

**CALCULATIVE PRACTICES IN HIGHER EDUCATION: A RETROSPECTIVE
ANALYSIS OF CURRICULAR ACCOUNTING FOCUSING ON UNIVERSITY
ENLARGEMENT**

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CALCULATIVE PRACTICES IN HIGHER EDUCATION: A RETROSPECTIVE ANALYSIS OF CURRICULAR ACCOUNTING FOCUSING ON UNIVERSITY ENLARGEMENT

ABSTRACT

Purpose – This study extends coverage of the accounting literature to means of measuring, recording and reporting university-student learning. The means in question comprise credit, credit points, levels of learning, level descriptors, learning outcomes, and related characteristics of course catalogues, qualification frameworks, credit transfer systems and student records, transcripts and diploma supplements. Despite the infant precursors of these calculative practices, processes, records and so on having been labelled *curricular accounting* (see Theodossin, E. (1986), *The Modular Market*, Further Education Staff College, London), accounting researchers have overlooked these means as a variant of accounting, notwithstanding that how accounting figures variously in New Higher Education has been the subject of widespread accounting research studies.

Design/Methodology/Approach – The subject is addressed both in a technical way and in the broader context of accounting in organisations and society. The former University of New Zealand and its affiliate in Christchurch, New Zealand, and the successor of that affiliate, Te Whare Wānanga o Waitahā /the University of Canterbury, are used as a case study for archival study and participant-observation. The credit point system in place at the University of Canterbury in 2010 and antecedent arrangements back to 1873 are analysed genealogically, using ideas of representational schemes, path-dependent changes and negotiated orders among parties who have been associated with the case institution. In the present paper, particular attention is paid to how and why curricular accounting and antecedent means of specifying, recording and controlling learning are connected with enlargement of the institution, including the learning (and teaching) provided.

Findings – The retrospective analysis illuminates how and why growth in students, staff, qualifications, courses, subjects and so on shaped and formed curricular accounting, and came to be enabled and further fuelled by curricular accounting; and suggests that similar applies across tertiary education in many countries.

Research limitations/ implications – Curricular accounting has multifarious consequences for students, academics, alumni, universities and similar institutions, higher education, governments and others. The findings are derived from an accounting perspective and there is scope for adding other perspectives. There is much scope for further research.

Practical Implications – The paper may improve understanding of curricular accounting, including among those practicing it and controlled by it; and it raises issues that are likely to condition further developments.

Originality Value – Curricular accounting is now in the accounting literature.

Keywords Higher education, University growth and diversification, Credit accumulation and transfer, Social and institutional accounting, Path dependence, Genealogical mode of analysis

Paper type Research paper

1. INTRODUCTION

Credit is used frequently in higher education to refer to learning that, having been assessed as above specified standards, counts towards a student's qualification. In recent decades, in the Asia-Pacific region and internationally, credit has become accounted for using various calculative practices, processes, records and associated means. Among these practices, the most obvious feature is credit points, which are purported to quantify volumes of learning entailed in courses and qualifications[1]. Other features are levels of learning, level descriptors and learning outcomes, including means of measuring achievement of these outcomes and recording the results of this measurement or assessment: these are purported to indicate qualities of learning. These means are now important within individual institutions, across institutions within the same national higher education system or tertiary education system, and across several such systems. Examples of the latter include the Credit Accumulation and Transfer Scheme/System (CATS), which originated in Scotland; the European Credit Transfer Scheme (ECTS), which having been developed to aid international credit transfer within Europe (see Adam, 2001), has been gradually displacing individual country systems of credit accumulation; and the Student Credit hour System, which is in wide use in North American systems and pre-dates CATS and ECTS by at least several decades (Butler and Hope, 2000). Use of the means in question is evident in, among other things, qualification regulations, course catalogues, student transcripts and diploma supplements, credit transfer systems and qualification frameworks (e.g. "ECTS user guide", 2009; European Commission, 2009a, 2009b). A moot question is whether the means in question represent new accounting practices, which might be labelled *curricular accounting* (Dixon, 2009; Theodossin, 1986). Without prejudice to this question, the shorthand "curricular accounting" is used hereafter to refer to these means.

A study has been conducted to examine the growth in importance and consequences of curricular accounting at a particular institution and in the context of its national setting and international dealings. The institution is now known variously as te Whare Wānanga o Waitahā and the University of Canterbury (UC). It is located in Christchurch, the main centre of Canterbury Province, whose government[2] was involved in establishing it as Canterbury College in 1873, making it one of New Zealand's oldest higher education institutions. This paper is drawn from this study of curricular accounting and the elements it now encompasses. It focuses on how and why these elements and this accounting have been devised in order to accommodate enlargement of most aspects of university operations; and on how and why this enlargement has been shaped, formed, enabled and further fuelled by these elements and this accounting.

The purpose of this retrospective analysis is illumination, not only at the case study site but across tertiary education in many countries. The curricular accounting presently used at the institution in question is aligned with those used in the other seven New Zealand universities and bears striking similarities to CATS used widely in Scotland, England (although seemingly not at either Oxford or Cambridge) and elsewhere. How it functions within UC and in its educational and administrative environs is elaborated elsewhere (see Dixon, 2009). In essence, it is bound up with awarding qualifications, and staging courses and programmes of study. It helps specify a representational scheme among such matters as regulating and awarding qualifications, designing and controlling learning and teaching, providing order and control among students and academics, and regularising policy and financial relations between UC and external agencies, including New Zealand Qualifications Authority (NZQA), the Committee on University Academic Programmes (CUAP) of the New Zealand Vice-Chancellors' Committee (NZVCC) and the Tertiary Education Commission (TEC).

At base is a system that came into operation at UC in 2006. Credit is awarded at levels that correspond with Level 5 and above in the New Zealand National Qualifications Framework (see Figure 1). Students enrol on courses, which each have a level and points value. These particulars appear on student records, which accumulate from when they first enrol. Course design is claimed to reflect and be reflected in point values and levels, and in turn these have some meaning in academic audit and quality assurance procedures. The tuition fees that students pay themselves or have paid for them by the Government of New Zealand (hereafter “the Government”) through StudyLink depend on the subject of the course, and on the level and points values (StudyLink, 2010); the same applies to the Government grant received through Student Achievement Component funding, which is calculated from numbers of equivalent full-time students (EFTSs) studying courses towards qualifications (TEC, 2010a, 2010b). Entitlements of domestic students to allowances and loans from StudyLink depend on the numbers of points being studied, in particular to distinguish full-time students from part-time students, and to distinguish whether sufficient study is being undertaken to qualify at all for financial assistance. At its inception, the system was called the *360 point degree system* because the regulations for a bachelor degree of three years’ full-time duration (e.g. Bachelor of Arts (BA), Bachelor of Commerce (BCom.)) stipulate that to graduate a student must complete courses whose total credit is at least 360 points (see UC, 2004, Minute 7). Now, it is widely referred to as just the *points system*.

[INSERT FIGURE 1 ABOUT HERE]

In the rest of the paper, various relevant literatures are reviewed in the next section; and the one after provides more information about method. Subsequently, the main body of the paper deals with particular aspects of curricular accounting, university enlargement, and their relatedness; and culminates in issues that are contentious now. The conclusions at the end are accompanied by suggestions for further research.

2. LITERATURE REVIEW

The several ideas reviewed comprise accounting as an expanding, social and institutional practice; associations between credit point systems and the term “accounting”; universities as socio-political organisations; and a dynamic perspective about how social order evolves among organisational participants. These elaborations provide further context for the study, help explain the way it was conducted and how the analysis has been carried out, and facilitate discussion of the enlargement part of the analysis in order to extend the literature.

The significant extension of accounting in the functioning of modern industrial (and now global) societies, including possibilities of new accounting practices emerging during changes to patterns of organisational visibility, is discussed by Burchell, Clubb, Hopwood, Hughes and Nahapiet (1980). This extension has been equally rampant in public services, including in higher education (e.g. Broadbent and Guthrie, 2008; Coy, Dixon, Buchanan and Tower, 1997; Coy and Goh, 1993; Coy and Pratt, 1998; Dixon and Coy, 2007; Kelsey, 1997; Lord, Robb and Shanahan, 1998; Pollitt and Bouckaert, 2004; Robb, Shanahan and Lord, 1997). It is generally accepted that this extension has accompanied a variety of social and institutional changes in higher education, for which the phrase New Higher Education has been coined (Trowler, 2001); and arguably has helped bring about these changes (e.g. see Larner and Le Heron, 2005; Nagy and Robb, 2008).

Terms such as massification, diversification and differentiation have been invoked to characterise these social and institutional transformations in higher education (e.g. see Altbach, Reisberg and Rumbley, 2009; Demeulemeester, 2009), the most obvious of which have included the following. Numbers of students have risen significantly and participation rates are several-fold greater than even a generation or so ago, let alone between the 21st

century and the 19th century. Numbers of institutions providing higher education have also risen, and there are far more institutions calling themselves universities, or otherwise having degree-granting powers, or who have been accredited to teach and examine students for degrees conferred by other degree-granting institutions or bodies. Huge branching out has occurred in disciplines and subjects. Degree and other awards have broadened and have become more modular and accommodating of student choices. This has led to customisation in knowledge and skills coverage. There has been some national and international integration of qualifications, making it more possible for students to gain a qualification through study with more than one institution and in more than one country. Consequently, students have become more mobile and more knowledgeable of higher education as a market. Fees levied on domestic students entitled to subsidised study have increased relative to government grants and as a proportion of the revenues of universities and other tertiary institutions. Those fees, the equivalent charged by institutions to foreign and other students whose fees are calculated to recover full costs, and significant proportions of grants that institutions receive from governments are linked more closely to an individual student enrolling for a specified course (e.g. re Colombia, see Restrepo (2008); re New Zealand, see Boston (1988, 1996), Lerner and Le Heron (2005), and McLaughlin (2003); re Norway, see Pettersen and Solstad (2007); re United Kingdom, see Deem (2004), and Deem and Brehoney (2005)).

These social and institutional transformations in higher education can be identified with propositions made by Burchell et al. (1980) about accounting practices enabling the emergence of organisational forms with many interdependencies that make them increasingly complex. The practices in question have made it possible for operating information to be relayed around the networks that characterise these organisational forms; for some people to measure and evaluate other people according to set priorities and expectations in relation to divisional and product performance; and for reports and such like to be distributed according to legal and regulatory requirements, administrative needs and market expectations. As alluded to above, Burchell et al. call attention to patterns of organisational visibility being changed, which in turn affect organisational participants' perceptions of the problematic and the possible in wide ranging matters of managerial, organisational and, by inference, service practice, giving rise to changes in these. They also raise the new accounting practices that emerge during these changes creating further possibilities for change.

To use instances in existing literature of where curricular accounting is linked with accounting provides ideas on which to build the analysis of curricular accounting as a practice. Theodossin (1986) is concerned with curricular accounting in England. He was familiar with modular/credit courses because of their popularity in his American homeland since the second half of the 19th century. There, they had been intended as “breaking the stranglehold of the [Oxbridge-inspired] classical curriculum” (p. 5) but had had the significant consequence of a “curricular free-for-all” (p. 5), which was thought to undermine standards, and so was eventually checked by introduction of “a system of ‘concentration and distribution’” (p. 7) involving majors and minors. He noted the emergence of these courses in some English universities and polytechnics from the 1960s; and in coining the name *curricular accounting*, was discussing the credit system as it was developing in Britain in the 1970s and early 1980s. However, that he used this name in 1986 is probably surprising because, although under development, CATS then was still some way from the CATS that Trowler (1998) reports as being widely used in British higher education, most significantly that the arithmetic of the system's credit points did not materialise and gain widespread acceptance until the late 1980s and 1990s (Allen, 1995). Two things that arithmetic facilitated are student study being recorded not only by module, as Theodossin discusses, but also in a common currency of points and levels within and across higher education institutions; and

the value of each person's study being accumulated over an extended period, to provide what Adam (2001) refers to as "lifelong learning accounts" (p. 302).

In seeming to imply that Theodossin (1986) saw CATS merely as bookkeeping among higher education institutions and then taking issue with that, Raban (1990) elaborates on potential ramifications of this and schemes like it and on meanings that they can inspire, considering issues around valuation as well as accumulation and exchange, and noting that CATS has been "a powerful catalyst for change in higher education (in England)" (p. 26), for example, aiding "the (English) Government's attack on elitism and restrictive practices of the universities" (p. 26). Bekhradnia (2004), in also using the word *accounting*, provides further elaboration and discussion. Although these do not refer to curricular accounting as such, they are concerned with how curricular accounting or specific characteristics of it have consequences for higher education and those participating in it. These items are also incorporated in the discussion of the analysis. A further significant contribution from Restrepo (2008) illuminates how the introduction of credit systems can transform the governance and management of a university, change environmental relationships, and inspire "radical changes in terms of curriculum design, educational structure and content, provision (delivery) of education, the learning process and its assessment" (2008, p. 11), the actual changes possibly being more extensive than those planned.

Otherwise, despite a few decades during which curricular accounting ideas have spread far and wide, as evidenced by a significant volume of official literature, both at policy level (e.g. Bologna Working Group on Qualifications Frameworks, 2005; NZQA, 2008) and organisational level (e.g. Open University, 2005), scholarly literature is thin on the ground. It seems either limited to sharing experiences and improving method and technique at ground level (e.g. Dillon, Reuben, Coats and Hodgkinson, 2007; Greator, 2003), or about making and implementing policy at national level (e.g. Young, 2008).

To analyse genealogically how and why curricular accounting has come about in universities is in some ways to analyse universities as organisations and their place in society. The literature on this is extensive. In a review of English-language literature mainly from the United States of America (USA) and Britain, Patterson (1990) concludes that how theorists portray universities varies widely, in attempts to understand their idiosyncrasies and complexities[3]. These include political control theories, of which two were identified during the course of the study as being suitable to inform subsequent activities and analysis, namely, *negotiated order* and *path-dependence* theories. In general, political control functions through knowledge structures and negotiation processes (Rahaman and Lawrence, 2001). These theories are usually associated with attempts to explain such conditions and behaviour as intermittent engagement in decision processes, fragmentation into interest groups with different goals and values, lobbying, stratagems, subterfuge, tactics, coalition forming, inconsistency, and competition for resources. However, political control is a constant in situations where conflicting values exist alongside exercising subjectivity, among other things, to distribute scarce resources (Hofstede, 1981) (see also Patterson, 1990).

The inherent political nature of universities is apparent in times of crises of legitimacy for disciplines/subjects, departments and other units, whole universities or entire university systems, when disagreements about purposes, objectives and actions must be dealt with (for a New Zealand example, see Coy and Pratt, 1998). However, this nature is equally present at other times, when university participants exhibit cooperation, compromise, negotiation, bargaining and exchange, coalition forming, fluidity, diffusion of authority, decisions and actions, and coordination based on interaction, consensus and beliefs. Through these means, ambiguity of purposes, objectives and actions is dealt with in less conflictual and more

collegial ways. Thus, political theories explain their more usual state, and so explain their general dynamic state, as encompassing negotiated order, founded on organisations being constructed socially through interactions of social actors, during which conflict arises sporadically.

The idea that social order among organisational participants is the consequence of recent negotiations, which are themselves dependant on previous social orders and past negotiations among participants, is examined by Rahaman and Lawrence (2001). They attribute the idea to how participative mechanisms of social change were incorporated in the structure of democratic societies as they came to be known in various places during the 20th century. Negotiations in organisational settings became a central element in organising and controlling behaviour occurring in these settings. Interactions arise within an organisation's legally demarcated boundary and outside it. At any one time, the extant order is both internal and external to the organisation, giving rise to possibilities not only of mapping it as a representational logic or scheme (see Dillard, Brown and Marshall, 2005) of activities, events, behaviour and values, but also of recognising the order as transient, on a trajectory from a previous negotiated order, through the present order and to a next order.

Changes in order comprise the organisation's history, during which it is an arena of cooperation and conflict. The changes are of various magnitudes and derive from negotiations conducted among all the social actors and their groupings[4] albeit on unequal footings. How and why interactions transpire reflect both the interests that these social actors have across time in the organisation and other organisations and social units, and the differences in knowledge and influence of these actors, which will vary as a result of previous negotiations and the social order arising out of them. The structural contexts within which interactions occur are a product of the negotiated order, and so are as inconstant and transient as other aspects of the socially constructed organisations. So too are the rules and procedures of organisational functioning, and the representational scheme. While interactions and negotiations lead to potential inconstancy and transience, that they are carried out by persons whose involvement in the organisation is usually medium to long term gives rise to whatever transpires at particular moments having major lasting influence.

This last point resonates with path dependence theory for analysing changes. According to Jacobs, Jones and Modell (2007), as changes are made, participants' perceptions of existing structures, processes and related matters condition the choices that are inherent in the changes that are made, and so past structures, processes and related matters have a major and lasting influence on those that follow from time to time. Thus, the new derives from and in part incorporates what went beforehand; and what went beforehand constrains how and why structures, processes and the like develop, and in doing so other possible and probably more radical trajectories are precluded. Change analysed from a path dependence stance therefore tends to be more evolutionary than revolutionary; and it tends to be more muddled with mixes of the desired and the compromised, not to mention the intended and unintended. As Jacobs et al. point out, path dependent change is more likely to occur if existing structures, processes and related matters have a tendency to determine individual and collective expectations and adaptations. There is a greater likelihood of existing ones being retained than there is of completely new alternatives being put in their place, but the retained ones are likely to be in a modified form, so as to obtain the advantages sought from making changes in the first place (e.g. to reduce occurrences that are problematic). Modified existing forms will be especially preferred over new alternatives if the latter are matters of dispute and their success is uncertain (see also Greener, 2005; Kay, 2005; Mahoney, 2000).

To see these ideas and related ones in action, Jacobs et al. (2007) argue that a longitudinal perspective must be adopted: by carrying out a retrospective analysis of an extant social order one should be able to induce a pattern of dependence of that order on previous orders. Such a retrospective analysis is predicated on the idea that “Placing politics in time – systematically situating particular moments (including the present) in a temporal sequence of events and processes – can greatly enrich our understanding of complex social dynamics” (Pierson, 2000, p. 72), and is often associated with the maxim *History Matters*, for which, as Pierson points out, answers to the questions of why, where and when are vital. Thus, how structures, processes and related matters evolve and influence each other over time is vital to the analysis. Expectations are that emergent alternatives will be incorporated into existing structures if they do not generate much conflict between actors with vested interests in various alternatives; and that emergent alternatives, if adopted effectively, become more consistent with established practices, and so manifest an apparent tendency of path dependent change.

3. METHOD

Retrospective analysis is about informing the present and future of social orders by investigating temporal processes associated with their emergence up to the present day. This concern for informing arose from occurrences at UC during 2007 to 2010, where and when the researcher was a participant-observer. During this period, much debate, manoeuvring, conflict and negotiation occurred among staff and representatives of students, including on faculty and university level academic committees, over credit points, learning outcomes and similar. For example, proposals were approved for all courses to be of a common size of 15 points or multiple of 15 points, and for there to be a common graduate profile for all majors and endorsements of the BCom. degree. During these debates, much ad hoc evidence was observed that among the various participants there were significant variations in the meanings being read into credit points, levels of learning, learning outcomes, teaching and assessment, and of significant disparities of how these are interrelated compared to official pronouncements such as UC (2008) and literature such as Dillon et al. (2007). It was these circumstances that led the researcher to embark on a study, although it was not until he stumbled upon the term *curricular accounting* during a Google ScholarTM search that the idea for an accounting study began to crystallise.

Having espied the possibility of regarding curricular accounting as a new accounting practice, and one that has emerged alongside changes to patterns of visibility in higher education, the researcher adapted suggestions by Burchell et al. about questions on which to focus lines of inquiry in such circumstances, namely: How does what might arguably be labelled *curricular accounting* function officially at UC in 2009? How has it emerged and developed and who has been involved and what issues shaped it? How has it become intertwined with other aspects of life; and what consequences have arisen? (see Burchell et al. 1980, especially p. 23). Thus, although, as indicated above, credit systems elsewhere have already been examined by others (e.g. Adam, 2001; Allen, 1995; Bekhradnia, 2004; Butler and Hope, 2000; Restrepo, 2008; Theodossin, 1986; Trowler, 1998), this paper and the study from which it is drawn is original in taking an accounting approach and treating the inquiry as accounting research, as well as in taking more than a cursory interest in the actual calculative practices.

Furthermore, the second of the three questions is in keeping with the argument rehearsed above from Jacobs et al. (2007) and Pierson (2000), and with similar demands for longitudinal examinations of practices (i.e. in this case, curricular accounting at the institution that is now UC) to show and appreciate that elements of the present form and usage of

practices have emerged from historical social conditions (i.e., in this case, the various people involved in this institution over its entire life, and the issues with which they were concerned). Thus, the origins of the ideas underpinning UC's present curricular accounting have been traced genealogically back through UC's formal inception in 1958 and thence to its forerunners, namely, Canterbury University College (1933-1957) (hereafter "the University College") and Canterbury College (1873-1932) (hereafter "the College"), and the University of New Zealand (UNZ) (1870-1961). The purpose is to provide an analysis that would be illuminating, and so suitable, for example, to inform those practising curricular accounting, or who are called on to extend or change this accounting, or who are considering how this accounting might change in future (re this purpose and mode of analysis, see Foucault, 1975, 1994; Kearins and Hooper, 2002; Miller and Napier, 1993).

Regarding process, the lines of inquiry listed above were pursued simultaneously, guided by the above purpose. Initially, a rounded description was composed of the extant system and how it had come about chronologically. Then, a further, genealogical analysis was carried out in order to understand present curricular accounting practices as an accumulation of various contingent turns of history. The researcher sought out these turns, the details and accidents associated with how and why present practices developed; the conditions arising from time to time that made the changes possible, and the social interactions, negotiations and constrictions that were entailed among actors involved in or influencing UC practices. Specific interest was taken in the often disputed meanings that various protagonists ascribed to the circumstances from which elements of curricular accounting emerged. As indicated above, these turns were expected to illuminate how practices changed and could change again (Foucault, 1975, 1994). While genealogical modes of analysis are usually ascribed to Foucault, using his modes of analysis does not necessarily mean using his theories. Instead, *path dependence* and *negotiated order* theories, which are outlined above, were used to structure the report of the genealogical analysis, and they have been carried through into the formatting of the analysis in this paper.

The various documentary sources of evidence drawn on by the researcher include the Calendars of UC and of its forerunners, published annually since 1873[5]; and the equivalents for UNZ. He examined specimens of student records held at UC and dating back to 1873. He perused other official documentary evidence in such forms as recorded proceedings of meetings of university and college committees; and reviews of the New Zealand university system carried out by agencies of the Government (e.g. University Grants Committee (UGC) Review Committee, 1982). Conventional histories of UNZ (Parton, 1979) and to mark the 50th anniversary (1923) (Hight and Candy, 1927) and centennial (1973) of the founding of the College (Gardner, Beardsley and Carter, 1973) also proved valuable, not only for contextual background but also in prompting detailed inquiries. Editions of *Canta*, the newspaper of the Students' Association, were also consulted. Several UC academic-managers and officials responded to questions and made comments about the analysis, and a staff seminar was held.

The results of the study are voluminous. For reporting purposes, they are being divided into chunks suitable for academic journals. During his inquiries and as he interpreted data, the researcher discerned three themes of longstanding significance, and it is one of these with which this particular paper is concerned, namely, relationships between curricular accounting and university enlargement. The other two themes, around the setting, policing, evaluating and raising of standards/qualities of university-student learning and assessing the equivalence of such learning; and philosophy of universities and of university funding are dealt with in detail in other papers (see Dixon, 2010a, 2010b), but are alluded to incidentally in this paper, as the four are inter-related.

4. ANALYSIS

Curricular accounting's emergence and development the institution that is now UC has been shaped by various people, and educational, economic, political and social occurrences and issues with which they were concerned, both within the institution and in the dynamics between institutional participants, individually and collectively, and the outside world. For specific periods during its emergence and development, the accounting and its antecedents took particular forms, comprising *the 360 point degree system* (2006-), *the new degree structure* (1975-2005), *the unit system* (1926-1974) and system(s) before that, which although lacking a name have been located in terms of their elements and provisions. Details of these are set out in Dixon (2010a). They reflected many issues and occurrences, and shaped and formed several of these issues and occurrences and others. The analysis covers how and why curricular accounting about university-student learning has reflected university enlargement, including in the sense of this accounting having emerged in order to accommodate enlargement of most aspects of university operations; and has constituted university enlargement, including in the sense of this enlargement having been shaped, formed, enabled and further fuelled by this accounting.

It can be inferred from data derived from the entire life of the institutions in question that how curricular accounting has come to function is bound up with awarding degrees and other qualifications to students, and providing them with courses of study that lead to these awards. University enlargement, particularly as reflected in growth of the numbers of qualifications, subjects, courses, students and staff, has been ever present in shaping the systems enumerated above. However, in the formative years, the theme of standards and equivalence, as dealt with in detail in Dixon (2010a), was probably of greater significance, and it is useful to outline it briefly in this paper. Before even that though, some other background is needed.

4.1 REPRESENTATIONAL SCHEME

In the formative years, the lay and academic founders of the College and UNZ came mainly from England, Scotland and elsewhere in the British Isles. They could not have been familiar with curricular accounting as it later materialised at UC, as such practices did not exist, and probably the only system remotely like it in the English-speaking world at that time was the Student Credit hour System, which was still in its infancy in the USA (Heffernan, 1973; Rothblatt, 1991). In so far as they needed equivalent practices, they and their successors over the first 90 years of the institution that became UC and of UNZ (and their counterparts at the other affiliates of UNZ) used non-calculative practices.

Their idea for a university was a mix of providing access to education, bringing about the educated population that would be important to the settlement's development and being a matter of provincial pride. They were cognisant of the shortcomings in secondary education[6], resulting in students being poorly prepared for tertiary study. But they were also desirous for the standards qualifications to be raised to those of British universities. From experience of Oxbridge, the ancient Scottish universities[7] and elsewhere of similar antiquity[8], they knew basic ideas, structures, processes, practices and the like; and, as notions of path dependency, and indeed mimicry, would lead one to expect, they applied these, as was evident not only in matters of appearance (e.g. ancient stone buildings, formal academic dress[9]) but also structure and process. For example, they recruited staff from Britain, established one university for New Zealand (i.e. UNZ), and used examiners in Britain to set and mark examinations for degree subjects (Gardner et al., 1973; Hight and Candy, 1927; Parton, 1979).

Arguably, these applications led to a series of similar representational schemes, each arising from the previous one by virtue of modifications to fit changed circumstances of UNZ and

the College / University College, and then UC[10], alongside NZVCC and, to use Gardner et al.'s (1973) phrase, two "Ministries of Universities" (i.e. UGC from 1961 to 1990 and TEC (2003-)). In these schemes, the participants at the institution(s) have included, among others academics, students, examiners, administrators, and academic and administrative governors. Students have studied towards qualifications under the tutelage of academics. Study has been separated into subjects, and then into examination papers and courses of lectures/study. Qualifications have been distinguished into levels (e.g. *bachelor, honours, master*); and bachelor degree qualifications have further distinguished into stage-based levels (e.g. *pass, advanced*). Graduates have used their learning and qualifications to enrich their lives, including to secure employment as teachers, in other professions[11] and other work to which they were suited, and/or to go on to further study.

It seems that at various times most participants have found the particular version of the representational scheme that they experienced sufficient for going about their activities, and any who have not have been expected to work with it anyway. However, there have been those who have been prepared to dispute the status quo and campaign for changes, and from time to time this activity along with external or internal social, economic, technological and political occurrences has given rise to modifications to how the basic ideas have been applied, and so to the aforementioned revisions and successive versions of the representational scheme. One series of changes within the schemes has involved the systems and related paraphernalia that have now emerged as curricular accounting.

4.2 STANDARDS AND EQUIVALENCE

To keep this brief, qualifications are used as a prime example of how a concern for standards has shaped changes to curricular accounting and previous systems and practices: over the years, the regulatory requirements for particular qualifications (e.g. BA, Master of Arts (MA)) have been increased in terms of the quantity of study (i.e. as reflected in numbers of subjects, numbers of examinations and, in today's terms, numbers of hours of study by a student) and the quality or level of study. These increases were particularly evident each time regulations were revised as each new curricular accounting system was introduced. For example, the minimum quantity of 300-level study in bachelor degrees was increased on each occasion, most recently when the 360 point degree system was amended to provide for 15 point courses, this minimum was increased to 90 points. Furthermore, some qualifications were introduced because existing qualifications were not considered rigorous enough for purpose. An early example is that UNZ inaugurated the bachelor of science (BSc.) in 1890 because something more fit for purpose was required than the BA, which up to then was the only first degree available[12] and was seen as too generalist and only a *pass* degree[13] (Gardner et al., 1973; Hunter, Laby and von Zediltz, 1911). Other bachelor degrees soon followed, as indicated in Figure 2. Similar happened at higher degree level, with the BA with Honours (BA(Hons)) and MA[14] being joined in the catalogue by others in science and so on[15]. These efforts at raising standards of qualifications had a flow on effect of raising standards of courses, bringing about initially the distinction between *pass* and *advanced* courses, the latter being defined as two years study in a subject subsequent to *pass*, and then increasingly more of the courses in the catalogue being at advanced levels (i.e. 200-level and above in today's terms) than at pass or 100-level (Dixon, 2010a).

[INSERT FIGURE 2 ABOUT HERE]

4.3 UNIVERSITY ENLARGEMENT

The initial Arts qualifications and courses were tailored primarily for school teachers, of which there was a shortage in the Colony. Then, as the need in the Colony for other professions became apparent, so the diversification shown in Figure 2 was implemented by

UNZ[16][17] (re more about the BCom., see Gaffikin, 1981); and corresponding courses were staged by affiliates, including in new branches (e.g. in 1890, the (National) School of Engineering was founded at the College) (Gardner et al., 1973). This exemplifies how the development of qualifications and courses, although also associated with trying to improve standards and quality, for example, by providing new university subjects as they emerged, particularly in the second half of the 20th century, has been related to external demands for education. This demand seems the main reason, in fact, and the consequences of university enlargement have been profound, as revealed by charts compiled from data about numbers of qualifications and courses in Figures 3 and 4[18].

[INSERT FIGURE 3 ABOUT HERE]

[INSERT FIGURE 4 ABOUT HERE]

Clear from these charts is that recent numbers dwarf those of only a generation ago. The growth of qualifications is even more spectacular when one appreciates that the data used in Figure 3 does not reflect the variety that has arisen in the past few decades of choices of majors and endorsements within meta-qualifications (i.e. BA, BSc. BCom., etc.). For example, the 2010 BCom. has 13 endorsements and the 2010 BA has 34 majors. These majors and endorsements have come about because, instead of creating separate meta-qualifications, sub-qualifications were established within existing meta-qualifications to accommodate increases in the range of recognised university subjects and disciplines.

Growth of qualifications and courses reflected growth of subjects and, eventually, subject-based departments. The bare dozen courses with which the College started in the 1870s were in subjects typical of Oxbridge, including classics, English language and literature, other modern European languages, mathematics and natural philosophy, physical science, history, mental and moral philosophy and logic, jurisprudence and constitutional history. Engineering, commerce, music and a few others alluded to earlier were added about the turn of the 20th century. When the change of name from College to University College was made[19], the number of main subjects was 20, as demarcated by being in separate departments. This reflected that the 15 or so years between UNZ first considering and rejecting the *unit* system and then introducing it, and succeeding 20 years, were ones of only moderate growth, constrained by raising of entry standards in tandem with improvements in secondary education (Gardner et al., 1973; Parton, 1979). Indeed, the *unit* system seems to have been more about standardising and standard raising, than of accommodating the complexities of growth, in contrast to the *new degree structure* that replaced it 50 years later.

In the late 1950s, UC inherited 23 main subjects/departments from the University College, and although these were double the size of their 1920s counterparts in terms of staff (see below), they were still intimate internally and close knit across the budding UC (see Gardner et al. 1973 on this last point). The number of qualifications UC could confer at that time, in its own right instead of UNZ, was only about 20 and the number of courses taught there, and which now had to be finally assessed, had still not reached 300. When the *new degree structure* was implemented some 15 years later, the number of subjects/departments had increased to 31 and they were much bigger, often with groups of staff allied to branches of the main subject, bearing out Vice-Chancellor N. C. Phillips's argument (see 'Credit points', 1974) that a better means was needed to facilitate variety in grouping the knowledge that students wanted to study from among the wider variety of subjects UC was teaching. Meanwhile, the number of courses had been increased more than threefold. Since, it has increased at least a further threefold, and the shape of Figure 4 indicates the situation that significant rates of growth decade on decade are barely abating, despite the ever increasing

denominator in their calculation. The number of main subjects/departments at UC in 2010 was 36, covering about 150 branch subjects.

The 30 years from when UNZ began being dismantled and the *new degree structure* being implemented at UC (i.e. 1945 to 1975) were significant for changes in New Zealand that affected higher education and that were reflected in how the University College/UC functioned. Increasingly accepted was the idea of university institutions having an enhanced role in the development of New Zealand society, as the following quote affirms:

Much water has flown under bridges both social and academic in the last half century [during which the *unit* system prevailed].

. . . this is a society in ferment, more delicately articulated, with greater interdependence among its parts, more heavily reliant on expert skills and the power to innovate, conscious of serious economic problems and more concerned to better the physical and cultural environment and the lives of those who are handicapped by age, sex, race or simply an impoverished family background, as well as to uplift our poorer neighbours in the South Pacific.

. . .

From being almost on the fringes of society, universities have moved into a central position. They now provide in much larger numbers and in wider variety the professional men and women upon whom we depend to lead our society forward into the twenty-first century. (Vice-Chancellor Phillips quoted in 'Credit points', 1974, p. 5)

In the aftermath of World War II[20] in particular, university institutions were expected to cope with the consequences of increased demand for well-educated persons across New Zealand and further afield (e.g. Britain, Australia), a growth in the number of people who expected to go to university, and general expectations that universities would broaden their intake and be more responsive and accountable. Reforms to the university system arising out of these circumstances started with devolvement of responsibilities and functions of UNZ to the university colleges. Even so, structures and processes of UNZ were considered cumbersome, outmoded and paralysing, according to academics and others concerned about keeping up with changes occurring elsewhere, including Britain, the other former dominions and the USA, including in the range of subjects and in the breadth of activities on campus. Thus, UNZ was dissolved (Gardner et al., 1973; Gordon, 1946; Gould, 1988; Parton, 1979; UGC Review Committee, 1982).

For a while, this dissolution gave rise to smaller institutions, including UC, whose administration was probably less complex than UNZ's had been. This extended to matters accommodated by the *unit system* inherited from UNZ. However, these circumstances were short lived, as indicated above, because UC's academics took advantage of their autonomy and started catching up with the changes occurring in the other countries just enumerated, as they were exhorted to do nationally, in the name of curriculum reform (see Gould, 1988), and internationally, by the Organisation for Economic Co-operation and Development (OECD), in the name of educational development and broader participation in order to advance technologically, and so develop economically (Theodossin, 1986). Consequently, numbers of subjects, courses and qualifications began the expansion that is still going on, as revitalized from time to time by further exhortations of this kind and other factors. Numbers of students increased as students were afforded greater access. Numbers of staff increased in response to the increase in students and in subjects, and because more revenue was generated as funding became more formulaic and based on student numbers and because government and private

spending on tertiary education was increased in order to increase the qualification level of the population and the individual (Gould, 1988).

Changes in student numbers are indicated in Figure 5. When the College moved into buildings of its own that gave rise to the original campus in 1878, there were less than 100 students, who were part-time and mostly male and from the middle strata of the community (i.e. the offspring of minor professionals, trades people and small farmers). When the name was changed to University College, annual participation was just over 1,000 students, the majority of whom were still part-time and male, but they now came from the upper strata of the community as well as the middle one. Growth occurred over the near 30 years, and so UC inherited a rate of participation of just over 3,000 students annually. When the *new degree structure* was implemented, the number annually at UC had reached around 7,500. After a further 35 years, in 2010, the number of students is approaching 20,000[21].

[INSERT FIGURE 5 ABOUT HERE]

In promoting the *new degree structure*, Vice-Chancellor Phillips pointed out that universities had come to teach much larger numbers of people, and expected the upward trend to continue (see 'Credit points', 1974). His expectations appear to have been well-founded: indeed, he probably underestimated the enlargement that has occurred in the meantime, driven primarily by social, political and economic changes in New Zealand and other places whence students have been drawn. Combinations of government policies and actions and expectations of employers, parents/whānau expectations, secondary school staff and young persons have led to mass participation in tertiary education by New Zealand's school leaver population, and increased numbers of "adult" students. A significant shift has been to accept students who appear capable of bachelor-level study of the expanding numbers of subjects, regardless of how high they had performed at school relative to their peers (i.e. there has been a move away from norm referencing and a move towards criteria referencing). Active recruitment of foreign students has been undertaken increasingly, motivated both by a desire to internationalise and because of the additional potential fee revenue (see UC, 2009b). The background of students has become much wider, in terms of socio-economic status, gender, age, place of origin, ethnicity, race and nationality. The last few reflect not only international recruitment, but also greater diversity in domestic recruitment. Increased student numbers has also been achieved by increasing study facilities, most significantly by relocating the campus from the city centre site (now an arts centre and tourist attraction) to the present Ilam campus (Gardner et al., 1973) and continuing to build on that campus.

Changes in staff numbers are indicated in Figure 6. The complement of a few male academic professors with British qualifications that was attracted to the College in the first decade grew to 60 professors and lecturers by the time of the University College name change. They were still predominantly male but by then some had obtained at least their first degrees from UNZ. In the growth that occurred during the University College period, the complement expanded to 150[22] and was inherited by UC. By the time the *new degree structure* was implemented in the 1970s, the numbers had more than doubled to about 350; and it more than doubled again between the 1970s and 2000s, reaching nearly 800 by 2010, of who over 60% are male.

[INSERT FIGURE 6 ABOUT HERE]

Further to explanations above for significant growth in the number of courses, some growth has indeed been new courses in existing and new subjects, and so has entailed more lectures, assessment and so on. However, the number of courses also increased because individual courses have been made smaller deliberately, to increase student choice and multi-disciplinary study within qualifications, to accommodate broadening staff interests and preferences, and to reflect changes to the academic calendar[23]. To illustrate the change in

the standard course size in the past 80 or so years, *unit* courses were the equivalent of 40 points in present day terms, while the most common sized course under *the new degree structure* would have been 20 points, and the proposal agreed to in 2009 will mean that most courses from 2011 will be of 15 points (see UC 2009a). A further factor in the increase in course numbers and the other statistics charted in this subsection is that on 1 January 2007 UC absorbed qualifications, courses, students and staff of the Christchurch College of Education, which had been an entirely separate entity tracing back to 1877[24]. In Figures 3 to 6, the stacked bars for 2009 distinguish the portion of the UC statistics that can be attributed to the former College's activities.

4.4 NEW DEGREE STRUCTURE

That implementing the *new degree structure* coincided with the latter stages of the relocation to Ilam seems to have been no coincidence but an anticipation of many things that were to transpire on the new campus, including the enlargement outlined above. As its name suggests, the *new degree structure* was about changing the format of (bachelor) degrees, including by using a system of credit points to specify degree regulations and to enable students to choose how their degrees were made up, within boundaries laid down in the relevant regulations. The *new degree structure* was promoted by Vice-Chancellor Phillips both in terms of operational flexibility among student and staff participants on campus and in terms of UC adopting an international outlook, compared with the University College having had a provincial outlook. On the former, Phillips likened courses that were the basis of the *unit* system to large stone blocks (the façade of the city centre campus springs to mind, with bricks being the equivalent of 12 points in the new system), compared with small bricks that the *new degree structure* would facilitate (Lego® springs to mind, with bricks worth as few as 3 points) ('Credit points', 1974), bearing out the point made above about individual courses having been made smaller deliberately. However, in rising above the comparison of the bricks and mortar of the two systems, Phillips spelt out eloquently the social and political significance of this first system of curricular accounting based on the calculative practices of credit points:

The university will not and cannot stand aloof from [the] tides of change sweeping over a society which supports us and of which we are an integral part. In a large sense then this revision of our teaching arrangements is but one of our responses to the social challenge. (Phillips quoted in 'Credit points', 1974, p. 5)

He indicated that standards/qualities continued as a high priority for UC and he was concerned with keeping up with not only with British changes but with international changes to what universities were about and the range of subjects and activities they encompassed, rather than taking an introspective New Zealand viewpoint (see Phillips, 1970).

The *new degree structure* reflected and constituted a watershed at UC and, presumably, at the other New Zealand where it or something very similar was introduced around the same time, as they tried to deal with similar circumstances of growth, diversity, complexity and so on. Some comparisons of either side of this watershed and further reflections are appropriate here. The *new degree structure* facilitated within UC both the drawing up of standardised regulations for undergraduate qualifications in a common language and currency, and a common means to track the progress of students across a wider range courses, subjects, departments and faculties. As those promoting the new system claimed (see Turbott, 1974), it afforded a flexibility that was unprecedented, the consequences being not only more meta-qualifications but also the significant introduction of undergraduate-level sub-qualifications (e.g. endorsements and majors within these degrees), catering for and attracting more students, and requiring and enabling more staff to be hired. In particular, student enrolment patterns extended to the new disciplines and subjects.

The latter was not something that was universally welcome among the academics. Indeed, in response to various criticisms and misgivings that sprang from this circumstance, the UC authorities undertook to improve student counselling and other processes in order to ensure personal courses of study through a degree made “academic good sense” (‘Credit points’, 1974, p. 25) and to prevent “a kind of ‘supermarket’ shopping for imagined ‘soft options’” (‘Credit points’, 1974, p. 25). Moreover, in some eyes, the new system provided a potential for overall student workloads to increase if lecturers delivering now smaller individual courses were to increase the material that they put into them compared with the quantum of material that was in original *unit system* courses, students were encouraged “to watch the staff, and administration, very carefully” (Bishop, 1973, p. 4).

The numbers of courses, subjects and departments, and the number of academic staff in them, either side of the watershed are outlined above. The coincidence of implementing the *new degree structure* with how much bigger departments had become, and that they were on two campuses and then one new larger one, was accompanied by loss of personal interactions across UC, as noted by Gardiner et al. (1973). They observed that academics and students changed their allegiances from the institution and its breadth of subjects to their specialist qualifications and disciplines, as housed in faculties and departments. This reflected similar events at the other large campus universities, as observed by UGC Review Committee (1982). Similar is discussed by Francis (1997) in the context of theories underpinning the reforms that were implemented in New Zealand a decade later and that continue to have various effects on universities, as touched on by Dixon (2010b) in exploring the aforementioned third theme induced in the study from which the present paper is drawn.

4.5 360 POINT DEGREE SYSTEM

Whereas the *new degree structure* system of curricular accounting was introduced to improve internal relations within UC, the *360 point degree* system had more of an external relations appeal. Of the three reasons used to justify the change two were clearly about UC and other organisations it had regular dealings with, and the third was an internal tidying up of a matter that was of external import. The reasons were that the *360 point degree* system would comply with NZQA requirements; it would facilitate transfer of credit; and it would achieve consistency between two separate metrics that had developed anomalously under the previous system, namely credit points and course weights, and make matters more understandable for students and staff (UC, 2003). These reasons were offered as a counter to several internal issues that arose during consideration of the proposed change, such as how much change would be entailed to the size and composition of existing courses, how would the potential of the change to increase student workloads be guarded against, and what would be the financial impact on departments, colleges and UC.

While the compliance reason is not valid formally (see Dixon, 2010a), that *360 point degree* systems had come into widespread use in other New Zealand universities and polytechnics means that many functions are easier for many people inside and outside UC, not least NZQA, CUAP, NZVCC and TEC, by having the same system at UC as elsewhere in New Zealand[25]. The same applies to a lesser extent to institutions and higher education systems outside New Zealand that comprise the international network of tertiary education that staff at UC consider themselves to be part of, as CATS is far more recognisable than was the *new degree structure* system of curricular accounting. This includes high-level functions to do with policy, educational audit and accreditation, including comparing standards/qualities of learning and qualifications, and more voluminous but mundane functions as credit recognition and transfer, as referred to in the second reason. While these matters may appear more related to standards and equivalence (see Dixon, 2010a) than university enlargement,

they are important to the latter and so relevant here. Being recognised as an institution, having one's qualifications and courses recognised, and being able to deal with matters of credit transfer quickly and accurately all make UC more attractive to potential students and potential staff, leading in circumstances of relatively open entry to more students enrolling, and so to more staff being qualified as appointable and to UC having the finance to recruit them. That is, until issues of funding came to a head in 2010, and restrictions began being placed on initial enrolments and on continuing enrolments (Reference not yet available).

5. DISCUSSION

The basic argument of this paper is that within a growing institution and across a growing number of institutions that have the potential to recognise each other, conditions conducive to the demand for and possibility of developing a new accounting have arisen, and this new accounting comprises paraphernalia that are described in the introduction and are referred to thereafter as curricular accounting. In support of this argument, and consistent with the title and purpose of this paper, raised in the literature review was a reciprocal association between, on the one hand, the need or inclination or choice to adopt accounting practices in particular and, on the other hand, the simplicity-complexity of organisational forms and networks in general (Burchell et al., 1980). Three related matters are relating operating information between participants, evaluation of activities and participants in them by other participants and external parties, and fulfilling other recording and reporting expectations and requirements among participants and external parties, including their counterparts in similar institutions.

In the context of universities, it seems reasonable to assume that this simplicity-complexity is associated with, among other things, the range and quantity of participants (including academics, students, examiners, administrators, and academic and administrative governors); the diversity of academic interests and activities (e.g. the range of subjects, the number of qualifications available and number of courses staged, the effort put into pure and applied research, the diversity in research and teaching-learning methods); and the interdependencies among them. How the latter arises includes students enrolling on courses they need for each year of a qualification, from among the courses and qualifications available. For example, a present-day full-time equivalent student, of which there are in excess of 15,000 at UC, enrolls on eight 15-point courses annually, giving rise to more than 120,000 course enrolments and final course grades, over a quarter of a million individual assessments, over three million class sessions (lectures, tutorials, seminars, laboratories) and over 18 million student study hours. Curricular accounting has been devised out of necessity to provide order and facilitate control in these complex circumstances, and has enabled circumstances to take on greater complexity in response to internal and external aspirations, expectations and pressures.

Going back in history to before, except for its bare rudiments, curricular accounting was devised anywhere, let alone deployed in New Zealand, student and staff numbers at the College characterised its smallness, intimacy, close proximity and self-sufficiency. Where there was need or desire for collective control, it was possible to realise much of this control in the usual course of daily interaction, in a professional network or clan[26] manner, without need of practices as complicated or as quantitative as are entailed in present-day curricular accounting. There were so few courses being taught by so few people and studied by so few people that it was relatively straightforward for each academic to know how courses compared or contrasted in such basics as the amounts of study they entailed, their internal pass rates and grade distributions, and their external pass rates and grade distributions, assuming these were significant metrics of the times. Moreover, the College's relationship with UNZ was far and away more important than with any other body, about which see next.

The only need there was for any form of accounting was to administer and govern the College, using conventional bookkeeping and financial accounting suited to any small or medium-sized organisation.

The corresponding rolls of UNZ, or rather its affiliates, and the range of available qualifications and component courses were not large enough to warrant anyone devising a means (e.g. credit point metrics) for adding together copious combinations of courses from an abundance of possibilities[27], especially as the items that were credit bearing as far as UNZ qualifications were concerned were the UNZ examination results, not study assessed at affiliate level[28]. The geographical distance from one affiliated college to another warranted UNZ having a system but the one used seems to have been based on residential meetings of the Senate and its boards and committees. These were conducted at least annually over several days, as reflected in its “Minutes of Proceedings” (1871-); and could draw on records of each student’s particulars, enrolments and achievements, which contained few numbers other than examination scores and gave rise to little calculation, apart from conversion of these scores into grades and counts of subjects passed to compare with qualification regulation requirements. In any case, curricular accounting as practised in the past 40 years would have been somewhat antithetical to the approach to control thought prudent by at least a majority of those who established, governed and had most influence in running UNZ and its affiliates. That is if, as it appears, curricular accounting facilitates flexibility for students in their choice of learning and devolves curriculum choices to academic staff of various ranks.

As growth occurred at the University College and UNZ (and its other affiliates) between 1930 and 1957, arrangements were changed in order to cope, but these changed arrangements were along the lines of taking existing functions and tasks *en bloc*, and devolving them as smaller packages to new organisational units, rather than to devise large volume systems, including because computer systems were not yet available. Thus, for example, the University College formalised its departments more, and arranged the about 20 so formalised into seven major academic divisions, called faculties mainly, whereas the College had previously been divided into the School of Engineering and the College proper. The situation of students studying courses leading to qualifications that were associated mostly with particular departments and faculties was reinforced, so continuing to keep at bay flexibility for students in their choice of learning.

UNZ was party to these changes at affiliate level but up to the 1930s at least was reluctant to change its structures and processes. These became ever more unsuited to the growth that they were being used to handle, and so criticism of them for being outmoded and exasperating increased. The corollary was that the university colleges were growing big enough to be able to perform each for themselves the functions and tasks of UNZ in respect of their geographical districts, their disciplines and their students. This created the conditions of possibility for the process that cumulated in the dissolution of UNZ and the establishment instead of four universities. Indeed, between 1945 and 1961, the way for this change was paved from within UNZ by its last Chancellor, David Smith, aspects of the process of change having been alluded to in the analysis (e.g. the University College obtaining such powers as pronouncing course prescriptions and approving students’ personal programmes of study, the UGC and other bodies being established to perform national functions) (Gardner et al., 1973; Parton, 1979).

The devolution of university status instilled healthy competition, enthusiasm and so on in each university and opened the way at each for innovations separate from the others, not to mention divisions of universities innovating separately from other divisions of the same university. While UGC, its Curriculum Committee and the NZVCC provided means of

consultation, comparison, benchmarking and the like, and so could have acted as dampening forces on innovation, much diversifying occurred, as well as much rivalry over status, doing research, attracting and teaching students, having the ear of the Government, winning resources, using new technologies and so on. Furthermore, having taken on a more international outlook, the new universities could look directly overseas for ideas, trends, advice and so on, rather than this be channelled through UNZ. For example, there was every possibility that enthusiasm in the OECD in the 1970s for qualifications comprising modular/credit courses (see Theodossin, 1986) would have influenced thinking at UC and the other universities. These ideas and innovations further fuelled the growth of students, courses, etc. on top of societal changes that did so, as outlined in the analysis.

Possibilities emerged in this climate of new technologies to handle student records, enrolments, articulation of awards and courses and the many other things that have come to rely on curricular accounting, as well as the need for these technologies. The advent of computing power, albeit in mainframe form generally suited to routine data gathering and processing, and generating paper-based reports (e.g. payrolls, debtor lists, T-accounts, and student transcripts) also helped. Thus, when UC implemented the *new degree structure* in 1975, a system of credit points based on one *unit* being designated as 12 points had already been in use across most of Victoria University of Wellington's programme for three years and in use for the BSc. programme at the University of Auckland for two years. Thereafter, the idea snowballed in each of these and at the other universities established when UNZ was dissolved and in the following decade, as they tried to deal with the similar issues of growth, diversity, complexity and so on.

Theories of *negotiated order*, *path-dependence*, *representational schemes* and *genealogy* stress the dynamics of situations, in that while issues give rise to a new order, part of the new order comprises unresolved issues and circumstances out of which new issues might arise, and these issues will give rise to further changes and a subsequent new order. As was voiced by some of its opponents, and acknowledged by some of its supporters, the *new degree structure* system of curricular accounting had the potential to make course choice too flexible for students, and so certain safeguards were introduced or at least promised. Besides, as outlined in the analysis, its main intent was to split *unit system* size courses into smaller ones but these were not specified in student-centred terms of hours of learning and assessment but in less precise terms, loosely associated with contact hours and number of examinations.

The issue of too much flexibility for students passed, probably in the 1990s some time into the period of public sector reform (see Dixon, 2010b)[29]. Ideas emerged from Scotland about specifying and measuring learning in student-centred ways, including student study hours (see UC, 2008) and student-orientated learning outcomes. These events brought about conditions of possibility for the 360 point degree system at UC, especially as it had already been adopted elsewhere in New Zealand in the tertiary education system and UC had become more cognisant of external relations matters. The most recent step along this path has been to replace courses with a perplexing array of point values, ranging from 11 to 28, with courses having a common size of 15 points or of multiples of 15 points (i.e. 30, 45, and 60) (UC, 2004, 2009a).

6. CONCLUSION

The retrospective analysis and discussion in this paper extends coverage of the accounting literature to means of measuring, recording and reporting university-student learning, referred to as curricular accounting. How the elements that comprise curricular accounting have come about is analysed as part of growth in numbers of students, staff, qualifications, courses, subjects and so on that signify the founding and development of the College, UNZ and its

other affiliates, and the dissolution of UNZ and inception of UC. The paper adds to evidence presented in other papers drawn from the study of curricular accounting, to the effect that elements of curricular accounting emerged and developed at Canterbury, once ideas and experiences had been carried there by English and Scottish settlers and academic immigrants. The other people to have shaped it were the various participants at the institutions in question and who have comprised the UGC, NZVCC, NZQA and TEC, and many more, both in New Zealand and elsewhere. University enlargement was a vital factor in this shaping, particularly from the 1950s, when society and societal expiations of universities changed.

Today, curricular accounting comprises various elements that are very much aspects of life for participants in the UC enterprise and external interests (e.g. academics, students, administrators, and academic and administrative governors, funding and audit agencies, accreditors). These elements are part of the binding forces in the representational scheme participants and others work to, at least as much as financial and management accounting, control and auditing are. Large numbers and a diverse range of students study towards multifarious qualifications specified in regulations that feature credit points and levels. They do so following many learning designs compiled and staged by academics, who loosely speaking work to learning outcomes and rules of assessment. Study is separated into knowledge and skills that relate to an increasing host of subjects, and then into a huge variety courses specified as to points, which loosely translate to hours of student effort, and to level; and students are assessed on what they are supposed to have learnt. Qualifications are distinguished by levels (e.g. *bachelor, honours, master, doctor*); and bachelor degree qualifications are further distinguished into stage-based levels (e.g. *100-level*). Graduates use their learning and qualifications to enrich their lives, including to secure employment and/or to go on to further study in New Zealand and many other places.

Most UC participants find the representational scheme sufficient for going about their activities, and many who do not acquiesce and work with it anyway. However, there are those who are prepared to dispute the status quo as not being good enough, or being flawed, or too right wing or not sustainable enough, etc., and campaign for change, and from time to time this activity when combined with internal or external social, economic, technological, political and other types of occurrences gives rise to modifications of how basic ideas incorporated in the representational scheme apply, and so to revisions and future versions of the representational scheme. For example, there is discomfort among UC academics over too many persons having been admitted as students, so as to dilute the quality of the experience for more able students and attract misgivings from the Government over the value obtained from funding it provides. The term “bums of seats” is increasingly being used to describe the transparent and institution-changing funding system introduced in the 1990s, which has come to be aligned with other elements of curricular accounting. It could well be that curricular accounting is adapted so as to give rise to a modified funding system that changes the shape of future enlargement. Another issue bubbling below the surface and that may come to affect UC and the shape of its future enlargement is curricular accounting being used to enable recognition of academic credit for work-based and other learning, formal and not-so-formal, outside of the ambit of tertiary education institutions (i.e. outside either on-campus or distance courses staged by said institutions).

Although UC has its idiosyncrasies, it is not so peculiar as to suppose that the retrospective analysis, discussion, representational scheme and example issues just outlined might not shed light on practices, occurrences and issues at many other universities and tertiary education policy systems. Moreover, such illumination may improve understanding of curricular accounting, including among those practicing it and controlled by it. This also points to where further research possibilities lie, namely at other universities and in other countries,

both into their curricular accounting systems and into alternative ways and means that are employed. Also on the matter of further research, given the learning facets of curricular accounting, multidisciplinary studies involving accounting seem to have potential. As to the range of possible study, functional, interpretative and critical studies all seem appropriate.

Notes

1 The words *courses* and *qualifications* are used throughout to refer, respectively, to units or modules into which study at a higher education institution is formally organised and the smallest piece of learning for which credit is formally awarded, and to the degree or other award a person receives on successfully completing a collection of courses that complies with the award regulations and, usually, for which a certificate is issued by the higher education institution or some other body authorised to do so.

2 Although the Province lasted as a polity only from 1853 to 1876, its identity as a region continues, including through descriptions on maps, newspapers titles, sports teams, various brands and similar.

3 Universities as idiosyncratic and complex is an idea further reflected in studies (e.g. Bartell, 2003; Sporn, 1996) of what Ouchi (1980) dubs an organisation's mechanisms of mediation or control, and Cameron and Quinn (1999) dub an organisation's culture type. Berrio (2003) identifies four culture types with universities, namely, adhocracy, clan, hierarchy (also known as bureaucracy) and market; Clark (2000) proffers a fifth, namely, collegial entrepreneurialism, as tested by Ryan and Guthrie (in press). The studies bear out Ouchi's (1980) line of reasoning of all types being present in differing degrees in a particular organisation.

4 Examples of groupings in universities would be departments that make up hierarchies and coalitions of academics with shared beliefs and approaches towards learning and teaching.

5 Calendars have been recognised as the authoritative source of course regulations since the 1950s as far as the University College and UC are concerned (e.g. see Parton, 1979) but even before then they had much official standing, including that they included extracts of UNZ regulations as well as matters pertinent to the College/University College. Analysed in detail were Calendars for 1873, 1879, 1890 through to 2000 at 10-year intervals, 2005 and 2009. Those for some intervening years were consulted for particular changes. Although their format has been changed over the years, and all manner of information has been included at various times, all the Calendars included formal details of awards and courses, among other ever-present content.

6 Ideas and experiences from Britain already in train included that education in the Colony should be provided institutionally and in three stages, primary, secondary and tertiary: schemes of education practiced by the indigenous peoples of New Zealand (now called Maori) did not figure in establishing this scheme (Gardner et al., 1973).

7 Particularly influential, according to Gardner et al. (1973), was John Macmillan Brown, one of the College's three foundation professors (1874-1895), and a member of UNZ Senate 1879-1935, including as vice-chancellor 1916-23 and chancellor 1923-35. A graduate of Glasgow and Oxford, at his inaugural address to members of the College, he held up the Scottish and German universities as models for New Zealand to follow, rather than the English ones.

8 For a review of these in their original setting, see Francis (1997).

9 Regarding appearances, the brick buildings constructed to accommodate the College between the 1870s and 1920s were covered with a façade of what might be mistaken for either the stone used at St Andrews or Cotswold stone, and they were replete with cloister-like arcades. Until the 1930s, staff and students were obliged to wear caps and gowns.

10 UC was one of four universities established in place of UNZ. Four more have been established since, each emerging from university branch facilities institutions or other tertiary institutions that existed in 1961 (see Gould, 1988).

11 Between 1883 and 1913, 60% of the graduates of the College had entered the so-called learned professions (e.g. teachers, lawyers, engineers, clergy, doctors) (Gardner et al., 1973).

12 Of 858 first and higher degrees conferred by UNZ by 1900, 80% were of the BA variety (Parton, 1979). Although the BSc became the second most popular soon after it was inaugurated, even in 1920 the ratio of BAs to BSc.s was 7:1, and it was still 2:1 in 1946 (Gardner et al., 1973).

13 In today's terms, it consisted of 100-level and some 200-level study, at most.

14 The original distinction between the BA(Hons) and MA was that the former was taken immediately after a BA, while there was an interval between completing a BA and taking an MA. The courses were the same, and a holder of a BA(Hons) was eligible for an MA after an appropriate interval and without further examinations. That has now changed, and a BA(Hons) or other bachelor degree with honours is usually the first year of a two-year master degree.

15 Regarding masterate and doctorate degrees, even as late as the 1950s, the annual number awarded by UNZ for the whole of New Zealand were only 220 and 15, respectively. There was a fivefold and tenfold increase in these numbers by 1981 (UGC Review Committee, 1982).

16 Teachers of science were among those who argued successfully for a BSc.

17 Incidentally, conferring new awards required amendments to be made to UNZ's Royal Charter, proposals as to which were scrutinised by the Privy Council at Westminster, and many were not approved (see Parton, 1979), demonstrating British influence was legal as well as social or cultural.

18 Various issues of definition and availability affected collection and processing of the data provided in these charts and those in the next two Figures. The reliability of the charts lies in the trends they illuminate, rather than precision of individual data points.

19 The change of name from the College to the University College was significant to something that did not happen rather than something that might have. That is, UNZ continued, despite calls for its dissolution and for the creation of four separate universities out of its principal affiliates (e.g. by UNZ's Board of Studies in 1918; and by Hight in 1924, in advocating a University of Canterbury, while professor of history, economics and political science – he was pro-chancellor of UNZ 1938-48). But to distinguish them from other bodies that used the name *college* and to confirm their status to the outside world, the affiliates were permitted to use *university* in their title (Parton, 1979).

20 This and the previous world war had implications for relations between New Zealand and Britain, in particular New Zealand's standing as a nation in its own right separate from its colonial settler past.

21 This is the number of individual students, and it is estimated that over 13,000 are full-time and over 6,000 are part-time. The relative proportions of full-time and part-time students have been similar to this throughout UC's existence, carrying on from previous periods when part-time study was significant, if not ascendant.

22 The ratio of lecturers to professors increased from 1:1 in the early days to 2:1 by 1925, to 5:2 by 1950. As elsewhere in New Zealand (see Parton, 1979), the increase in staff numbers was accompanied by the number of New Zealand first degree holders preponderating by about 1950, except in the professorial ranks in which there was still a slight majority of academics from Britain or similar.

23 Whereas from the 1920s up to the 1990s the year was divided into three terms, after 2000 the academic year was divided into two semesters. Under the earlier arrangement, and the prior one of two terms up to 1920, courses had usually lasted the entire academic year, with examinations annually in October. To fit with the new arrangement, during the 2000s, the duration of virtually all courses was reduced to one semester, with examinations bi-annually in June and October. In bringing this about, the majority of courses of three terms duration were replaced by two courses each of one semester duration. A minority were rearranged so that three terms work was fitted into one semester. The change to semesters both accommodated reducing course sizes for the reasons of student choice and staff preferences, etc., and prompted further changes to course sizes so that they fitted within a semester.

24 There was a period c. 1880 when many College part-time students were also attending the forerunner of the College of Education.

25 Exemplifying this is the use of a 360 degree points system in specifying and maintaining the New Zealand register of quality assured qualifications (see NZQA, 2007).

26 Re *clan* as a mechanism of control particularly suited to organisations focused on internal maintenance with flexibility, concern for people and sensitivity for those putting their trust in clan leaders, see Berrio (2003), Bourne and Ezzamel (1984), Mintzberg (1991), Ouchi (1980), Pounder (2001) and Sporn (1996).

27 Even though choice did seem limited, Professor C. H. H. Cook calculated that in 1883 there were over 5,000 ways of proceeding to a BA (Gardner et al., 1973).

28 Until the 1940s or, in some cases, 1950s, students of the College or University College had to “keep terms” in order to be eligible to sit UNZ examination papers. What constituted “keeping terms” initially meant attending lectures and then passing annual College examinations. Later it included completing coursework, or coursework was substituted for annual College examinations, so that there was only one examination or set of examinations at the end of the course, the UNZ examination(s), and not two sets. The notion of keeping terms continued at UC, finally dying out in the 1990s, although before that calculating the final grade of a student on a course was often done using assessment administered during the course and administered at the end of the course.

29 Academics and students interested in newer and/or less high-status subjects gained by reductions that occurred in professional capture and restrictive practices. These reductions led to increased course choice and resources, the latter being allocated more openly and in their favour via delegated budgeting.

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10	Doctorates
9	Masters
8	Postgraduate Diplomas and Certificates, Bachelors with Honours
7	Bachelors Degrees, Graduate Diplomas
6	Diplomas
5	
4	Certificates
3	
2	
1	

Figure 1 The New Zealand National Qualifications Framework (Source: NZQA, 2007; UC, 2007) (For Level Descriptors, see NZQA, 2009)

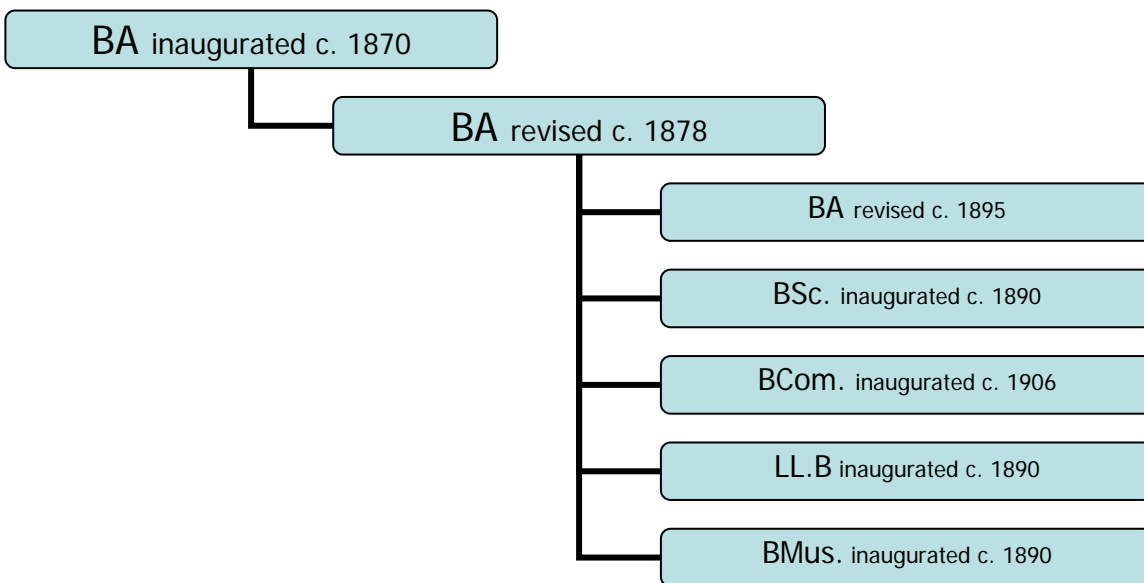


Figure 2 The Branching Out of Bachelor-level Qualifications between the 1870s and 1900s

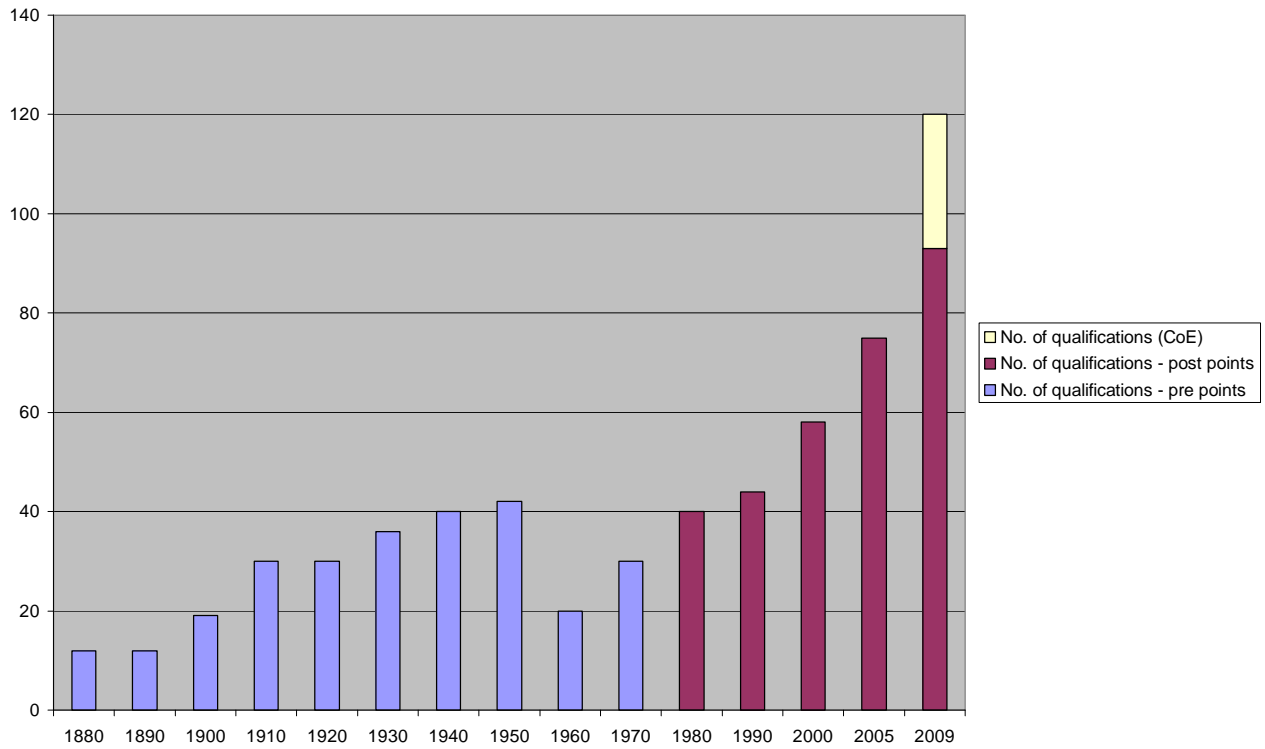


Figure 3 Number of qualifications that students have been able to study at UC decade-on-decade since the 1870s (the numbers up to 1960 are for UNZ qualifications, not all of which could be completed entirely through courses at the College/University College. The numbers are for meta-qualifications and do not include majors and endorsements within these)

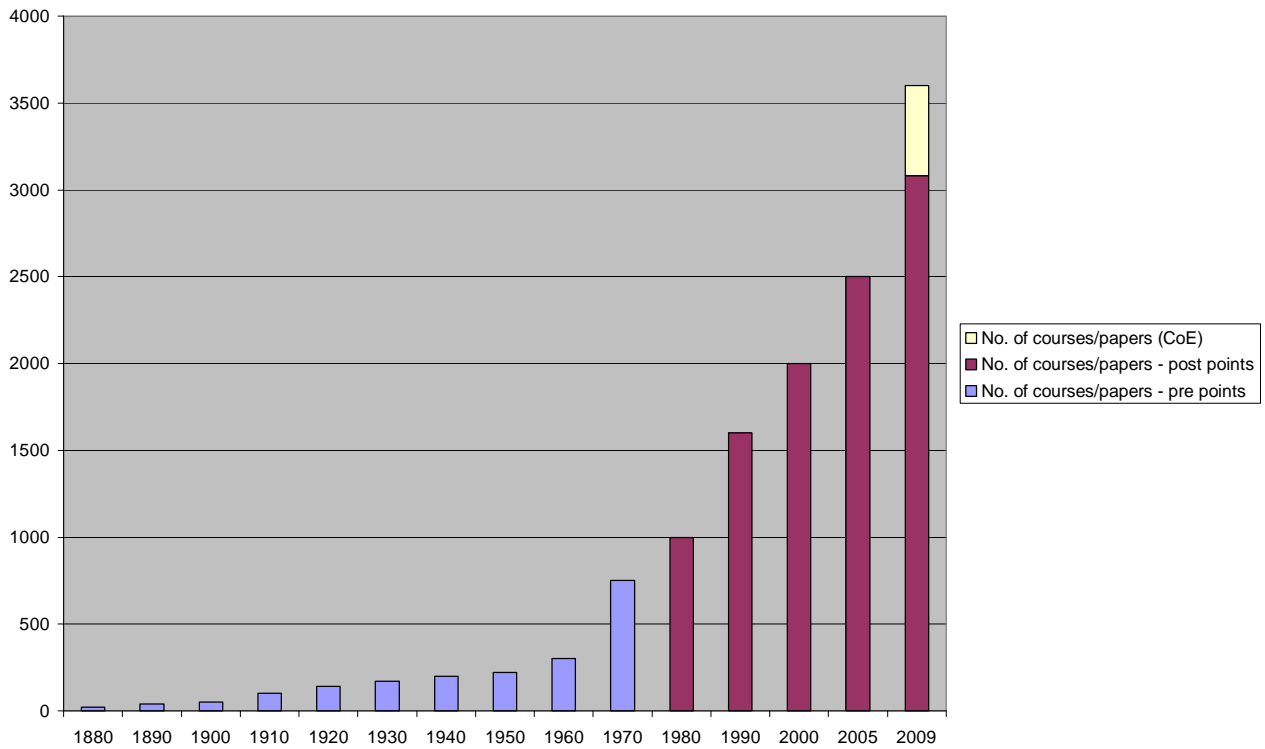


Figure 4 Number of courses that could be studied for at UC decade-on-decade since the 1870s

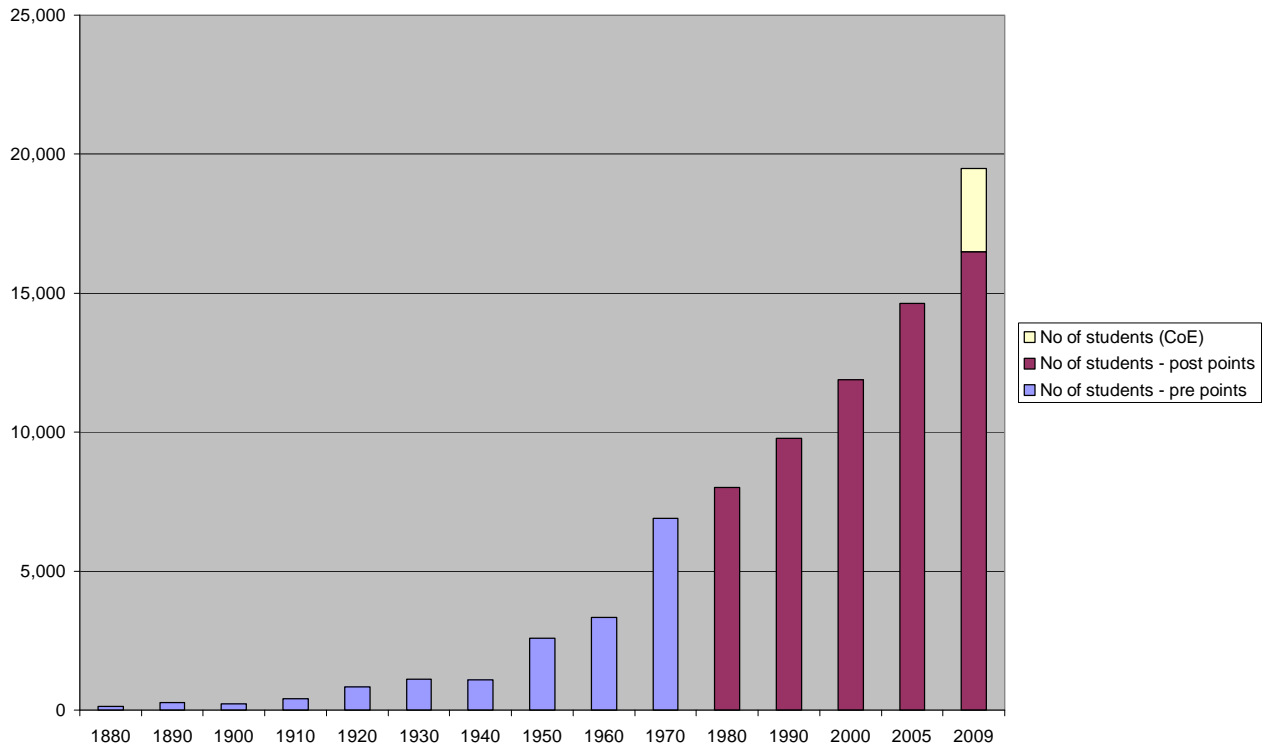


Figure 5 Number of individual full- and part-time students enrolled at UC decade-on-decade since the 1870s

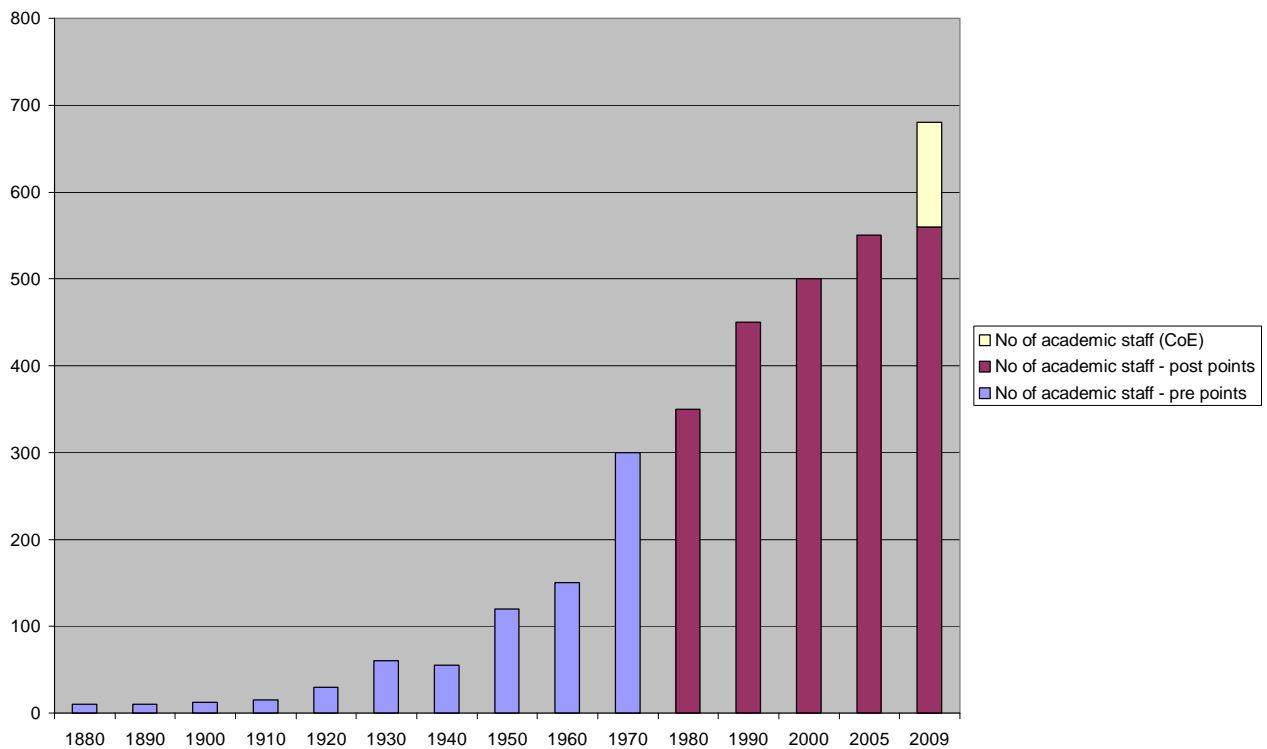


Figure 6 Number of individual full- and part-time academic staff based at UC decade-on-decade since the 1870s