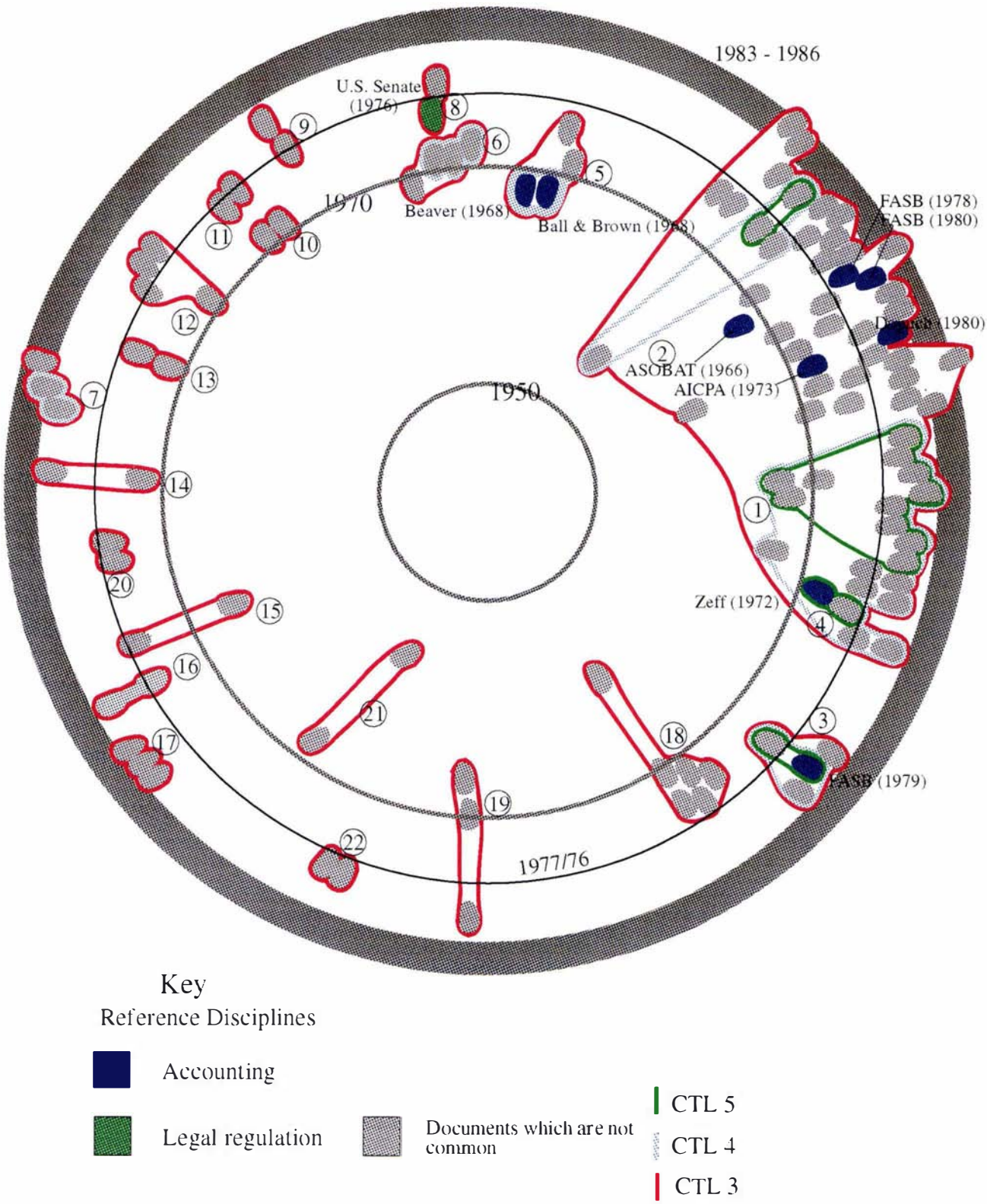
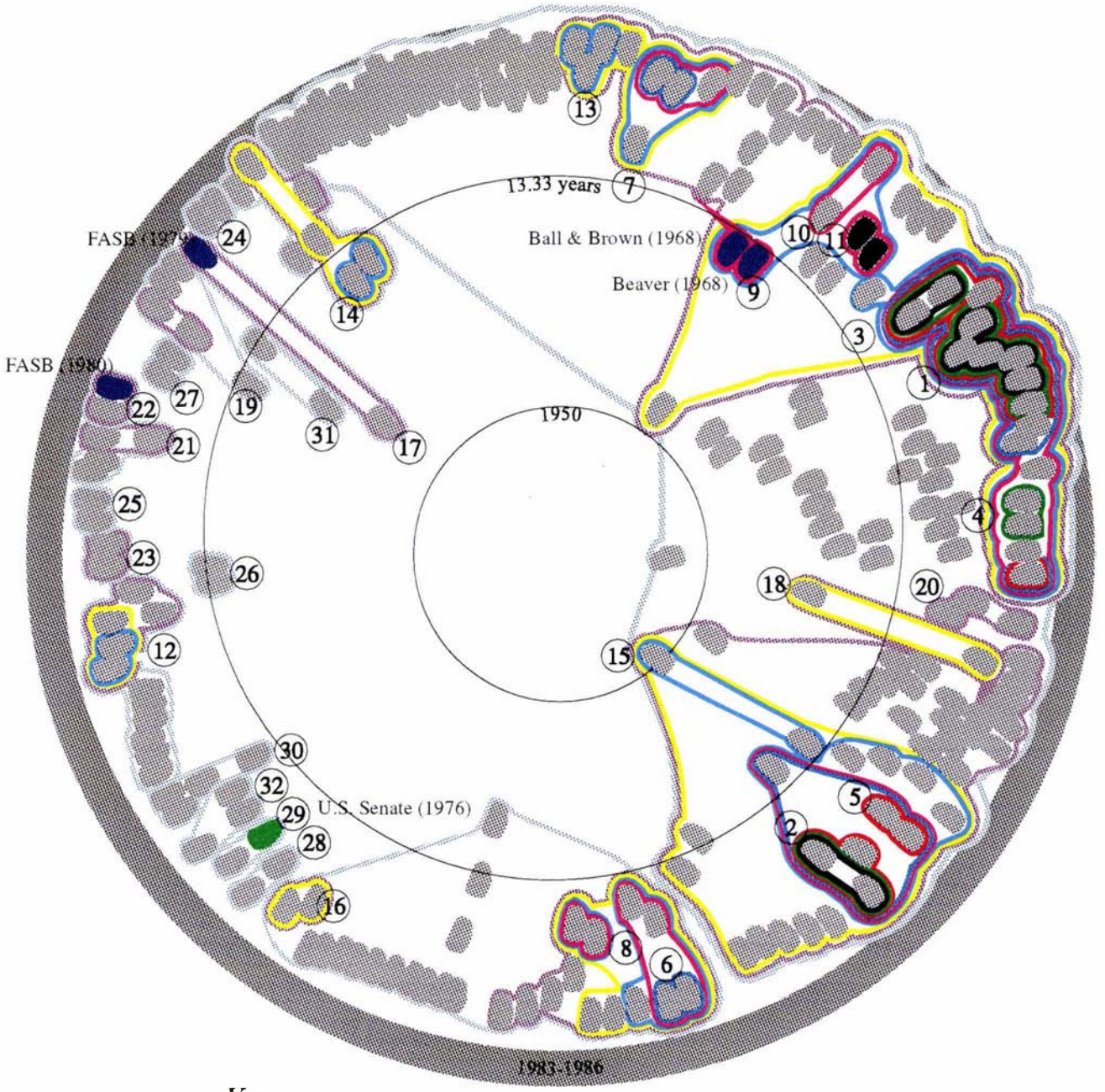


FIGURE 8.5 Bricker (1987) as a Fish-Scale Model: Common Documents



Key

Reference Disciplines

- Accounting
- Legal Regulation
- Documents which are not common

Contour CTL Levels

- CTL 12
- CTL 11
- CTL 10
- CTL 9
- CTL 8
- CTL 7
- CTL 6
- CTL 5
- CTL 4

The important point is that if international accounting research is to perform an integrating function in this, the most tightly closed-off area of accounting research, then the research must not only draw methodological approaches out of the accounting literature, it must feed them back into accounting research by considering the results from the uniquely international perspective and integrate different research findings into new theoretical and methodological understandings. There are two preconditions for this to be effective. First, international accounting researchers applying the methodology must do so with a more widely enquiring approach that considers issues of methodological appropriateness and contextual influences and feeds this into a re-development of the research approach. For example, in Deakin *et al.*'s study they express awareness of the differences in information dissemination and capital structure characteristics between the Japanese and American markets. However, this awareness is not fed back into the theory and method to suggest why or how the theory may be developed to address these different structural factors in the environment, or how or why these differences may impact on the expectations of the study results. Obviously, a 1974 study is an early work and techniques and approaches have developed since then; however, a recent literature search has failed to find an international earnings announcement article which attempts this feed back approach. It is important that methodological dogmatism is not predominant in the application of the capital markets approach into international accounting so that the full benefit of the possible integration of views outside the strong Cluster 1 grouping for accounting as a whole is achieved.

Perhaps this is a difficult prescription for any researcher - to adopt a methodology but with an open mind. A first step may be to review the full international literature adopting a capital markets approach to distil any possible "feed back" type lessons for the methodology from the different responses found in international studies. This creates stronger links between international literature and key accounting literature and may highlight previously unfocussed findings on developing a broader, more integrated understanding of the use of earnings information in capital markets.

The second requirement is to avoid the apparent partitioning between international accounting and accounting literatures by seeking to publish such findings in more mainstream journals rather than specialist international publications. This is important in achieving communication with researchers who have limited time for and perhaps interest in searching for relevant research in a range of specialist journals not directly related to their subject area.

The potential for this to be a lively cross-over area is enhanced by recent interest in capital markets research as suggested by the theme of the Eighth (1996) Asian-Pacific Conference on International Accounting in Vancouver - "Capital Market Developments and the Role of Accounting." While this in itself does not suggest an opening up of accounting research, the potential is great for the international perspective to make a significant difference in linking the tightly integrated major cluster grouping around Cluster 1 in accounting as a whole. This is because the very application of the capital markets approach in other countries raises the issue of the fundamental assumptions underlying the model and their applicability in other cultural and environmental situations.

8.4.2.2 Accounting theory

The AICPA's (1973) "Objectives of financial statements" and the AAA (1966) "A statement of basic accounting theory" (ASOBAT) are common documents between the two literatures. In Chapter Seven it was suggested that international accounting gave accounting theory a more central position in the research than was evident in accounting as a whole. The existence of these two documents as common, suggests that this may be another area in which international accounting may have a perspective which can integrate the approaches in accounting as a whole.

The two documents emerge at CTL 3 in both literatures, suggesting that they have not been identified as of great significance in either case, but perhaps more so in international accounting where the overall levels of citation are much lower. In international literature the documents are clustered in the main grouping, termed International Financial and

Management Accounting, while in accounting literature they emerge together as an isolated cluster (numbered 18 in Bricker's Appendix 4-6).

The exciting possibility is that this isolated cluster emerging at a low CTL may be able to be linked to a range of other common documents by international accounting. Figure 8.4 shows that the two documents of interest are clustered together with FASB (1979), FASB (1980) and Dopuch (1980) at the same CTL and with Zeff (1972) which clusters at CTL 5. FASB (1978), Zeff (1972) and Dopuch (1980) all emerge at CTL 3 in the main cluster grouping in the accounting literature. Thus, the documents which international accounting currently links, remain isolated in accounting as a whole. In a sense, international accounting has created a ready-made bridge in the linking of ideas from these documents.

This suggests that perhaps an international perspective on the development of underlying principles and concepts of accounting, including the recurrent problem of measurement, may help integrate an area currently isolated in accounting literature. It may also provide an insight by casting the conceptual frameworks, qualitative standards and statements of objectives promulgated by national professional bodies into a big picture perspective that allows the commonalities and differences to give direction to the theory development process. This hope is not a new one, but it is given new direction and encouragement by the observation of the emerging cross-over area.

The key for international accounting researchers is to pitch the analysis for an audience which is not exclusively international so that the aim of publishing in more mainstream journals is achieved. On the other hand, it can also be argued that it is important that editors and referees for the mainstream journals recognise the potential contribution of international research and not simply exclude it based on dogmatic definitions of rigorous research, which in the case of some empirical hypothesis testing is currently not possible in large areas of international accounting research. This does not imply that lower quality research is acceptable because it is international, just that rigorous research of a different methodological style needs to be considered acceptable.

8.4.2.3 Measurement issues

The final common document is the FASB's (1979) "Statement of financial accounting standard no. 33: Financial reporting and changing prices." In accounting literature this document appears clustered with Edwards and Bell's (1961) *The theory and measurement of business income,* in Cluster 17 in Figure 8.5. This cluster merges with the main grouping at CTL 3. In international accounting, the cluster containing FASB (1979), likewise merges with the main cluster grouping at the lowest CTL. It is part of a more significant cluster in international accounting literature than Cluster 17 is in accounting, however. It clusters with the British Inflation Accounting Committee's (1975) *Report*, commonly known as the Sandilands Report. At CTL 4, the Accounting Standards committee's (1980), *Statement of standard accounting practice* no. *16: Current cost accounting* is added to the group. Finally, the New Zealand Society of Accountants' (1982) standard, *CCA-1 Information reflecting the effects of changing prices* is added to the group before it merges with the main cluster at CTL 2.

This area of potential bridging is similar to the area identified in the previous section, but it highlights the potential significance of the measurement issue as an integrating force in the literature. The weak links observed in accounting literature for a topic which normatively appears fundamental to the function and role of accounting, may be supported and reinforced by the international perspective on this issue. The importance of the topic in an international setting, perhaps suggests that it is mainly the American literature which has not taken up this issue. There are, however, suggestions that this issue which tends to wax and wane in line with rates of inflation may be one that accounting academics need to return to as a foundation area of theory with a role in integrating research in accounting.

8.5 LIMITATIONS OF THE ANALYSIS

The analysis of bridging possibilities to integrate accounting research literature is based upon co-citation analysis of two samples of that literature. To the extent that some

important literature is not cited by researchers, the analysis is only a partial view of the possibilities.

The difference in the time period for the collection of citations from source documents between the international co-citation study and Bricker's (1987) may also result in bridging opportunities not being identified. Note that using the relative distance from the research front in the mapping process of the international accounting literature means that the comparison is relevant; however, it may be that in the period since 1986 accounting literature has expanded into areas which create links with international research currently not reflected in the analysis. Unfortunately, undertaking a replication of Bricker's study is a large and potentially expensive task and beyond the scope of the current study. An extension of co-citation analysis for the recent years of the accounting literature would be interesting both for the purpose of comparison with the international accounting co-citation analysis and for time-series comparison with the 1983-1986 citations.

The purpose of this chapter was to identify whether or not international accounting is well placed to act as an integrating agent for the accounting research base, and to specify the areas in which this could be undertaken. For the analysis to be fruitful, however, it is necessary for international accounting researchers to accept the research possibilities as exciting and interesting, since it is unlikely that many researchers will undertake research for the sole purpose of integrating a knowledge base. Naturally, if the integration of accounting knowledge could be appreciated as an important goal in accounting research, this would provide motivation for the bridging areas identified to be researched.

8.6 IMPLICATIONS FOR INTERNATIONAL ACCOUNTING AS A SUB-DISCIPLINE

The focus of this research has been on the fragmentation of accounting literature and ways of addressing it. One of the findings of this study, however, is that international accounting literature is also fragmented. In fact, this is an important pre-condition for it to be suitable as an integrating agent for the rest of the accounting research base. From the perspective of international accounting researchers, this may be identified as the significant problem rather than a positive precondition for another role. The analysis of knowledge accumulation processes in Chapter Five suggests that there are forces which encourage researchers in a specialty to aim to differentiate their specialty so that it will form its own distinct knowledge base. The question is whether or not the recommendations for bridging research in this study preclude international accounting from maintaining the status of a specialty area of accounting. More broadly, does the aim of integration in a literature run counter to the knowledge accumulation processes identified in Chapter Five?

The forces which motivate researchers to initiate and belong to specialty areas are linked to the imperative for publication success, and this is a key element of the institutional structure of academic research. This motivation to produce is important and not easily replaced, so it is assumed that despite concerns over the potential dysfunctional effects on the quality of research, this characteristic of academia is likely to remain. The motivation to create new specialty areas is not only divisive it is also creative, and the diverse perspectives and new interest areas are also a positive feature of research literatures. So the argument of this thesis for accounting research as a whole and international accounting in particular does not involve radically changing the institutional boundaries and imperatives, but rather balancing them with a conscious awareness of the need to increase communication and research links across specialty boundaries. The role of the mainstream accounting journals in facilitating this exchange is extremely important. As long as narrow areas of interest have hegemonies over the journals which academics rely on to provide a broad view of the research literature, it will continue to

be very difficult to achieve an integrated knowledge base. There is simply not enough time for researchers to read widely in a range of specialist journals.

Bibliographic tools such as citation indexes and databases, for example *ABI/Inform*, are a quick means of finding relevant research material from a range of journals. There are two limitations in their use, however. First, the most widely used citation database, the SSCI, uses a reasonably narrow band of journals for source articles in accounting. This is especially noticeable for international accounting researchers! While the source articles in the journals used in the index may cite articles from other journals, the pre-existing fragmentation tends to mean that a lack of awareness (or pre-conceived views on the relevance or quality of the research) means that the citations are not as widely made to literature as could otherwise be expected. This creates and reinforces the partitioning in the literature mentioned earlier. In short, researchers cite the literature of which they are aware. If there is a problem in a lack of recognition for an area of literature, referring to previous researchers' reference lists may not be a useful starting point. The second limitation relates to the use of databases as a means of retrieving relevant articles. The basis of such searches is normally by subject or key words. To ensure that the communication lines across specialties are not blurred, it is important that the specialist language which often distinguishes members of one group from another (see Tomkins, Rosenberg & Colville, 1980 for an example) does not prevent the extraction of relevant documents in a search. The simplest way to ensure this is to avoid the heavy use of specialist jargon in abstracts and key words for articles.

Thus, an approach appears to be to use particular motivations in academic research to positive ends but to balance this with simple, practical techniques to increase communication and, most importantly, with a balance to be achieved by researchers and editors between the desire to contribute to a specialty area and to make an integrative contribution to the accounting literature as a whole. As the "gatekeepers" of accounting knowledge, journal editors and referees have a particularly important role to play in emphasising integration in a way that is balanced with specialisation. If accounting

academics carefully walk this tightrope, an integrated literature at lower levels of citation as well as a rich and diverse range of specialty areas can be achieved.

For international accounting in particular, the proposed bridging research areas are not designed to undermine the unique aspects of the international research specialty, but to feed back into accounting literature as a whole the full contribution that the international perspective is able to make. Enhancing the profile of the specialty area should be a positive step in its continuing development as a specialty. In order to have an integrating role, however, it is important that the balance between the desire to differentiate and the desire to integrate is maintained and that the openness to methodological approaches and broad range of subject areas is nurtured as one of the positive distinguishing features of international accounting research.

8.7 SUMMARY AND CONCLUSIONS

This chapter has drawn together the analysis of the previous chapters to evaluate the potential for international accounting to act as an integrating agent for accounting research. The international accounting literature analysed in Chapter Seven has characteristics identified as pre-conditions for it to be well positioned for the task.

Three areas are identified as of particular interest for integrating research. First, the isolated cluster of academic issues which exists in both literatures was identified as a common element in both literatures. While it is possible that the research which links accounting research subject and direction to studies of academic performance may be useful in linking this literature to the main cluster of accounting research, the self-reflective nature of such academic research suggests it is not a key subject area for integrating the knowledge base. It may indeed remain separate purely because of its subject area.

Three more promising areas for integration are capital markets based research, accounting theory and, more specifically, measurement issues in accounting. The capital markets area is strongly linked to international accounting research and there is a growing interest in this area within international accounting. The important factor in achieving integration as a result of international research in the area was identified as the necessity to feed back ideas from the international perspective into the mainstream accounting capital markets research. This poses some difficulties in that researchers would need to approach an otherwise strictly formulated methodological approach with an open mind and the results of this research would need to be accepted into mainstream publications. The difficulty in dealing with these issues creates a barrier for an approach that would otherwise be very promising.

The other two areas for integration are closely linked. Accounting theory and measurement issues are more central in international accounting literature, and provide a bridge to link currently fragmented areas in accounting research. Once again, international research on these areas would need to be brought to the attention of researchers outside the international specialty area to make gains in the level of integration of the accounting research base.

CHAPTER NINE
SUMMARY AND CONCLUSIONS

9.1 INTRODUCTION

The motivation for this study arose out of concerns expressed in the literature about accounting research. Four categories of issues were identified: the methodological divisions in accounting research; the lack of a general theory; and the lack of usefulness of accounting research for students and for practitioners. These issues were identified as potentially related through the long-term, underlying problem of the fragmentation of accounting research. This thesis has explored the nature of fragmentation in the context of a model of knowledge accumulation, and has developed a potential strategy for reducing the level of fragmentation in accounting research.

The next section provides a summary of the thesis. The following sections include the main findings of the research (Section 9.3), the limitations of the project (Section 9.4) and the contribution of this study (Section 9.5). Areas for further research are identified in Section 9.6 with some concluding remarks in Section 9.7.

9.2 SUMMARY

Fragmentation is the disconnectedness or isolation of research areas within a discipline. It has been identified as characterised by low cohesion and non-homogeneity in a discipline's research literature (Bricker, 1987). Some level of fragmentation is unavoidable as a result of the difficulties connecting all knowledge into a coherent framework. Fragmentation has negative outcomes for a discipline's research base. These outcomes have been identified as the inefficiency of research production through re-discovery of knowledge, the irrelevance of over-specialised fragments of a discipline to anything other than their own research goals, and the potential disintegration of the

discipline. Fragmentation arises, in part, out of systemic causes such as reward systems and institutionalised structures within which research is conducted in universities. The reward system is focussed on publication in refereed journals that seek to publish high quality research. To publish successfully, researchers are motivated either to begin new specialty areas or, having achieved a level of expertise in one area, to research the detailed minutiae of it. This results in two types of increasing specialisation: one is the increasing number of specialty areas in a discipline; and the other is the increasing specialisation of individual researchers in their chosen area.

This process, operating in an environment where researchers compete to publish, gives rise to two further factors that promote the fragmentation of the discipline. First, the number of journals produced in a discipline burgeons and second, researchers tend to become more dogmatic about their research areas. The number of journals that specialise in particular research methodologies or subjects means that individual researchers are unable to keep up with developments across a range of research topics and styles. There is a tendency to justify and adhere strongly to that research specialty in which a researcher has invested time and energy to support the value of publishing in that area. This is just one thread in the pattern of relationships described in the study, a pattern which also includes the effect of belonging to a specialised academic department, the stage of development of the discipline, cultural and environmental issues, and the subject matter itself. This adherence and justification is a significant thread: it reflects the intertwining effects and relationship with the concerns about accounting research identified in the literature. The concern about methodological divisions is directly mirrored in the description of the fragmentation process. The need to specialise and yet adhere strongly to a specialty area is related to the multiplicity of methodological perspectives and the dogmatism with which they are propounded. The lack of relevance of research for teaching and practice is linked to the pre-occupation of researchers with refining the specialty to which they belong rather than focussing on more complex problems that may require team work or inter-specialty skills. Finally, the lack of a general theory of accounting is identified as an issue for research and as a potential source of integration for a fragmented discipline. If accounting had such a coherent

theory, the effects of the causal factors identified in this study on the research literature would be mitigated by the common "language" and unifying interest such a theory would provide the discipline. The difficulty in a fragmented discipline is that it is not a good base from which to develop a general theory, and experience has shown that a very limited number of disciplines in the social sciences have achieved such a theoretical basis.

The institutionalised, self-perpetuating nature of fragmentation suggests that deliberate efforts to achieve a greater level of integration are needed. The approach suggested is to use the institutionalised forces to promote integration, rather than to attempt strategies that are in opposition to the institutionalised structures.

To consider the role of fragmentation in accounting as a discipline, the sense in which accounting may be considered a discipline was explored. The sociological perspective emerged as a common element in the debate about methodology and disciplinary status in accounting, and this perspective was adopted to discuss the status of accounting as a discipline. The commonality of the sociological perspective across the various methodological views within accounting suggested it as the most suitable basis for developing a knowledge accumulation model capable of encompassing all the varied research styles in accounting. A mapping technique was developed that incorporates the elements of the knowledge accumulation process and patterns to provide a means of representing some of the key knowledge accumulation elements in the one diagram. Bricker's (1987) co-citation study of the accounting research literature is represented in this form to allow the identification of specific areas of fragmentation and as a basis for comparison, later in the thesis, with international accounting. While it was possible, on the basis of the fish-scale diagram, to make suggestions for increased integration on a localised basis within the accounting literature, a survey of previous experiences in attempting to re-integrate fragmented research literatures by other disciplines and suggestions from within accounting formed the basis for identifying alternative strategies. These strategies were evaluated against the goal of achieving an integrated, but pluralistic discipline, capable of innovation through a multiplicity of research approaches, but also with established links of communication to facilitate integration. The outcome

of this evaluation was the identification of the specialty of international accounting as the most likely candidate for further consideration.

The final part of the thesis was the more specific exploration of international accounting as a catalyst for integration. This involved the analysis of the speciality's literature using the co-citation technique. The results, supported by views from international accounting literature, suggested that the specialty does display the characteristics identified as conducive to it functioning as a re-integration mechanism. These characteristics were identified as methodological tolerance, broad relevance to subjects in accounting, a low level of integration, and a high level of cohesion.

The specific areas identified where international accounting research is well positioned to provide an integrating force are international accounting research feedback into contextual issues in capital markets research, and an international perspective on accounting theory and measurement issues. A key factor in the success of the strategy is for international accounting research to remain open and eclectic in its research style. Further, it is important that research in the three categories outlined are published in journals with a readership which is not mainly international accounting researchers, but that reaches a wider audience. This is more likely to be possible since the areas identified are cross-over areas into general accounting literature. It is anticipated that by publishing in more widely read journals, the international accounting perspective in these three areas will have a ripple effect, enhancing the impact of the original work to enable it to spread through the literature as other researchers pick up the work and continue it.

It is possible that purely by retaining an open perspective and researching the issues that are of interest to international accounting researchers in any case, the specialty will contribute to the integration of the accounting discipline. An awareness by researchers of the importance of the integration function, and the identification of areas of research which fulfill this role at the same time as providing rewards to the researcher through publications which are acceptable in the wider literature, is important to enhance this

effect in the face of the institutionalised factors which perpetuate the current fragmentation.

9.3 CONCLUSIONS

This study has considered in detail the issue of fragmentation in the accounting discipline. Starting from a theoretical perspective, the concept of fragmentation was explored and its causes, characteristics and outcomes identified. A conclusion drawn from the discussion is that these features are part of a dynamic process in which fragmentation is created and perpetuated. This suggests that in keeping with the very moderate externalist position adopted, a conscious effort from within the discipline to offset fragmentation is appropriate.

The analysis also shows that a key choice to be made when focussing on re-integration is the level at which it is to be sought. For the purposes of this study, the focus is on accounting as a discipline. Since there are many views of accounting's disciplinary status, and these tend to be related to methodological arguments, the literature relating to these debates was reviewed. The underlying features of the arguments were considered within the framework of three approaches to the development of a discipline, the non-sociological epistemological approach, the sociological approach and the psychology of science approach. It was concluded that the sociological approach is common to the arguments and is widely referred to in the literature. It is also adopted as an appropriate approach for considering the research process.

Fragmentation was identified as implicated in the institutionalised process of producing research. To explore fragmentation in a specific discipline, it is necessary to have a means of representing this process and its outcome in terms of knowledge accumulation. This allows the representation of the state of research in a discipline and the identification of particular areas of fragmentation as well as measuring the characteristics of non-homogeneity and low cohesion. To achieve this, an understanding of knowledge as represented in the research literature of a discipline is explored. This is further

crystallised into a model of the observable core of the literature, the research front, and types of knowledge accumulation patterns. The study used these features as constructs in a mapping process that allows the results of co-citation studies to be represented in a knowledge accumulation style that incorporates more information about these key features of the discipline. Bricker (1987) had already concluded that characteristics of fragmentation were observable in the research literature; the map of his co-citation results reflected these findings and highlighted specific areas of fragmentation in the literature. This evidence, as well as the references in accounting literature to fragmentation, the rapid growth in the number of specialised accounting journals, and the institutionalisation of methodological approaches in specific journals and academic departments leads to the conclusion that fragmentation is an underlying problem in accounting.

Re-integration strategies are reviewed and evaluated against the objective of achieving a pluralistic, but integrated discipline. The review suggests that strategies used in other disciplines and branches of knowledge have been quite unsuccessful to date. Rather than abandoning the search, however, it was concluded that it is important to consider the institutional context of fragmentation, and identify re-integration strategies that could harness these same processes in the effort to stimulate integration. With this guiding principle and the objective in mind, potential strategies were explored in the context of features of the accounting discipline. The international accounting specialty was identified as the option with most potential to promote re-integration.

A co-citation analysis of international accounting literature showed the area to be fragmented in terms of an observed level of homogeneity of 72 per cent compared with a benchmark level of 90 per cent. On the other hand, the international accounting literature showed a high level of cohesion with very low interdisciplinary fractions at all CTLs. Its literature is firmly based in accounting with very little direct input from reference disciplines. Its knowledge accumulation pattern was of a Type B style not too dissimilar from accounting as a whole. It was also found to be considered methodologically tolerant and relevant across a broad range of subject areas. These

findings led to the conclusion that international accounting does have characteristics that make it well situated to act as a catalyst for re-integration.

For a specialty to perform an integrating role nothing more than pursuit of the research aims of that area may be necessary. However, the earlier conclusion that specific strategies are needed to offset the pervasive influence of institutional forces in maintaining fragmentation suggests the need for a further analysis of international accounting literature in relation to accounting as a whole. The purpose was to identify areas particularly well suited for integration by international accounting. The knowledge accumulation maps for accounting as a whole and for international accounting are used to identify the location of common documents and isolated clusters. Three areas of international accounting research are identified as well placed to stimulate re-integration: capital markets studies, accounting theory and accounting measurement. An important condition for input from international accounting to act as a catalyst through these areas is that the research must be readily accessible to the wider research community. This suggests that publication in journals not dedicated to international accounting research is a key factor in implementing the strategy.

9.4 LIMITATIONS

This study has three main limitations. First, the emphasis is on research production in the English language in western-style universities. As Easton (1991) points out, the eastern approach to disciplines is significantly different and may result in different research outputs. Since a significant amount of accounting research literature is published through research conducted within this type of institution (see Appendix 5A for a partial list of English-based academic accounting journals), the implications of the results of the study are relevant for an important section of the research output in accounting. Indeed one of the areas of fragmentation which the study may not have been specifically able to identify, but which appears to exist, is between the English-speaking western approach to

accounting research and developments in non-English speaking research environments such as China and Japan.

Second, the specific limitations of the co-citation data and the need to enter the data manually were discussed in Chapter Seven; these act to limit the scope of the co-citation analysis. Similarly, the comparison of Bricker's study which included data to 1986 with data for international accounting to 1993 raises concerns about the difference in the accounting discipline which may have occurred in the period, 1986 to 1993. A replication of Bricker's study to bring it up-to-date was considered; however, the SSCI is unavailable in CDROM format at Massey University, and the alternative option was not feasible due to financial constraints.

The third limitation of the study was the inability to provide external validation for the intellectual structure of international accounting because of the unavailability of an independently constructed, comprehensive classification of international accounting literature similar to Brown and Vasarhelyi (1985). To extend the inferences which may be drawn from the co-citation analysis, another means of validating the structure, such as a survey of international accounting researchers, may need to be considered.

9.5 CONTRIBUTION TO KNOWLEDGE

At the broadest level, the study is intended to highlight fragmentation as an issue in accounting literature. The analysis of it as a concept, its characteristics and outcomes is new to accounting research. It has been linked to recurrent problems identified in accounting research and a new perspective is provided on these issues through fragmentation as an institutionalised, underlying cause.

The main contribution of this study is the identification of international accounting as the most suitable vehicle for a conscious effort to stimulate re-integration in accounting

research. Specific strategies for stimulating re-integration through this approach have been suggested, based on an analysis of the two literatures.

Five other contributions are made in the process of achieving the above outcome. First, an analysis of the debates about methodology and disciplinary status of accounting led to the identification of a common theme in the sociological perspective. This in turn enabled an analysis of the sense in which accounting may be considered a discipline by researchers across the various methodological approaches.

Second, a model of knowledge accumulation based on a sociological perspective was developed. This synthesised views from a sociological perspective into the accounting literature and provided a basis for viewing the research process.

The development of a mapping technique that incorporates features from the knowledge accumulation model and patterns is a third contribution. The representation of clusters down to the document level and the research front, core knowledge and knowledge accumulation patterns had not been achieved previously.

A challenge to presenting the results of the co-citation analysis of international accounting has been the generally low level of awareness of bibliometric techniques, and co-citation analysis in particular, by accounting academics. This is despite a number of articles in accounting literature on the subject (e.g., Bricker, 1989; Gamble & O'Doherty, 1985; Gamble, O'Doherty & Hyman, 1987; Hofstedt, 1976; McRae, 1974). A contribution that has developed out of this challenge is the careful explanation of bibliometric techniques and co-citation analysis.

Finally, the co-citation analysis of international accounting provides an insight into the intellectual structure of this specialty area. The necessity of manually producing a database of citations made this a demanding undertaking.

9.6 SUGGESTIONS FOR FURTHER RESEARCH

There are a number of areas which were beyond the scope of the current study and which could usefully extend the work. First, the replication of Bricker's (1987) study for the period after 1986 would enable the development of the intellectual structure in accounting and its state of fragmentation to be observed. In undertaking the study, consideration could be given either to the trade-off between providing a clear progression from the earlier study by using the same journals or, to extending the journals included to reflect the broader accounting literature. The latter option may provide a more inclusive view of the accounting discipline but may involve augmenting the SSCI with manually entered data.

A major research project would be to undertake a comprehensive classification of the international accounting literature in the same style as Brown and Vasarhelyi (1985). Once again the issue of comparability with other studies such as Brown and Vasarhelyi (1985) would need to be weighed against designing a classification structure that reflects the particular characteristics of international accounting research.

Another interesting area of research which could be undertaken either for accounting as a whole or for international accounting, would be to study the core literature as represented by citations to research in text books at the undergraduate and graduate levels (Cole 1983). This type of study has the potential to identify core research which has been obliterated through incorporation. The research could also be extended further to investigate the comparative level of use of research in teaching texts for business disciplines.

The co-citation study of international accounting could usefully be extended to include other journals, and be updated for subsequent years. While recent co-citation studies in other disciplines have not uniformly undertaken validations of the structures produced (as discussed in Chapter Seven), a useful extension of the current study would be to develop a validation approach for international accounting. An extension of co-citation analysis could consider whether or not consensus in international accounting is increasing

over time or whether or not the inclusion of source articles from other journals impacts on the results.

A technical area of co-citation analysis that has not been studied extensively is the relationship between the structure of the source and cited documents and the level of connection as discussed in Chapter Seven. A large proportion of data collected for a co-citation study is not analysed, yet there may be patterns and characteristics in the citations and sources, excluded from the lowest threshold level for study, which may cast light on the research base as a whole.

Finally, further development of the mapping technique could be undertaken. A means of incorporating a classification of research method and subject into the fish-scale representation at the document level would convey a sense of the diversity of these features within a cluster. On the technical side, a means of automating or otherwise reducing the amount of time necessary to produce the maps would enhance the opportunities to apply the approach more widely.

9.7 CONCLUDING REMARKS

Fragmentation is seen as embedded in the institutional arrangements and historical development of the accounting discipline, so its development and strategies to achieve its reduction have a long-term time frame. This study has highlighted the potential link between fragmentation and concerns about accounting research literature. An analysis of the role of fragmentation and a knowledge accumulation model that encompasses the broad range of research styles in accounting is designed to facilitate the possible development of a pluralistic but integrated research approach in accounting.

The approach developed in this thesis is seen as a starting point to initiate a process of re-integration. International accounting research as a re-integrating mechanism has been identified as currently well situated to stimulate that process; however, the importance of

the role of researchers, journal editors and reviewers is also clear from the model of knowledge accumulation developed. The potential to promote integration in the accounting discipline ultimately rests in the hands of these representatives of the academy.

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APPENDIX 5A
ACCOUNTING PUBLICATIONS

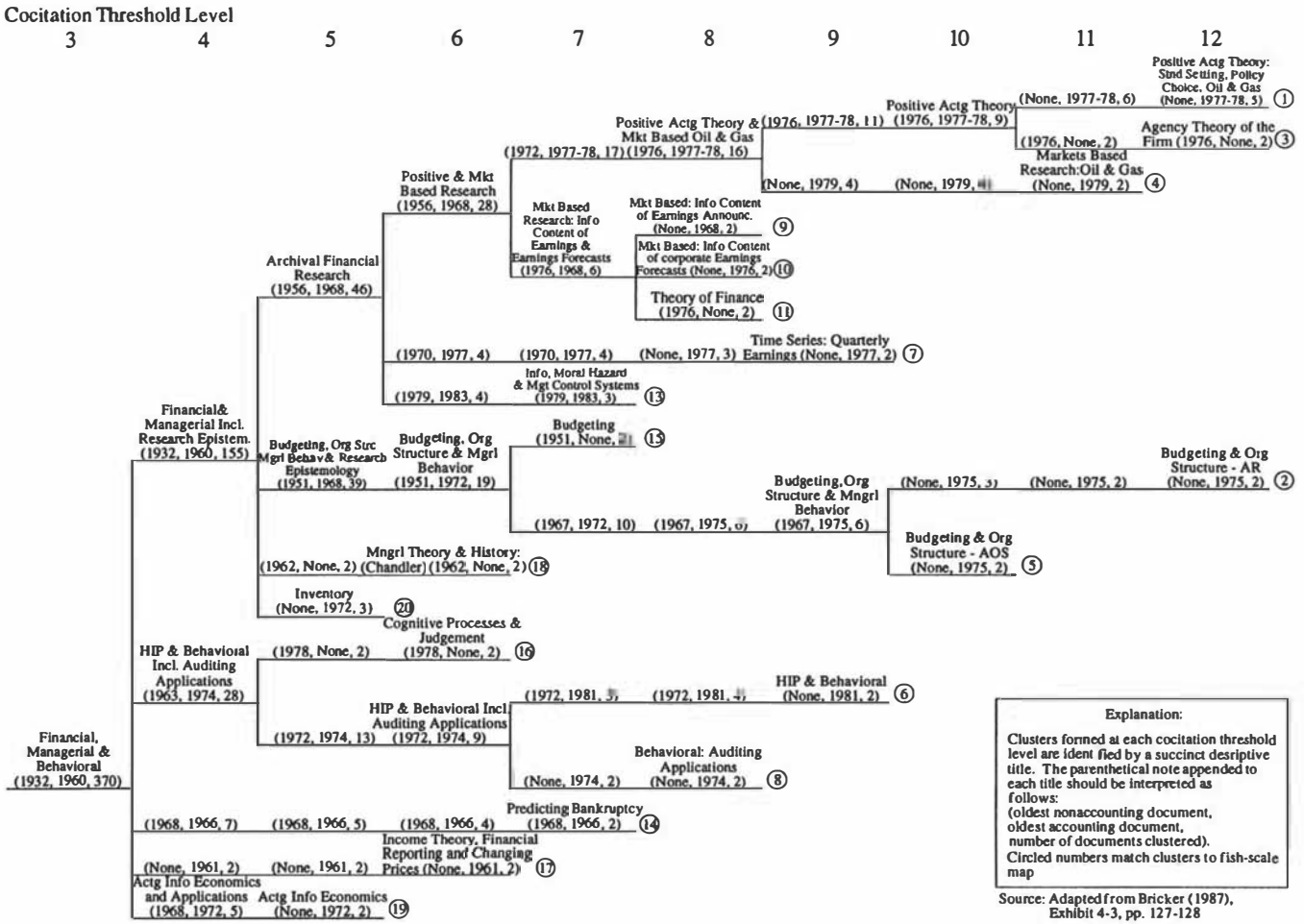
Journal Name	First Year	End Year	Foreign Language
Abacus	1965		
Accounting & Business Research	1970		
Accounting & Finance	1960		
Accounting Education	1992		
Accounting Forum	1978		
Accounting Historians Journal	1974		
Accounting Historians Notebook	1978		
Accounting History			
Accounting Horizons	1987		
Accounting Review	1926		
Accounting, Auditing & Accountability Journal	1988		
Accounting, Mangmnt & Info Technologies	1991		
Accounting, Organizations & Society	1976		
Advances in Accounting	1984		
Advances in Accounting Information Systems	1992		
Advances in International Accounting	1987		
Advances in Management Accounting	1992		
Advances in Public Interest Accounting	1986		
Advances in Qualitative Analysis of Fin & Acc	1991		
Asian Review of Accounting	1993		
Auditing - A Journal of Practice & Theory	1981		
Australian Accounting Review	1991		
Bank Accounting and Finance	1987		
Behavioral Research in Accounting	1989		
British Accounting Review	1969		
Chrtered Intit Managmnt Accnts Occasiona			
Contemporary Accounting Research	1984		
Corporate Accounting	1983	1988	
Critical Perspectives on Accounting	1990		
Die Wirtschaftspruefung	1948		German
European Accounting Review (The)	1992		
Financial Accountability & Mangmnt in Government, Public Services & Charities	1985		
Georgia Journal of Accounting	1980		
Internat. Journ of Acc (Educ & Research)	1965		
Issues in Accounting Education	1983		
Journal of Accounting and Economics	1979		
Journal of Accounting and Public Policy	1982		
Journal of Accounting Education	1983		
Journal of Accounting Literature	1982		
Journal of Accounting Research	1963		
Journal of Accounting, Auditing & Financ	1977	1985	

Journal Name	First Year	End Year	Foreign Language
Journal of Accounting, Auditing & Financ	1986		
Journal of Business Finance and Accounti	1974		
Journal of Cost Analysis	1984	1989	
Journal of Cost Management	1987		
Journal of Information Systems	1986		
Journal of International Accounting, Auditing & Taxation	1992		
Journal of Intnl Finanacial Management & Accing			
Journal of Management Accounting Research	1989		
M A B - Maanblad Voor Accountancy En Bed	1924		Dutch
Management Accountant (ing)	1965		Indian/English
Management Accounting Research	1983		
Managerial Auditing Journal			
Pacific Accounting Review	1989		
Research in Accounting Regulation	1987		
Research in Governmental and Non-profit	1985		
Research in Third World Accounting	1990		
Review of Quantitative Finance and Accou	1991		
Revisjon og Regnskap	1931		Swedish
Revista de investigacion Contable (Teuke	1987		Argentinian
Shanghai Kuaiji/Shanghai Accounting	1979		Chinese
Sichuan Kuaiji/Sichuan Accountants	1981		Chinese
Social Accounting Monitor	1982		
The Accounting Systems Journal	1989		
The Southern Collegiate Accountant	1989		
Zeitschrift Interne Revision	1966		German
Number of foreign langauge publications			7
Total publications	66		
Publications with non-blank years	62	3	

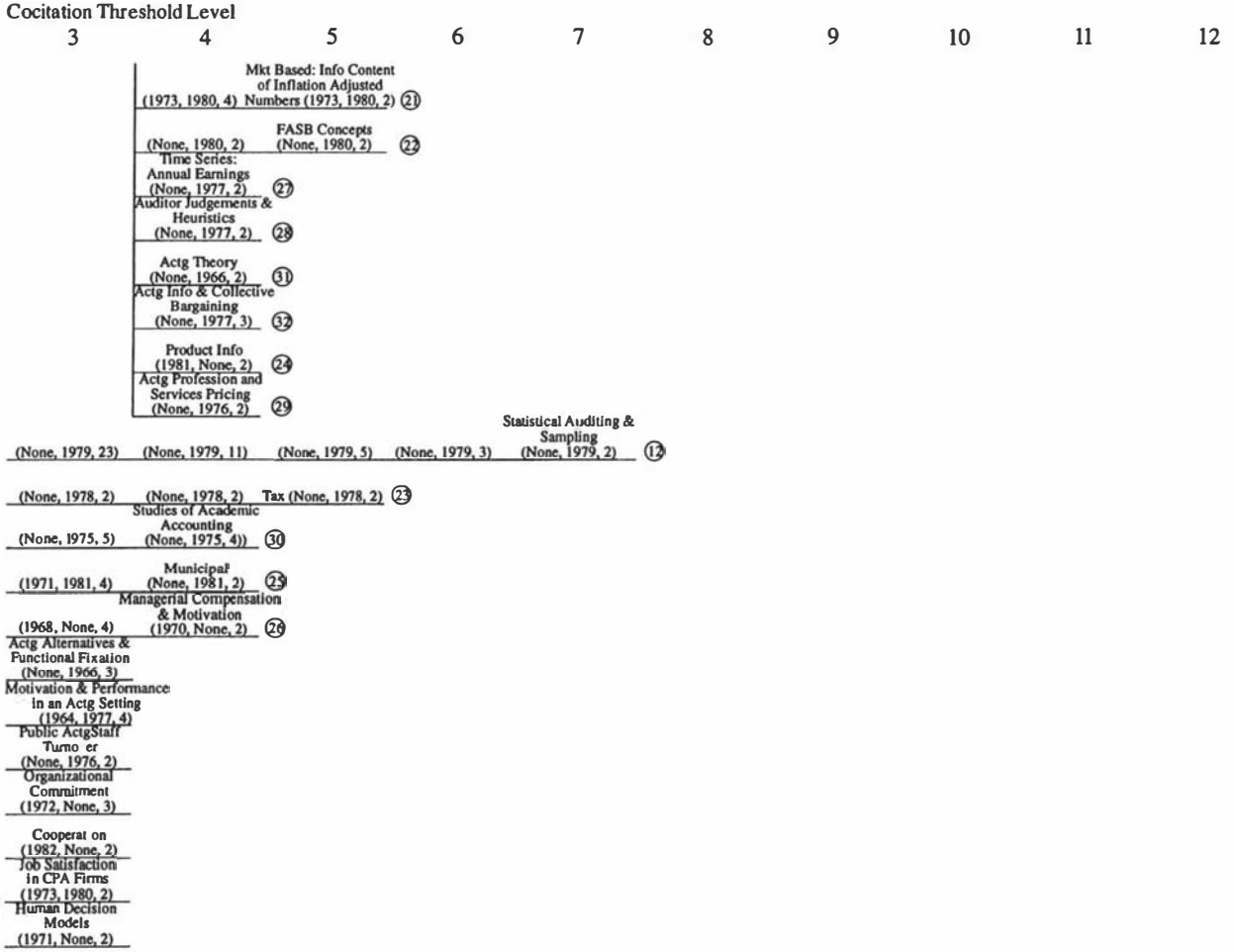
Note that the *Journal of Accounting, Auditing & Finance* first appears as starting-up in 1977 and ending in 1985. It was then started-up again in 1986. The publications without years appeared in *Ulrich's* with no start-up date. The explanation provided is usually that they are intermittent publications.

APPENDIX 5B

BRICKER'S (1987) DENDOGRAM OF THE INFERRED INTELLECTUAL STRUCTURE FOR ACCOUNTING



Source: Adapted from Bricker (1987), Exhibit 4-3, pp. 127-128


Cocitation Threshold Level
3
4
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10
11
12
Mkt Based: Info Content of Inflation Adjusted (1973, 1980, 4) Numbers (1973, 1980, 2) 21
FASB Concepts (None, 1980, 2) (None, 1980, 2) 22
Time Series: Annual Earnings (None, 1977, 2) 27
Auditor Judgements & Heuristics (None, 1977, 2) 28
Actg Theory (None, 1966, 2) 31
Actg Info & Collective Bargaining (None, 1977, 3) 32
Product Info (1981, None, 2) 24
Actg Profession and Services Pricing (None, 1976, 2) 29
Statistical Auditing & Sampling
(None, 1979, 23) (None, 1979, 11) (None, 1979, 5) (None, 1979, 3) (None, 1979, 2) 12
(None, 1978, 2) (None, 1978, 2) Tax (None, 1978, 2) 23
Studies of Academic Accounting
(None, 1975, 5) (None, 1975, 4)) 30
Municipal
(1971, 1981, 4) (None, 1981, 2) 25
Managerial Compensation & Motivation
(1968, None, 4) (1970, None, 2) 26
Actg Alternatives & Functional Fixation (None, 1966, 3)
Motivation & Performance in an Actg Setting (1964, 1977, 4)
Public ActgStaff Turno er (None, 1976, 2)
Organizational Commitment (1972, None, 3)
Cooperat on (1982, None, 2)
Job Satisfaction in CPA Firms (1973, 1980, 2)
Human Decision Models (1971, None, 2)

Cocitation Threshold Level

3	4	5	6	7	8	9	10	11	12
Unexpected Earnings (1979, None, 2)									
Actg Theory, AAA & AICPA (None, 1966, 2)									
Agency Theory & Corporate Control (1983, None, 2)									
Stock Option Pricing Models (1973, 1981, 2)									
Analytical Review (None, 1975, 3)									
Predicting Earnings with Entity vs Subentity Data (None, 1971, 2)									
Divisional P rformance (None, 1965, 2)									

APPENDIX 5C

CLUSTER MAP FROM SMALL (1993)

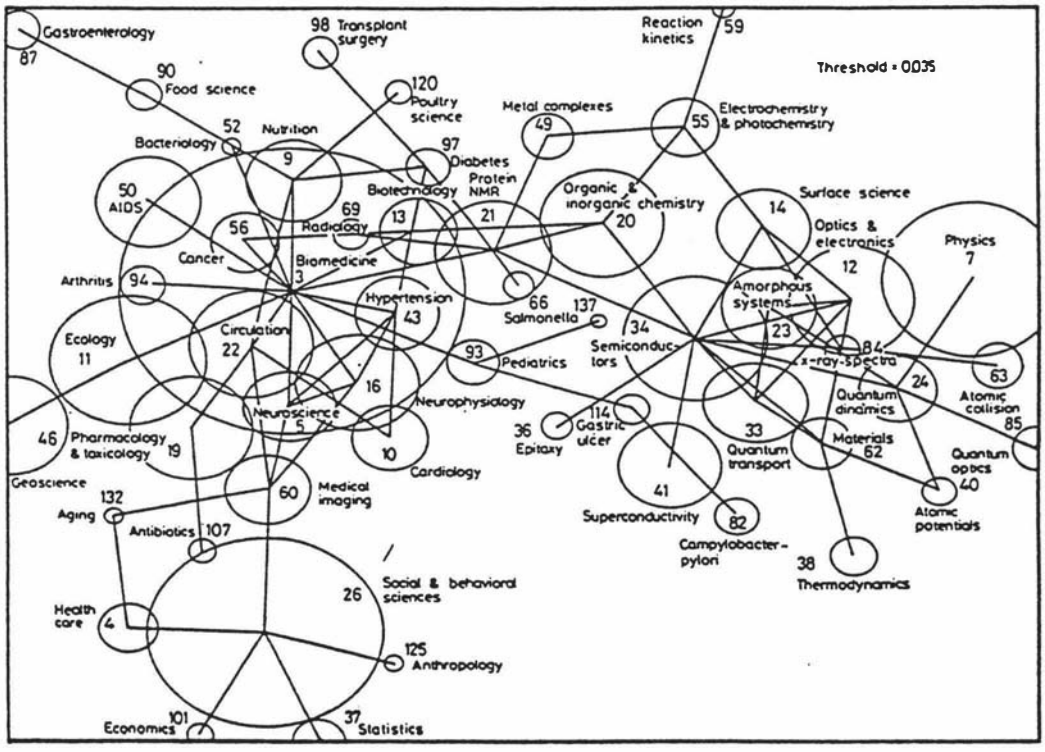

Fig. 6. 1988 C4 map: cluster #2

Source: Small, H. (1993). Macro-level changes in the structure of co-citation clusters: 1983-1989. *Scientometrics, 26*, p.16

APPENDIX 7A

THE STRUCTURE OF ADDITIONAL *PARADOX* TABLES

TABLE 7A.1 Structure of the Foreign Table

Field Name	Cited Id
Field Type	N

TABLE 7A.2 Structure of Sornoref Table

Item	Field Name	Field Type
1	Source No.	N

TABLE 7A.3 Structure of Delcit Table

Item	Field Name	Field Type
1	Deleted Cited Id	N
2	Replacement	N

TABLE 7A.4 Structure of Repcheck Table

Item	Field Name	Field Type
1	Source Id	N
2	Count of Cited Id	N
3	Countall	N

APPENDIX 7B
DETAILS OF CLUSTERS FORMED AT CTLS 5 TO 3

Cluster numbers in the first column relate to the numbering on the fish-scale map and not the output of the clustering routine.

CLUSTERS AT CTL 5

Cl No	Title	Year	Reference	First Author Name	
1	Comparative international accounting	1981	Oxford England, Phillip Allan	Nobes	C. W.
1	A judgemental international classification of financial reporting practices	1983	JBFA,10, 1, 1-19	Nobes	C. W.
1	An empirical analysis of international accounting principles	1979	JAR, Autumn, 593-605	Frank	W. G.
1	The impact of disclosure and measurement practices on international accounting classifications	1980	AR, July, 426-450	Nair	R. D.
1	A classification of international financial accounting practices	1978	IJAER, Spring, 73-85	Da Costa	R.
1	International accounting	1967	London, Collier-Macmillan	Mueller	G. G.
1	An introduction to multinational accounting	1978	Englewood Cliffs, NJ, Prentice-Hall	Choi	F. D. S.
1	Accounting in Europe	1972	Woodhead-faulkner	Lafferty	M.
1	Accounting principles generally accepted in the United States versus those generally accepted elsewhere	1968	IJAER, Spring, 91-103	Mueller	G. G.
1	International accounting and multinational enterprises	1981	NY, Wiley	Arpan	J. S.
1	International survey of accounting principles and reporting practices	1979	London, Price Waterhouse International & Butterworths	Fitzgerald	R.
2	Statement of Financial Accounting Standards No. 52, Foreign Currency Translation	1981	Author, Stamford, Conn.	Financial Accounting Standards Board	
2	Statement of Financial Accounting Standards No. 8, Accounting for the translation of foreign currency transactions and foreig	1975	Stamford, Conn, Author	Financial Accounting Standards Board	
3	Statement of Financial Accounting Standards No. 33: Financial reporting and changing prices	1979	Stamford, Conn, Author	Financial Accounting Standards Board	

Cl No	Title	Year	Reference	First Author Name
3	Report of the Inflation Accounting Committee (Sandilands Report)	1975	London, HMSO	Inflation Accounting Committee (Sandilands)
4	Forging accounting principles in five countries: A history and analysis of trends	1972	Champaign, Il, Stipes	Zeff S.
4	Professional accounting in thirty countries	1975	NY, author	American Institute of Certified Public Accountants

CLUSTERS AT CTL 4

Cl No	Title	Year	Reference	First Author Name
1	Comparative international accounting	1981	Oxford England, Phillip Allan	Nobes C. W.
1	A judgemental international classification of financial reporting practices	1983	JBFA,10, 1, 1-19	Nobes C. W.
1	An empirical analysis of international accounting principles	1979	JAR, Autumn, 593-605, sour 850, practices	Frank W. G.
1	The impact of disclosure and measurement practices on international accounting classifications	1980	AR, July, 426-450	Nair R. D.
1	A classification of international financial accounting practices	1978	IJAER, Spring, 73-85	Da Costa R.
1	International accounting	1967	London, Collier-Macmillan	Mueller G. G.
1	An introduction to multinational accounting	1978	Englewood Cliffs, NJ, Prentice-Hall	Choi F. D. S.
1	The state of the art of academic research in multinational accounting	1979	227, 83-97 (jrnl - Canadian Ch Accnt, feb. 1977)	Mueller G. G.
1	Forging accounting principles in five countries: A history and analysis of trends	1972	Champaign, Il	Zeff S.
1	Accounting in Europe	1972	Woodhead-faulkner	Lafferty M.
1	Professional accounting in thirty countries	1975	NY, author	American Institute of Certified Public Accountants
1	Accounting principles and reporting practices: A survey in 46 countries	1975	London, ICAEW	Price Waterhouse
1	Accounting principles generally accepted in the United States versus those generally accepted elsewhere	1968	IJAER, Spring, 91-103	Mueller G. G.

Cl No	Title	Year	Reference	First Author Name	
1	An empirical analysis of international accounting principles: A comment	1981	JAR, Spring, 268-270	Nobes	C. W.
1	International accounting and multinational enterprises	1981	NY, Wiley	Arpan	J. S.
1	International harmonization of accounting: A cultural dimension	1979	IJA, Spring, 1-16	McComb	D(esmond)
1	International accounting: The ultimate theory course	1967	AR, Oct., 775-781	Seidler	L. J.
1	Report of the committee on international accounting operations and education, 1975-1976	1977	AR, Supp No. 52, 67-132	Committee on International Accounting Operations and Educati	
1	Financial Reporting Practices: Disclosure and Comprehensiveness in an International Setting	1976	JAR, Spring, 10-26	Barrett	E. M.
1	International survey of accounting principles and reporting practices	1979	London, Price Waterhouse International & Butterworths	Fitzgerald	R. D.
2	Statement of Financial Accounting Standards No. 52, Foreign Currency Translation	1981	Stamford, Conn., Author	Financial Accounting Standards Board	
2	Reporting foreign operations	1956	Ann Arbor, Mich. University of Michigan	Hepworth	S. R.
2	Statement of Financial Accounting Standards No. 8, Accounting for the translation of foreign currency transactions and foreig	1975	Stamford, Conn, Author	Financial Accounting Standards Board	
2	Accounting measures of foreign exchange exposures: The long and the short of it	1975	AR, Jan., 44-57	Aliber	R. Z.
3	Statement of Financial Accounting Standards No. 33: Financial reporting and changing prices	1979	Stamford, Conn, Author	Financial Accounting Standards Board	
3	Report of the Inflation Accounting Committee (Sandilands Report)	1975	London, HMSO	Inflation Accounting Committee (Sandilands)	
3	Statement of standard accounting practice No. 16, Current cost accounting	1980	Author	Accounting Standards Committee	
5	An empirical evaluation of accounting income numbers	1968	JAR, Autumn, 159-178	Ball	R.
5	The information content of annual earnings announcements	1968	JAR, Supp., 87-92	Beaver	W. H.
6	The bent measuring stick for foreign subsidiaries	1973	Harvard Bus Review, Sept-Oct., 80-88	Robbins	S. M.

Cl No	Title	Year	Reference	First Author Name	
6	Financial control systems for multinational operations: An empirical investigation	1971	JIBS, Autumn, 11-28; or Fall, 1-12	McInnes	J. M.
6	Financial Control of Multinational Operations	1971	NY, Financial Executives Research Foundtn	Bursk	E. C.
7	Attitude measurement and perceptions of accounting faculty publication outlets	1983	AR, Oct, 765-776	Howard	T. P.
7	International variations in perceptions of accounting journals	1985	AR, Oct., 702-705	Nobes	C. W.

CLUSTER LEVEL CTL 3

Cl No	Title	Year	Reference	First Author Name	
1	European disclosure: The competitive disclosure hypothesis	1974	JIBS Fall 1974, 15-23	Choi	F. D. S.
1	Comparative international accounting	1981	Oxford England, Phillip Allan	Nobes	C. W.
1	A judgemental international classification of financial reporting practices	1983	JBFA,10, 1, 1-19	Nobes	C. W.
1	An empirical analysis of international accounting principles	1979	JAR, Autumn, 593-605	Frank	W. G.
1	The impact of disclosure and measurement practices on international accounting classifications	1980	AR, July, 426-450	Nair	R. D.
1	A classification of international financial accounting practices	1978	IJAER, Spring, 73-85	Da Costa	R.
1	Culture's consequences	1980	Beverly Hills, Sage	Hofstede	G.
1	Statement of Financial Accounting Standards No. 52, Foreign Currency Translation	1981	Author, Stamford, Conn.	Financial Accounting Standards Board	
1	Reporting foreign operations	1956	Ann Arbor, Mich, University of Michigan	Hepworth	S. R.
1	Reporting foreign operations of U.S. companies in U.S. dollars, Accounting Research Study No. 12	1972	New York, AICPA	Lorensen	L.

Cl No	Title	Year	Reference	First Author Name
1	Statement of Financial Accounting Standards No. 8, Accounting for the translation of foreign currency transactions and foreig	1975	Stamford, Conn, Author	Financial Accounting Standards Board
1	International accounting	1967	London, Collier-Macmillan	Mueller G. G.
1	Accounting for the upward float of foreign currencies	1972	JOA, June	Connor J. E.
1	The impact of SFAS No. 8 on financial management practices	1978	Financial Executive, June, 26-31	Cooper K.
1	An introduction to multinational accounting	1978	Englewood Cliffs, NJ, Prentice-Hall	Choi F. D. S.
1	Statement of Financial Accounting Standards No. 95, Statement of cash flows	1987	Stamford, Con, Author	Financial Accounting Standards Board
1	The state of the art of academic research in multinational accounting	1979	227, 83-97 (jrnl - Canadian Ch Accnt, feb. 1977)	Mueller G. G.
1	Internationalization of the accounting profession	1979	Toronto: CICA	Brennan W. J.
1	Multinational accounting: A research framework for the eighties	1981	Ann Arbor MI., UMI Research Press	Choi F. D. S.
1	Eighty-eight international accounting problems in rank order of importance: A delphi evaluation	1980	Sarasota, Fl, AAA	Scott G. M.
1	Forging accounting principles in five countries: A history and analysis of trends	1972	Champaign, Il,	Zeff S.
1	Accounting in Europe	1972	Woodhead-faulkner	Lafferty M.
1	International(ization) accounting	1984	NY, Harper Row	Holzer H. P.
1	European financial reporting - West Germany	1975	London, ICAEW	Beeny J. H.
1	European financial reporting - France	1976	London, ICAEW	Beeny J. H.
1	European financial reporting - Netherlands	1978	London, ICAEW	Beeny J. H.
1	Professional accounting in thirty countries	1975	NY, author	American Institute of Certified Public Accountants
1	Accounting principles and reporting practices: A survey in 38 countries	1973	London, ICAEW	Price Waterhouse
1	Accounting principles and reporting practices: A survey in 46 countries	1975	London, ICAEW	Price Waterhouse

Cl No	Title	Year	Reference	First Author Name
1	Financial accounting standards: A multinational synthesis and policy framework	1982	IJAER, Fall,159-183	Choi F. D. S.
1	International financial reporting (A comparative international survey of accounting requirements & practices in 30 countries)	1984	London, Macmillan	Gray S. J.
1	Accounting principles generally accepted in the United States versus those generally accepted elsewhere	1968	IJAER, Spring, 91-103	Mueller G. G.
1	International classification of financial reporting	1984	London, Croom Helm	Nobes C. W.
1	Economic, political and civil indicators and reporting and disclosure adequacy: Empirical investigation	1983	JAPP, Fall, 207-219	Belkaoui A.
1	Objectives of financial statements	1973	NY, Author, Group on the objectives of financl stmts	American Institute of Certified Public Accountants
1	Statement of Financial Accounting Concepts No. 1: Objectives of financial reporting by business enterprises	1978	Stamford, CA, Author	Financial Accounting Standards Board
1	The impact of Statement of Financial Accounting Standard No. 8 on the foreign exchange risk management practices of American	1978	Stamford, CT, FASB	Evans T. G.
1	A statement of basic accounting theory, (ASOBAT)	1966	Comm to prepare ASOBAT, Sarasota, Fl, Author	American Accounting Association
1	FASB's statements on objectives and elements of financial accounting: A review	1980	AR, Jan, 1-21	Dopuch N.
1	Statement of Financial Accounting Concepts No. 2: Qualitative characteristics of accounting information	1980	Stamford, CT, Author	Financial Accounting Standards Board
1	Towards a theory of cultural influence on the development of accounting systems internationally	1988	Abacus, March, 1-15	Gray S. J.
1	International accounting: Issues and solutions	1985	Westport, CT, Quoram Books	Belkaoui A
1	U.S. securities markets responses to alternate earnings disclosures of non-U.S. multinational corporations	1983	AR, April, 394-402	Meek G. K.
1	An empirical analysis of international accounting principles: A comment	1981	JAR, Spring, 268-270	Nobes C. W.

Cl No	Title	Year	Reference	First Author Name
1	International accounting and multinational enterprises	1981	NY, Wiley	Arpan J. S.
1	International challenges for accounting	1960	JOA, Jan., 34-38	Kraayenhof J.
1	Harmonization of accounting within the European communities: The Fourth Directive on company law	1980	IJA, Spring, 1-16	Nobes C. W.
1	International harmonization of accounting: A cultural dimension	1979	IJA, Spring, 1-16	McComb D.
1	International accounting: The ultimate theory course	1967	AR, Oct., 775-781	Seidler L. J.
1	Accounting systems and practices in Europe	1975	London, Gower Press	Oldham K. M.
1	Accounting measures of foreign exchange exposures: The long and the short of it	1975	AR, Jan., 44-57	Aliber R. Z.
1	Report of the committee on international accounting operations and education, 1975-1976	1977	AR, Supp No. 52, 67-132	Committee on International Accounting Operations and Education
1	Determining the functional currency under statement No. 52	1986	Stamford, Conn, FASB	Evans T. G.
1	The cultural context of accounting	1987	102, 1-11	Hofstede G.
1	Financial Reporting Practices: Disclosure and Comprehensiveness in an International Setting	1976	JAR, Spring, 10-26	Barrett M. E.
1	The Harmonization of Accounting Principles in the Member Countries of the European Economic Community	1975	IJA, 23-30	Burnett R. A.
1	General Price-Level Accounting and Foreign Operations	1971	JOA, Feb., 58-65	Rosenfield P.
1	The Case against International Uniformity	1971	Management Accounting, May, 13-16	Fantl I. L.
1	International survey of accounting principles and reporting practices	1979	London, Price Waterhouse International & Butterworths	Fitzgerald R. D.
3	Statement of Financial Accounting Standards No. 33: Financial reporting and changing prices	1979	Stamford, Conn, Author	Financial Accounting Standards Board
3	CCA-1, Information reflecting the effects of changing prices	1982	Author	New Zealand Society of Accountants

Cl No	Title	Year	Reference	First Author Name
3	Report of the Inflation Accounting Committee (Sandilands Report)	1975	London, HMSO	Inflation Accounting Committee (Sandilands)
3	Statement of standard accounting practice No. 16, Current cost accounting	1980	Author	Accounting Standards Committee
5	An empirical evaluation of accounting income numbers	1968	JAR, Autumn, 159-178	Ball R.
5	The information content of annual earnings announcements	1968	JAR, Supp., 87-92	Beaver W. H.
5	The effect of corporate financial statements on the Israeli stock exchange	1972	Management Intl Review	Lev B.
5	The effect of published earnings information on Tokyo stock exchange trading	1974	IJA, Fall, 126-136	Deakin E.
6	The bent measuring stick for foreign subsidiaries	1973	Harvard Bus Review, Sept-Oct., 80-88	Robbins S. M.
6	Financial control systems for multinational operations: An empirical investigation	1971	JIBS, Autumn, 11-28; or Fall, 1-12	McInnes J. M.
6	Financial Control of Multinational Operations	1971	NY, Financial Executives Research Foundtn	Bursk E. C.
6	Evaluation and Control of Overseas Operations	1969	MA, May, 35-38 & 52	Mauriel J. J.
7	Six decades of the Accounting Review: A summary of author and institutional contributors	1986	AR, Oct, 734-744	Heck J. L.
7	Attitude measurement and perceptions of accounting faculty publication outlets	1983	AR, Oct, 765-776	Howard T. P.
7	International variations in perceptions of accounting journals	1985	AR, Oct., 702-705	Nobes C. W.
8	Commission on auditors' responsibilities: Report, conclusions and recommendations	1978	New York, Author	American Institute of Certified Public Accountants
8	Subcommittee on Reports, Accounting and Management of the Committee on Government Operations of the U.S.: The Accounting Esta	1976	Washington DC, Govt Printing Office	U.S. Senate
9	A review of the translation debate	1980	ABR, Autumn, 421-431	Nobes C. W.
9	The state of the art in translation theory	1977	FBFA, Autumn, 311-325	Patz D. H.
10	The method of constructing an attitude scale	1972	169	Likert R.

Cl No	Title	Year	Reference	First Author Name
10	Attitudes can be measured	1972	169	Thurstone L. L.
11	International standards of accounting and reporting for transnational corporations	1977	NY, UN centre on transnational corporations, ST/CTC/5,	United Nations
11	International investment and multinational enterprises	1976	Paris, Author	Organisation for Economic Co-operation and Development
12	The evolution of accounting in developing countries	1978	IJAER, Fall, 105-120	Briston R. J.
12	Accounting education and the third world	1978	AAA	Committee on International Accounting Operations and Educati
12	Accountancy and Economic Development Policy	1973	Amsterdam, North Holland 112-113	Enthoven A. J. H.
12	Implementing a Framework for the International Transfer of Accounting Technology	1976	IJA, 45-62	Needles B. E. Jr.
13	Accounting information, an investigation of private shareholders' usage	1975	ABR, Autumn, 280-291	Lee T. A.
13	Information needs of individual investors	1973	JOA, Nov., 64-69	Baker H. K.
14	Notes on the development and problems of Soviet uniform accounting	1973	IJAER, No. 1, 135	Gorelik G.
14	The accounting function in socialist economies	1982	IJA, No.1, 185	Berry M.
15	Asset appreciation, business income and price level accounting: 1918-1935	1976	NY Arno Press	Zeff S.
15	Accounting for Price Level Changes: Theory and Practice (procedures)	1966	London, Permagon Press	Gynther R. S.
16	The effect of gifts, discounts and client size on perceived auditor independence	1980	AR, Jan, 50-61	Pany K.
16	Perceptions of the independence of the auditor	1976	AR, Jan., 41-50	Lavin D.
17	Statement of financial accounting standards No. 82, Financial reporting and changing prices: Elimination of certain disclosur	1984	Stamford, CT, Author, Dec.	Financial Accounting Standards Board
17	Section 4510: Reporting the effects of changing prices	1982	Accounting Research Committee, Toronto, author	Canadian Institute of Chartered Accountants
17	Statement of accounting standards, Current cost accounting - Proposed	1982	Authors	Australian Society of Accountants

Cl No	Title	Year	Reference	First Author Name	
18	A study of the consensus on disclosure among public accountants and security analysts	1974	AR, Oct., 733-742	Chandra	G.
18	Corporate reporting and investment decisions	1961	Califomia, Uni of Calif	Cerf	A. R.
18	An empirical analysis of the quality of corporate financial disclosure	1971	AR, Jan., 129-138	Singhvi	S.
18	Company size, listed versus unlisted stocks, and the extent of financial disclosure	1975	JAR, Spring, 16-37	Buzby	S. L.
18	Financial disclosure and entry to the European capital market	1973	JAR, Autumn, 159-175	Choi	F. D.S.
18	Selected items of information and their disclosure in annual reports	1974	AR, July, 423-435	Buzby	S. L.
19	The function of accounting in economic development - Turkey as a case study	1967	London, Frederick & Prager Publishers	Seidler	L. J.
19	Accounting and Developing Nations, International Business Series 9, Studies in Accounting	1970	Seattle, Uni of Washington	Scott	G. M.
19	Economic development accountancy	1979	Management Accounting (UK), 23-24	Cassell	M. E.
20	Report of the Committee on Education and Experience Requirements for CPAs	1969	NY, AICPA	Beamer	E. G.
20	Horizons for a Profession: The Common Body of Knowledge for the Certified Public Accountant	1969	AICPA	Roy	R. H.
21	The Accounting Function in Economic Progress	1958	JOA, Aug, 27-34	Bevis	H. W.
21	Private enterprise accounting in developing nations	1968	IJA, Fall, 51-66	Scott	G. M.
22	Directions in economic development	1979	Notre Dame, Ind., Uni of Notre Dame Press	Wilbur	C. K.
22	Paradigms of economic development and beyond	1979	Directions in economic development, 1-41	Wilbur	C. K.

APPENDIX 7C
CLUSTER AND CITATION COUNT INFORMATION AT CTL2

Cluster numbers relate to the fish-scale map although CTL 2 is not shown on the map. The previous cluster column indicates the cluster group for the document at CTL 3, so that the documents may be related to the dendogram and fish-scale map. Note that the citation count relates to indvidual documents and is not the co-citation strength.

CLUSTER 1

Prev Cl.	Title	Year	Reference	First Author Name		Citn Cnt
1	European disclosure: The competitive disclosure hypothesis	1974	JIBS Fall 1974, 15-23	Choi	F. D.S.	4
1	Comparative international accounting	1981	Oxford England, Phillip Allan	Nobes	C. W.	12
	International harmonization: A professional goal	1983	JOA, January, 58-66	Turner	J.	3
1	A judgemental international classification of financial reporting practices	1983	JBFA,10, 1, 1-19	Nobes	C. W.	7
	A typology of international accounting principles and policies	1982	AUTA Review,	Goodrich	P.	2
1	An empirical analysis of international accounting principles	1979	JAR, Autumn, 593-605, sour 850, practices	Frank	W. G.	18
1	The impact of disclosure and measurement practices on international accounting classifications	1980	AR, July, 426-450	Nair	R. D.	16
1	A classification of international financial accounting practices	1978	IJAER, Spring, 73-85	Da Costa	R.	10
	The interpretation of cultures	1973	New York, Basic Books	Geertz	C.	2
	The theory of the firm: Managerial behavior, agency costs and ownership structure	1976	JOFE, October, 305-360	Jensen	M. C.	7
	Accounting theory: A conceptual and institutional approach	1984	Boston, Kent Publishing Co., sour 818 - 1992, Southwestern	Wolk	H. I.	2
	Audit conflict: An emprirical study of the perceived ability of auditors to resist management pressure	1985	AR, January, 202-211	Knapp	M.	3
	Duties and liabilities of public accountants	1979	New York, Dow Jones Irwin	Causey	D.	2

Prev Cl.	Title	Year	Reference	First Author Name	Citn Cnt
	Markets and hierarchies: An analysis and antitrust implications	1975	London, The Free Press	Williamson O. E.	3
	Handbook of cross-cultural psychology 5 vols	1980	Boston, Allyn and Bacon	Triandis H. C.	2
1	Culture's consequences	1980	Beverly Hills, Sage	Hofstede G.	5
18	Commission on auditors' responsibilities: Report, conclusions and recommendations	1978	New York, Author	American Institute of Certified Public Accountants	6
	Accounting information in private markets: Evidence from private lending agreements	1983	AR, April, 202-211	Leftwich R.	2
	Accounting in the arena of world politics	1982	JOA, Feb, 40-53	Daley L. A.	2
	Application of Anglo-American principles of consolidation to corporate financial disclosure in Japan	1984	ABA, June, 16-33	McKinnon J.	2
	SFAS No.52: Expediency or principle?	1983	JAAF, Fall, 51	Largay J. A. III	2
1	Statement of Financial Accounting Standards No. 52, Foreign Currency Translation	1981	Author, Stamford, Conn.	Financial Accounting Standards Board	20
	Accounting standards in developing countries	1982	IJAER, Fall, 76-78	Samuels J. M.	3
	Accounting and economic aspects of SFAS No. 8	1979	IJAER, Spring, 135-155	Stanley M. T.	2
	Temporal method: Temporary mode?	1978	MA (US), Feb., 25, sour 751 - 1987, not correct	Smith A. F.	2
19	A review of the translation debate	1980	ABR, Autumn, 421-431	Nobes C. W.	3
1	Reporting foreign operations	1956	Ann Arbor, Mich, University of Michigan	Hepworth S. R.	5
1	Reporting foreign operations of U.S. companies in U.S. dollars, Accounting Research Study No. 12	1972	New York, AICPA	Lorensen L.	4
1	Statement of Financial Accounting Standards No. 8, Accounting for the translation of foreign currency transactions and foreig	1975	Stamford, Conn, Author	Financial Accounting Standards Board	14
	An analysis of issues related to accounting for foreign currency translation - A discussion memorandum	1974	Stamford, Conn, Author	Financial Accounting Standards Board	2

Prev Cl.	Title	Year	Reference	First Author Name		Citn Cnt
19	The state of the art in translation theory	1977	FBFA, Autumn, 311-325	Patz	D. H.	4
	Price parity translation: Methodology and implementation	1981	ABR, Summer, 207-216	Patz	D. H.	2
1	International accounting	1967	London, Collier-Macmillan	Mueller	G. G.	16
	Translation of foreign currencies	1972	Toronto, Canadian Institute of Chartered Accountan	Parkinson	R. M.	2
	Accounting treatment of overseas currencies: A background study	1976	London, ICAEW	Flower	J.	2
	Statement No 25, Members Handbook	1968	London, Author	Institute of Chartered Accountants in England and Wales		3
	Foreign currency translation: An evaluation	1983	IJAER, Spring, 29-48	Nance	Jon R.	3
	Foreign currency accounting and its transition	1983	in Managing Foreign Exchange Risk; R. J. Herring; Cambridge Uni Press	Ijiri	Yuji	2
	Managing foreign exchange risk	1983	Cambridge Uni. Press	Herring	R. J.	2
	An income approach to the translation of foreign currency financial statements	1972	CPA Journal, 26-35; 1974 - 55-70?	Seidler	L. J.	2
1	Accounting for the upward float of foreign currencies	1972	JOA, June	Connor	J. E.	3
	British accounting standards: The first 10 years	1981	Cambridge, Woodhead-Faulkner	Leach	R.	4
	International financial management	1969	Englewood Cliffs, N.J.; Prentice Hall	Zenoff	D. B.	2
	Principles and practice in translating foreign currencies	1970	ABA, Dec, 144-153	Parker	R. H.	2
	Analysis of the impact of Statement 52 on disclosures of the effects of changing prices	1983	College of Business administration, Uni of S. Caro	Evans	T. G.	2
	An examination of the market reactions associated with SFAS No. 8 and SFAS No. 52	1987	AR, April, 343-357	Ziebart	D. A.	2
	Accounting for the impact of inflation on a business enterprise	1977	AR, Oct, 789-812	Agrawal	S. P.	3
3	Statement of Financial Accounting Standards No. 33: Financial reporting and changing prices	1979	Stamford, Conn, Author	Financial Accounting Standards Board		13

Prev Cl.	Title	Year	Reference	First Author Name		Citn Cnt
3	CCA-1, Information reflecting the effects of changing prices	1982	Author	New Zealand Society of Accountants		3
	The case against separation of current operating profit and holding gains	1979	AR, Jan., 1-22	Prakash	Prem	2
	Stabilized accounting	1964	Reprint, NY, Holt, Rinehart & Winston	Sweeney	Henry	2
	Characteristics of firms electing early adoption of SFAS No. 52	1984	JAR, Autumn, 159-178	Ayres	F.	2
5	An empirical evaluation of accounting income numbers	1968	JAR, Autumn, 159-178	Ball	Ray	9
	The association between market determined and accounting determined risk measures	1970	AR, Oct, 654-682	Beaver	W. H.	3
1	The impact of SFAS No. 8 on financial management practices	1978	Financial Executive, June, 26-31	Cooper	K.	4
	An empirical investigation of the effects of Statement of Financial Accounting Standard No. 8 on security return behavior	1978	Stam, Conn, FASB	Dukes	R. E.	6
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	Foreign exchange gains and losses: Impact on reported earnings	1982	ABA, 18, 50-69	Griffin	P. A.	3
	The development of a positive theory of corporate management's role in external financial reporting	1983	JAL, Spring, 111-150	Kelly	L.	3
	Income smoothing and incentives: Empirical tests using accounting changes	1987	AR, April, 358-373	Moses	D.	2
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10	The method of constructing an attitude scale	1972	in Readings in Attitude Theory & Measurment; M. Fishbein; NY Wiley	Likert	Renis	3
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1	An introduction to multinational accounting	1978	Englewood Cliffs, NJ, Prentice-Hall	Choi	F. D.S.	36
	Back translation for cross-cultural research	1970	Journal of cross-cultural psychology, 1, 185-216	Brislin	R. W.	3
	Managerial values as a reflection of culture and process of industrialization	1977	Academy of management journal, 20, (3), 445	Whitely	William	2
1	Statement of Financial Accounting Standards No. 95, Statement of cash flows	1987	Stamford, Con, Author	Financial Accounting Standards Board		5
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1	The state of the art of academic research in multinational accounting	1979	in Internationalization of the accounting profession; W. Brennan; Toronto CICA 83-97	Mueller	G. G.	4
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1	Multinational accounting: A research framework for the eighties	1981	Ann Arbor MI., UMI Research Press	Choi	F. D.S.	7
1	Eighty-eight international accounting problems in rank order of importance: A delphi evaluation	1980	Sarasota, Fl, AAA	Scott	George M.	6
	Report of the 1980-81 International Accounting and Auditing Standards Committee	1981	Sarasota, Fl, Author	American Accounting Association		2
	Research for accounting policy: An overview	1976	AR, October, 756	May	R. G.	4
	Accounting and culture	1987	Collected papers, Sarasota, Fl, AAA	Cushing	B. E.	2
	The cultural relativity of organizational practices and theories	1983	JIBS, Fall, 75-89	Hofstede	G.	3
1	Forging accounting principles in five countries: A history and analysis of trends	1972	Champaign, Il, Stipes, 1971? sour 715, 741, 835, 847	Zeff	S.	10
1	Accounting in Europe	1972	Woodhead-faulkner	Lafferty	M.	8

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1	European financial reporting - West Germany	1975	London, ICAEW	Beeny	J. H.	3
1	European financial reporting - France	1976	London, ICAEW	Beeny	J. H.	3
1	European financial reporting - Netherlands	1978	London, ICAEW	Beeny	J. H.	3
1	Professional accounting in thirty countries	1975	NY, author	American Institute of Certified Public Accountants		6
1	Accounting principles and reporting practices: A survey in 38 countries	1973	London, ICAEW	Price Waterhouse		4
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1	Financial accounting standards: A multinational synthesis and policy framework	1982	IJAER, Fall,159-183	Choi	F. D.S.	6
1	International financial reporting (A comparative international survey of accounting requirements & practices in 30 countries)	1984	London, Macmillan	Gray	S. J.	4
	Accounting standard setting: An international perspective	1983	London, Pitman	Bromwich	M.	4
	The ritual nature of accounting systems	1985	EIASM workshop "Accounting and Culture, Amsterdam, June	Hofstede	G.	2
1	Accounting principles generally accepted in the United States versus those generally accepted elsewhere	1968	IJAER, Spring, 91-103	Mueller	G. G.	9
	Environmental factors influencing the development of accounting objectives standards and practices in Peru	1975	IJAER, Fall, 39-56	Radebaugh	Lee H.	4
1	International classification of financial reporting	1984	London, Croom Helm	Nobes	C. W.	5
	Accounting and political systems	1982	Discussion paper no.109, School of Eco. Studies, Uni of Leed	Goodrich	P. S.	2
1	Economic, political and civil indicators and reporting and disclosure adequacy: Empirical investigation	1983	JAPP, Fall, 207-219	Belkaoui	Ahmed	4

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1	Statement of Financial Accounting Concepts No. 1: Objectives of financial reporting by business enterprises	1978	Stanford, CA, Author	Financial Accounting Standards Board	13
	A measure of the impact of some foreign accounting principles	1966	JAR, Autumn, 183-212	Davidson S.	4
	Handbook	1968	Author, CICA, (and 1988 updates)	Canadian Institute of Chartered Accountants	4
	The marketing of accounting standards	1973	JOA, Oct.	Horngren C. T.	3
	Corporate reporting: Its future evolution	1980	Toronto, CICA	Stamp Eddie	5
	International accounting standard No. 24 - Related Party disclosures		London, Author	International Accounting Standards Committee	2
	International accounting standard No. 3 - Consolidated financial statements	1977	London, Author	International Accounting Standards Committee	3
	International accounting standard No. 1, Disclosure of accounting policies	1975	London, Author	International Accounting Standards Committee	3
11	International standards of accounting and reporting for transnational corporations	1977	NY, UN centre on transnational corporations, ST/CTC/5,	United Nations	8
12	The evolution of accounting in developing countries	1978	IJAER, Fall, 105-120	Briston R. J.	11
	Corporate financial statements, A product of the market and political process	1977	Aus Journal of Mangement, April	Watts R. L.	2
	Towards a positive theory of the determination of accounting standards	1978	AR, Jan, 112-134	Watts R. L.	8
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1	A statement of basic accounting theory, (ASOBAT)	1966	Comm to prepare ASOBAT, Srasot, Fl, Author	American Accounting Association	10
	Statement No. 4 - Basic concepts and accounting principles underlying financial statements of business enterprises	1970	NY, Author	American Institute of Certified Public Accountants	2
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	Statement of Financial Accounting Standards No. 14 - Reporting for segments of a business enterprise	1976	Stamford, CT, Author	Financial Accounting Standards Board		4
	International Accounting Standard No. 14 - Reporting financial information by segment	1981	London, author	International Accounting Standards Committee		4
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3	Report of the Inflation Accounting Committee (Sandilands Report)	1975	London, HMSO	Inflation Accounting Committee (Sandilands)		8
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1	International harmonization of accounting and reporting	1981	IJA, Fall, 21-32	Fitzgerald	R.	2
	International accounting standards and the EEC harmonization program: A conflict of disparate objectives	1982	IJA, Spring, 35-48	McComb	D.	4
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1	Accounting systems and practices in Europe	1975	London, Gower Press	Oldham	K. Michael	5
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1	Accounting measures of foreign exchange exposures: The long and the short of it	1975	AR, Jan., 44-57	Aliber	R. Z.	6
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13	Statement of standard accounting practice No. 16, Current cost accounting	1980	Author	Accounting Standards Committee	6
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1	Determining the functional currency under statement No. 52	1986	Stamford, Conn, FASB	Evans T. G.	3
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18	Company size, listed versus unlisted stocks, and the extent of financial disclosure	1975	JAR, Spring, 16-37	Buzby S. L.	3

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	The impact of size, stock market listing and auditors on voluntary disclosure in corporate annual reports	1979	ABR, Autumn, 273-280	Firth	M.	2
	International accounting standard no. 19: Accounting for retirement benefits in the financial statements of employers	1989	NY, Author, Jan. 1	International Accounting Standards Committee		2
	Accounting research bulletin no. 43: Foreign operations and foreign exchange	1959	Author, Comm on Accing Procedure, NY	American Institute of Certified Public Accountants		4
	Statement of financial accounting standards no. 94: Consolidation of all majority-owned subsidiaries	1987	Author, Stamford, Oct. 30	Financial Accounting Standards Board		2
16	Perceptions of the independence of the auditor	1976	AR, Jan., 41-50	Lavin	D.	3
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	The impact of the cultural environment on financial disclosure	1975	IJA, Spring, 75-84	Jaggi	B.	2
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	A comparison of V-I-E model predictions: A cross-national study in professional accounting firms	1980	AOS, Dec., 361-368	Ferris	K.	2
	Perceptions of auditors' independence: An empirical analysis	1984	AR, Oct., 785-800	Shockley	R.	2
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	The auditor-firm conflict of interests: Its implication for independence	1974	AR, Oct., 707-718	Goldman	A.	2
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	An empirical investigation of NYSE volume and price reactions to the announcement of quarterly earnings	1972	JAR, Spring, 113-128	Kiger	J.	2
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	The Foundations of Accounting Measurement	1967	Englewood Cliffs, NJ, Prentice-Hall	Ijiri	Yuji	4
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	Accountancy and Economic Development Policy	1973	Amsterdam, North Holland 112-113	Enthoven	A. J. H.	8
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	Beyond the Conventions of Accounting	1978	London, Macmillan	Gambling T. E.	2
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	International Investment and Multinational Enterprises: Accounting Practices in OECD Member Countries	1980	Author	Organisation for Economic Co-operation and Development	3
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	The Story of International Accounting Standards	1976	Accncy, July, 34-39	Benson H. Sir	3
	What Should be the FASB's Objectives?	1973	JOA, August, 49-56	Beaver W. H.	3
	Statement of Standard Accounting Practice No. 9: Stocks and Work in Progress	1975	STMT, Author	Institute of Chartered Accountants in England and Wales	2
	International accounting standard No. 11, Accounting for Construction Contracts	1979	Author	International Accounting Standards Committee	2
19	Economic development accountancy	1979	MA (UK), 23-24	Cassell M. E.	4
	The role of accounting in the economic development of developing countries: the case of the sudan	1979	PhD , Sour 750 - DBA Indiana Uni	Mirghani M. A.	2
	Impact of public ownership on the UAR accounting profession	1969	IJA, Spring, 49-61	Amer Metwali	2
	An appeal for unity in establishing accounting standards	1972	IJA, Fall, 99-107	Chetkovich M. N.	3
	The problem of performance evaluation in international accounting	1974	IJA, Fall, 45-53	Farag Shawki M.	2
	United States accounts as viewed by accountants of other countries	1965	IJA 11-12	Wilkinson T. L.	2
1	International survey of accounting principles and reporting practices	1979	London, Price Waterhouse International & Butterworths	Fitzgerald R.	10
	Preface to the statements of international accounting standards	1974	Author	International Accounting Standards Committee	4
	International Accounting Standard No. 15 - Information reflecting the effects of changing prices	1981	Author	International Accounting Standards Committee	2

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	Survey of 100 major European companies' reports and accounts	1979	London, Financial Times Bus Pub Ltd	Lafferty	M.	2
11	International investment and multinational enterprises	1976	Paris, Author	Organisation for Economic Co-operation and Development		3
	Structural anthropology	1963		Levi-Strauss	C.	2
	Why do we need Postulates and Principles?	1963	JOA, Dec. 42-46	Moonitz	Maurice	2
	Purchasing power parity	1976	NY, Marcel Dekker	Lee	M.	2
	Consequences of foreign currency translation methods: An industry comparison	1982	Midwest regional meeting of AAA	Nance	Jon R.	2
	Foreign Exchange management in (US) multinationals	1980	Lexington, Mass., Lexington Books No US in this ref sour 714	Rodriguez	Rita M.	2
	Report of the committee on accounting history	1970	AR supp	American Accounting Association		2
	A systems approach to accounting in developing countries	1981	Management International review 23	Holzer	H. P.	2
	Inflation and Replacement	1980	Indian Journal of Accounting	Agrawal	S. P.	2
	The development of accountancy links in the Commonwealth	1971	ABR, Spring, 155-173	Johnson	T. J.	2
	True and fair view - History, meaning and the impact of the Fourth Directive, Research Committee Occasional paper No. 6	1975	London, ICAEW	Chastney	J. G.	2
	Accounting standards and multinational corporations	1981	JIBS, Spring/Summer, 121-136	ray	S. J.	2
	The use and extent of replacement value accounting in the Netherlands	1981	London, ICAEW	Ashton	R. K.	2
	A price parity theory of translation	1977	ABR, Winter, 14-24	Patz	D. H.	2
	The international money market: An assessment of forecasting techniques and market efficiency	1979	Greenwich, Conn., JAI press	Levich	Richard	2
	Discussion memorandum: An analysis of issues related to conceptual framework for financial accounting and reporting: Elements	1976	Stamford, Conn., Author	Financial Accounting Standards Board		2
	NOD, COG, and PuPU: See how inflation teases	1975	JOA, Sept., 63-73	Chambers	R. J.	2

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	Statement of standard accounting practice No. 20 - Foreign currency translation	1983	Author	Accounting Standards Commi tee	2
	Exposure Draft Foreign currency translation	1982	Author, no date, sour 729 date = June 1982	Canadian Institute of Chartered Accountants	2
	Accounting and economic development	1964	Business Topics, Spring, 57-60	Hunter John M.	2
	Ledgers as much as lathes	1966	CJOWB, Spring, 83-87	Mahon James J.	2
21	Private enterprise accounting in developing nations	1968	IJA, Fall, 51-66	Scott George M.	5
	Accountancy for economic development	1969	Finance and development, Sept., 24-29	Enthoven A. J. H.	2
22	Directions in economic development	1979	Notre Dame, Ind., Uni of Notre Dame Press	Wilber Charles K.	3
	Inflation and rates of exchange: Support for SFAS No. 52?	1983	JAAF, Summer, 299-313	Hall Thomas W.	2
	The multiple earnings announcements of non-U.S. mulitnational enterprises - Implications of observed patterns	1983	IJA, Fall, 115-130	Meek G. K.	2
	The information content of quarterly earnings: An extension and some further evidence	1972	JOB, July, 403-415	Brown Phillip	2
	The impact of earnings announcements on the share price behavior of similar type firms	1976	Economic Jrnl, June, 296-306	Firth M.	2
	Measuring security price performance	1980	JFE, 8, 205-258	Brown S. J.	3
	SAS User's guide, 1979 Edition	1979	Cary, NC, Author	SAS Insti ute Inc	4
17	Section 4510: Reporting the effects of changing prices	1982	Accounting Research Committee, Toronto, author	Canadian Institute of Chartered Accountants	3
17	Statement of accounting standards, Current cost accounting - Proposed	1982	Authors	Australian Society of Accountants	3
	Statement of accounting practice No. 1, Current cost accounting	1983	Authors	Australian Society of Accountants	2
	Private enterprise accounting and economic development	1974	IJA, Spring, 125-141	Quereshi M. A.	2
	Replacement cost accounting: readings on concepts, uses and methods	1976	Glenridge, NJ, Thomas Horton & daughters	Vancil R. F.	2

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	Current cost accounting: Identifying the issues	1979	Lancaster, ICRA & Sydney, Uni of Sydney	Dean	G. W.	2
	On financial contracting: An analysis of bond covenants	1979	JFE, June, 117-161	Smith	C.	2
	The demand for external auditing: Size, debt and ownership influences	1982	AR, April, 272-291	Chow	C. W.	2
	The markets for independence and independent auditors	1981	Uni of Rochester, March	Watts	R. L.	2
	The pricing of audit services: Theory and evidence	1980	JAR, Spring, 161-190	Simunic	D.	3
	Audit fees and auditor size: Further evidence	1986	JAR, Spring, 97-110	Palmrose	Z.	2
	A test of audit pricing in the small-client segment of the U.S. audit market	1987	AR, Jan., 145-157	Francis	J. R.	2
	The determinants of the audit fee in the U.K.: An exploratory study	1982	London, City Uni Business School	Taffler	R.	2
	An analysis of audit fees and their determination in New Zealand	1985	Auditing: A Jrnl of Practice & Theory, Spring, 23-37	Firth	M.	2
22	Paradigms of economic development and beyond	1979	in Directions in economic development; C.. Wilber; Notre Dame, Ind. Uni of N-D; 1-41	Wilber	Charles K.	3
	The basis of depreciation charges	1930	Harvard Bus Review, April, 257-264	Schmidt	F.	2
	The importance of replacement value	1930	AR, Sept., 235-242, orig source had "impact" not correct	Schmidt	F.	2
	Segmental financial disclosure by diversified firms and security prices	1974	AR, April, 245-258	Kochanek	R.	2
	Econometric and models and economic forecasts, 2nd Ed	1981	NT, McGraw Hill	Pindyck	R. S.	2
	Evidence of international harmonization of financial reporting	1987	IJA, Fall, 47-67	Doupnik	T. S.	3
	The internationalization of accounting standards: Past problems and current prospects	1989	IJA, 24, 4, 320-342	Rivera	Juan M.	4
	Managerial accounting (and analysis in multinational enterprises)	1986	Berlin, Walter de Gruyter	Holzer	H. P.	2

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	International accounting standard No. 29, Financial reporting in hyperinflationary economies	1989	London, Author, July	International Accounting Standards Committee	2
	Objectives of education for accountants: Position Statement Number One	1990	Issues in Accing Education, Fall, 5, 2, PP?	Accounting Education Change Commission	2
	Exposure draft 36 Cash flow statements	1991	Author, July	International Accounting Standards Committee	2
	Exposure Draft 38 Inventories	1991	Author, London	International Accounting Standards Committee	2
	The impact of IASC accounting standards on comparability and consistency of international accounting reporting practices	1986	IJA, 22, 1, 1-9	Taylor Martin E.	2
	The predictive ability of geographical segment disclosures	1990	JAR, Autumn, 305-325	Balakrishnan R.	3
	On the evolution of inflation accounting	1982	Economia Aziendale, 1, 3, 349-381	Mattessich R.	2
	Ball and Brown	1989	JAR, Supp, 202-217, sour 840 - "Invited remarks: Ball and Br	Brown Phillip	2

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	Accounting Faculty Directory	1986	Englewood Cliffs, NJ, Prentice-Hall	Hasselback J. R.	3
	The standard periodical directory	1988	NY, Author	Oxbridge Communication Inc.	2
	Institutional contributions to scholarly journals of business	1974	JOB, Jan., 56-66	Henry William R.	2
	A comparison of published accounting research and qualities of accounting faculty and doctoral programs	1975	AR, July, 605-610	Bazley John D.	2
	A ranking of doctoral programs by financial research contributions of graduates	1977	JFAQA, Sept, 491-497	Klemkosky R. C.	2
	The institutional source and concentration of finance research	1977	JOF, June, 901-907	Klemkosky R. C.	2
	Leading accounting departments revisited	1978	AR, Jan., 135-138	Andrews Wesley T.	2

Pr. Cl.	Title	Year	Reference	First Author Name		Citn Cnt
	Publishing for a varied public: An empirical study	1981	AR, July, 653-658	Windal	Floyd W.	2
	Significant contributions to the finance literature	1981	Financial Management, 23-33	Cooley	Philip L.	2
7	Attitude measurement and perceptions of accounting faculty publication outlets	1983	AR, Oct, 765-776	Howard	T. P.	4
	A descriptive analysis of authorship in The Accounting Review	1985	AR, April, 300-313	Williams	Paul F.	2
7	International variations in perceptions of accounting journals	1985	AR, Oct., 702-705	Nobes	C. W.	4
	Using citation analysis to assess the impact of journals and articles on contemporary accounting research	1985	JAR, 84-109	Brown	L. D.	3
	Publication productivity of doctoral alumni: A time adjusted model	1986	AR, Jan., 179-187	Jacobs	F. A.	2
7	Six decades of the Accounting Review: A summary of author and institutional contributors	1986	AR, Oct, 734-744	Heck	Jean Louis	3
	Institutional contributions to the leading finance journals, 1975 1986: A note	1987	JOF, Dec., 1389-1397	Neimi	A. W. Jr.	2
	Most frequent contributors to the finance literature	1988	Financial Management, Fall, 100-108	Heck	Jean Louis	2
	A call for papers	1989	Acc Horizons, Sept, 109-112	Burton	J. C.	2

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	The usefulness of annual reports to corporate shareholders	1975	LA., Calif State Uni Bureau of Bus & Econic Res.	Epstein	M. J.	2
	Survey of subjects of concern to the individual investor	1975	Washington, DC., Author	Stockholders of America Inc.		2
13	Information needs of individual investors	1973	JOA, Nov., 64-69	Baker	H. K.	6
13	Accounting information, an investigation of private shareholders' usage	1975	ABR, Autumn, 280-291	Lee	T. A.	3

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	Information Needs of Security Analysts	1975	JOA, Dec., 65-70	Ch ndra	G.	2
	International comparison of investor uses of financial statements	1981	IJAER, Fall, 43-60	Chang	L(ucia) S.	3

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Pr. Cl.	Title	Year	Reference	First Author Name		Citn Cnt
	Some distinctive aspects of accounting in the USSR	1968	IJAER, No. 1, 29-33	Chumanchenko	N. G.	2
14	Notes on the development and problems of Soviet uniform accounting	1973	IJAER, No. 1, 135	Gorelik	G.	3
	Accounting soviet style	1978	MA, July, 51-56	Paraszczak	John	2
14	The accounting function in socialist economies	1982	IJA, No.1, 185	Berry	Maureen	3
	Accounting in Russia: The European connection	1982	IJAER, 1, 1	Bailey	D. T.	2
	Soviet accounting lags behind the needs of enterprise managers	1982	Mngemnt Intl Review, vol 7, no. 22, 12	Chastain	C. E.	2

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	Title	Year	Reference	First Author Name		Citn Cnt
20	Horizons for a Profession: The Common Body of Knowledge for the Certified Public Accountant	1969	AICPA	Roy	Robert H.	5
20	Report of the Committee on Education and Experience Requirements for CPAs	1969	NY, AICPA	Beamer	E. G.	4

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Title	Year	Reference	First Author Name		Citn Cnt
An overview of research in international accounting and likely approaches to future inquiry	1987	Managmnt Intnl Review, 4-23, sour 850 title other way around	Wallace	W.	2
International accounting: A review of academic research in the United Kingdom	1983	IJAER, Fall, 15-42	Gray	S. J.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Auditing standards in the Far East: An overview	1988	in Recent accounting and economic developments in the Far East, Zimmerman, V. K.; Ill CREA; 65-96	Needles	B. E. Jr.	2
Recent accounting and economic developments in the Far East	1988	Champaign,Il, Center for Research and Education in Accing	Zimmerman	V. K.	5
The general character of Chinese and U.S. management accounting and an analysis of the new Chinese management accounting styl	1988	in Recent accounting and economic developments in the Far East, Zimmerman, V. K.; Ill CREA, 51-64	Yu	Xu-Ying	2

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Title	Year	Reference	First Author Name		Citn Cnt
Survey of accounts and accountants 1983-1984	1984	Lafferty Publcns	Cairns	D.	3
The extent of disclosure in annual reports of large companies in seven countries	1977	IJAER, Spring, 1-25	Barrett	M. Edgar	3

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Title	Year	Reference	First Author Name	Citn Cnt
Admission of securities to listing	1984	London, The George Press, Nov.	Council of Stock Exchange (London)	4
Britain's tough financial-market rules may diminish London's role, critics say	1988	Wall Street Jrnl no author, June 20, 19	Wall Street Journal (The)	2
Stock exchange admission regulation	1987	Frankfurt, Johannes Weisbecker, Dec.	Frankfurt Stock Exchange	2
Worldwide financial reporting and audit requirements: A Peat Marwick inventory	1986	Author, Jan	Peat Marwick Mitchell & Co.	3

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Title	Year	Reference	First Author Name		Citn Cnt
University Education for International Business: A survey of American Business Schools	1969	Benton Harbour NY; Association for Education in International Business	Terpstra	V.	2
International Business Curriculum Survey	1974	Academy of International Business	Daniels	J. D.	3
Strength Through Wisdom: A Critique of US Capability	1979	Washington DC; U.S. Govt. Printing Office	President's Commission on Foreign Language & International S		2
The internationalization of the business school curriculum	1979	St Louis, Mo., Author	American Assembly of Collegiate Schools of Business		3
Report of the committee on international accounting	1973	AR, v. 48, Supplement, 121-168	American Accounting Association		5
Report of the Committee on International Accounting	1974	AR, Supp., 251-269	American Accounting Association		4
International influences on the contemporary accounting curriculum: International accounting instruction at the University of	1974	IJAER, Fall, 71-85	Schoenfeld	H-M. W.	2
The Internationalization of Accounting Curriculum	1978	A recommendation by the Education Comm; Sarasota Fl; Author	American Accounting Association		2

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Title	Year	Reference	First Author Name		Citn Cnt
Intercountry income distribution and multinational enterprises	1974	Oxford, Clarendon Press, 1974	Vaitsos	C. V.	2
Transfer pricing by mulitnational manufacturing firms	1973	Oxford Bulletin of Economics & Statistics, Aug., 187	Lall	S.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Financial ratios as predictors of failure	1966	JAR, Empiric Res in Accing: Selected Studies, 71-111	Beaver	W. H.	3
Financial ratios, discriminant analysis and the prediction of corporate bankruptcy	1968	JOF, Sept, 589-609	Altman	Edward I.	2
An empirical test of financial ratio analysis for small business failure prediction	1972	JFAQA, March, 1477-1493	Edminster	Robert O.	2

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The effect of lease data on predictive ability of financial ratios	1975	AR, Jan, 25-43	Elam	R.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Research methodology and accounting theory formation	1960	AR, July, 387-399	Devine	C. T.	2
The demand for and supply of accounting theories: The market for excuses	1979	AR, April, 273-305	Watts	R. L.	6

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Title	Year	Reference	First Author Name		Citn Cnt
Added value in external financial reporting	1979	London, ICAEW	Renshall	M.	2
Value added reporting: Uses and measurement	1980	London, Assocn of Certified Accnts	Gray	S.	2
Value added as a focus of attention for financial reporting: Some conceptual problems	1977	ABR, Summer, 215-220	Rutherford	B. A.	2
Value added: A comparative study	1983	AOS, 8, 1, 31-56	McLeay	S.	2
The value added statement: An innovation for U.S. companies?	1988	Accounting Horizons, June, 73-81	Meek	G. K.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Financial Reporting in Canada	1975	Toronto; Author	Canadian Institute of Chartered Accountants		3
Survey of published accounts 1979	1980	London, ICAEW	Institute of Chartered Accountants in England and Wales		2

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Title	Year	Reference	First Author Name		Citn Cnt
Financial reporting 1982-83: A survey of U.K. published accounts	1982	London, ICAEW	Skerrat	L. C. L.	2
Financial reporting 1983-84: A survey of U.K. published accounts	1983	London, ICAEW	Tonkin	D. J.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Auditor credibility and auditor change	1983	JAR, Autumn, 534-544	Nichols	D. R.	2
Audit firm size and the association between reported earnings and security returns	1988	Auditing: A Journ of Pract & Theory, Spring, 164-173	Ettredge	M.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Rank correlation methods	1948	London, Charles Griffin	Kendall	M.	2
Nonparametric statistics for the behavioral sciences	1956	NY, McGraw Hill	Siegel	S.	11

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Title	Year	Reference	First Author Name		Citn Cnt
FASB Statement 8 resolved foreign currency accounting - Or did it?	1976	FAJ, Jul/Aug., 55-61	Shank	J. K.	3
FASB No. 8: What has it done for us?	1977	FAJ, Mar/Apr., 40-47	Rodriguez	Rita M.	2

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Title	Year	Reference	First Author Name		Citn Cnt
On theory construction and verification	1970	AR, July, 540-451	Sterling	Robert R.	3
Accounting as history	1983	IJAER, Spring, 49-68	Lister	R. J.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Transfer pricing practices in the United States and Japan	1979	NY, Praeger - see phd 954	Tang	R. Y. W.	4
Transfer pricing and performance evaluation in multinational corporations: A survey study	1982	NY, Praeger	Yunker	Penelope J.	2
When the price is wrong - by design	1967	CJOWB, May-Jun., 69-76	Shulman	J.	2
Control with fairness in transfer pricing	1983	Harvard Bus Rev., Nov.-Dec., 149-161	Eccles	Robert	2

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Title	Year	Reference	First Author Name		Citn Cnt
Statistical package for the social sciences	1975	NY, McGraw Hill	Nie	H. N.	4
Estimation and test of significance in factor analysis	1955	Psychometrika, 93-111	Rao	C. R.	2
A note on the G index of agreement	1964	Educational & Psychological Measurement, 24, 749-753	Holley	J. W.	2
Factor analysis: An introduction to the essentials	1965	Biometrics, 21, 190-215, 405-435	Cattell	R. F.	2

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Title	Year	Reference	First Author Name		Citn Cnt
British factory - Japanese factory. The origins of diversity in industrial relations	1973	London, George Allen & Unwin	Dore	Ronald	2
The art of Japanese management	1981	NY, Warner Books, same authors reverse order - sour 731, 837	Athos	A. G.	3

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Title	Year	Reference	First Author Name		Citn Cnt
The Tortuous Evolution of the Multinational Corporation	1969	CJOWB, Jan.-Feb, 9-18	Perlmutter	H. V.	2
Currency changes and management control: Res lving the centralization/ decentralization dilemma	1977	AR, 52,3,July, 629	Lessard	Donald R.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Analysis and comparison of earnings forecast agents	1982	JAR, 429-439	Imhoff	E. A.	2
Corporate managers earnings' forecasts and symmetrical adjustments of market expectations	1984	JAR, 22, 425-444	Ajinkya	B.	2

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Title	Year	Reference	First Author Name		Citn Cnt
The feasibility of reporting forecasted information	1971	AR, 46, 686-692	Daily	R. A.	2
The accuracy of company profit forecasts	1972	JBF, 26-39	Dev	S.	3
Examination of the reliability of published predictions of future earnings	1973	AR, 502-510	McDonald	C. L.	2
A comparison on the accuracy of corporate and security analysts' forecasts of earnings	1976	AR, 244-254	Basi	B. A.	2
Some evidence on the determinants of profit forecast accuracy in the United Kingdom	1977	IJAER, Spring, 27-36	Ferris	K. R.	2
The determinants of accuracy of management earnings forecasts: A New Zealand study	1989	IJA, 24, 267-280	Mak	Y. T.	2

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Title	Year	Reference	First Author Name		Citn Cnt
The representativeness of management earnings forecasts	1978	AR, Oct., 836-850	Imhoff	E. A.	2
Relative forecast accuracy and the timing of forecast announcements	1986	AR, Jan., 58-75	Hassell	John	2

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Title	Year	Reference	First Author Name		Citn Cnt
Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk	1964	JOF, Sept., 425-442	Sharpe	W. F.	3
The valuation of risk assets and the selection of risky investments in stock portfolio and capital budgets	1965	Review of Ecocs & Statistics, 47, Feb., 13-37	Lintner	J.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Mergers and takeovers: The financial characteristics of companies involved	1972	JBF, Autumn, 5-16	Samuels	J. M.	2
The Stability of Financial Patterns in Industrial Organizations	1973	JOF, June, 389-396	Pinches	G. E.	2
Financial characteristics of merged firms: A multivariate analysis	1973	JFAQA, March, 149-165	Stevens	D. L.	3
Accounting ratios to locate takeover targets	1984	JBFA, Autumn, 301-311	Rege	P. R.	2
Predicting takeover targets	1986	JAE, Jan., 3-35	Palepu	K.	2
The prediction of takeover targets in the UK by means of multiple discriminant analysis	1990	JBF&A, Spring, 73-84	Barnes	P.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Accounting Implications of a Mathematical Programming Approach to the Transfer Price Problem	1964	JAR 10-24	Dopuch	N.	2
Transfer Pricing - A Synthesis	1974	AR, Jan., 8-23	Abdel-Khalik	R. A.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Characteristics of Firms Making Accounting Changes	1973	AR, Jan.	Gosman	M. L.	2
The Earnings Characteristics of Firms Reporting Discretionary Accounting Changes	1975	AR, April	Bremser	W. G.	2
Characteristics of Firms Reporting Consistency Exceptions - A Cross-Sectional Analysis	1977	AR, Jan.	Warren	C. S.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Interim Financial Reporting	1972	NY; National Association of Accountants' Research Study	Edwards	J. W.	2
Toward a Theory of Interim Reports	1964	JAR 35-49	Green	D. Jr.	2
Towards a Theory of Interim Reports - A Modification and an Extension	1966	JAR 121-126	Rappaport	A.	2
An Examination of Some Interim Reporting Theories for a Seasonal Business	1972	AR 75-84	Bollom	W. J.	2

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Title	Year	Reference	First Author Name		Citn Cnt
The Second Conference on Mobilization of Economic Resources for Development and Defense	1971	Damascus, Tarabishi Press	Business Institutions Graduate Association		2
The role of accounting in the economic development of Syria	1974	DBA Diss., Mississippi State University	Abdeen	Adnan M.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Accounting practices in Japan	1968	Seattle, Grad School of Bus Admin., Uni of Washington	Mueller	G. G.	2
Financial Reporting in Japan	1976	Tokyo, Kodansha Internatioanl	Ballon	Robert J.	3
Japan: Some Background for Security Analysts	1974	FAJ; Jan-Feb; 37	Barrett	M. E.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Die organische Bilanz im Rahmen der Wirtschaft	1921	Leipzig, G. A. Gloeckner	Schmidt	F.	2
Die organische Tageswertblanz	1922	translated version 1951, orig 1922	Schmidt	F.	3

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Title	Year	Reference	First Author Name		Citn Cnt
Microaccounting and macroaccounting	1966	AR, 13-14	Yu	S. C.	2
The evolution and present state of national economic accounting	1968	IJA, Fall, 1-16	Ruggles	R.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Standards for audit of governmental organizations, programs, activities and functions	1972	Washington, DC, Author	U.S. General Accounting Office		2
Accounting by nonbusiness organizations: FASB discussion memorandum	1978	FASB discussion memo, Aug.	Ernst & Ernst		2
Worth repeating	1974	International Journal of Governmental Auditing, Jan., 16	MacKenzie	W. J. M.	2
Auditing standards established by the GAO, their meaning and significance for CPA's	1973	NY, author	American Institute of Certified Public Accountants		2

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Title	Year	Reference	First Author Name		Citn Cnt
Financial management in the Soviet industrial enterprise	1972	ABR, Autumn, 298-397	Maunders	K. T.	2
Enterprise accounting in the USSR	1973	ABR, Winter, 43-59	Bailey	D. T.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Multinationals are poor tools for diversification	1973	Jrnl of Portfolio Mangmnt, Winter, 8-12, sour 833 - 1978	Jacquillat	B.	2
World country and industry relationships in equity returns: Implications for risk reduction through international diversifica	1976	FAJ, Jan.-Feb, 32-38	Lessard	D. R.	2

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Title	Year	Reference	First Author Name		Citn Cnt
The international federation of accountants: Its organization and goals	1979	IJA, Fall, 19	Chetkovich	M. N.	2
The international federation of accountants: Operating procedures and current progress	1979	IJA, Fall, 31	Sempier	Robert N.	2

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Title	Year	Reference	First Author Name		Citn Cnt
Foundations of accounting theory	1971	Uni of Florida Press	Stone	W. E.	2
The balance sheet - Embodiment of the most fundamental elements of accounting theory	1971	in Foundations of accounting theory; W. Stone; Uni of Florida Press ;168	Sprouse	Robert T.	2
A classification and analysis of financial accounting theory models		Faculty of Admin Studies, York Uni., no date	Dewhirst	John F.	2

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Title	Year	Reference	First Author Name		Citn Cnt
The information content of security prices: A second look	1981	JFAQA, March, 113-126: last auth 1889?	Beaver	W. H.	2
The information content of security prices: A second look	1987	NB same sour-diff jrl date; JAE, 9,2, 139-157	Beaver	W. H.	2