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## **A RETROSPECTIVE ANALYSIS OF CURRICULAR ACCOUNTING**

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## **ABSTRACT**

I explain how and why higher education learning has come to be accounted for using calculative practices, and to examine critically the implications of this curricular accounting. The practices in question, in which credits or credit points are the prime unit of currency, are most visible in specifications of qualifications and courses (or units or modules), credit accumulation and transfer systems, and qualification frameworks, and on students' academic records and diploma supplements. They run in conjunction with learning outcomes, assessment scores and grades, levels of learning, graduate profiles and similar items. They cross over into student fee charging methods and scales, public funding of higher education based on student numbers, mechanisms within institutions for allocating financial resources and controlling academic workloads, and so marrying up with things more usually associated with accounting functions and practices. I use a genealogical approach, based on occurrences and events at a college and now university in Christchurch, New Zealand, since English settlers established it in the 1870s. Today's practices are shown to trace to ever-present concerns to attain and maintain equivalence in standards with institutions whence the settlers hailed and other places their descendants venerate, while simultaneously responding to economic, social, political and cultural needs in their settlements (e.g., locally educated secondary school teachers, engineers, lawyers, accountants and other professionals, and academics). Further international and national influences on how and why these practices developed were the growth of student numbers, as demands for educated labour increased and wider access to higher education became a social policy imperative, the broadening of the higher education curriculum, and the extension of accounting and associated calculative practices in government, public policy and higher education, as ideas associated with neo-liberalism and managerialism took hold.

**Keywords:** university degrees, genealogy, path dependency, higher education standards, higher education massification and diversification, managerialism in education, curricular accounting

## 1 Introduction

For over three decades, calculative practices have increasingly been applied in higher education to account for learning, and things associated with it, including qualifications, students' programmes of study, academic teaching, tuition fees and government funding, and eligibility to graduate. They are a feature of many of the national and international *qualification frameworks* to materialise in recent times (see Souto-Otero, 2013)<sup>1</sup> and of the *credit accumulation and transfer systems* now closely related to those frameworks (e.g., see Hart, 2005), but dating from earlier needs of universities to permit admissions, to formally recognise incomplete or interrupted study and cross-border study, and to confer qualifications.

My study examines how and why these practices, which have been dubbed *curricular accounting* (Theodossin, 1986; Trowler, 1998b), came about. I consider the implications critically, particularly for higher education, in which many readers of this article are involved. Indeed, a fundamental question of relevance to these readers is whether curricular accounting should be recognised as a form of accounting and, if so, how suited is it to the higher education environment and what are its allocative, distributive, social and other consequences.

I illuminate these questions and related matters by analysing the composition and practice of curricular accounting in the domain where I am based, the University of Canterbury (hereafter, "UC" or "the University") and the New Zealand (NZ) higher (or tertiary) education system, and then tracing the history of the items it now comprises. I show there at least the answers lie in:

- first, 19<sup>th</sup> century development of universities, which in NZ was not far behind its the colonisation and settlement by English and Scots, who established the University of New Zealand (UNZ) and its affiliated colleges with aspirations of standards resemblant of the Ancient Scottish Universities and Oxbridge;
- second, disciplinary diversification, widening access to higher education and growth of student demand, which were all phenomena seen in NZ, along with many other places, in the 20<sup>th</sup> century, particularly after World War II; and,
- third, the extensive encroachment of neoliberal-inspired *New Higher Education* (Trowler, 2001; Winter, 1994), which in NZ occurred following of so-called *Rogernomics*<sup>2</sup> taking hold in the 1980s.

I also show how credit and curricular accounting practices, through being adapted and applied more generally, are more than a collection of metrics and non-metrics with purposes only limited to qualification regulations and credit transfer.

Indeed, among sets of people at UC and other universities, their various units and sub-units (e.g. colleges, schools, departments), and, in the other direction, at the level of the higher education system, although serving some of the longstanding, more bureaucratic aspects of the production, distribution and exchanges that still persist, the visibility of curricular accounting has increased as market mechanisms associated with neo-liberalism gained significance in how these institutions work. Thus, curricular accounting is part of links among, on the one hand, the revenue of UC and resource allocation within UC and, on the other, concepts and practicalities of student-based funding formulae, courses, course sizes, learning, assessment and credit.

Universities have existed in NZ for 150 years. It may seem preposterous to reduce so many years, and thus so many major, let alone routine, mundane, events, and so many people and behaviours into the three considerations enumerated above. However, I hope to allay the obvious

criticism that my interpretation is over-reductionist by making cases for each in recounting the history at UC and in its environs of its present credit system, which I refer to hereafter as the “360 Point Degrees System”<sup>3</sup> and items that became so contiguous technically and socially as to warrant the name *curricular accounting*. Besides, the first two considerations are supported by previous histories up to the 1970s by Gardner, Beardsley and Carter (1973) and Parton (1979) and the third consideration is rehearsed in literature about universities in NZ (e.g., Olssen, 2002) and more broadly (e.g., Altbach, Reisberg & Rumbley, 2009).

### ***1.1 Accounting and Universities***

Widespread studies of accounting practices and their contexts, and of the socio-political functions of accounting more generally, illuminate accountings as, among other things, technologies of order and for legitimation, stabilising mechanisms and mediation processes, and cultural carriers (Baxter & Chua, 2003; Gårseth-Nesbakk & Timoshenko, 2014; Mellempvik, Monsen & Olson, 1988; Miller, 2001; Vollmer, 2003).

Given the extent to which they are published by academics based in universities, surprisingly few of these studies are set in universities, let alone their operating cores, despite the rich contexts they present. Indeed, as an organisation type, universities are often regarded as specific, although arguably that has changed in the past three decades (Musselin, 2007; Shore & Taitz, 2012), as alluded to in referring to Rogernomics, New Higher Education and neo-liberalism above. Whatever, they are still characterised by external pressures and institutionalised forces classifiable as political, social, cultural, economic, professional, etc. (Bleiklie, Enders & Lepori, 2015; Coy & Pratt, 1998; Mintzberg, 1991; Modell, 2003).

Functionally too, universities are complex and ambiguous (Bartell, 2003; Erenstrom, 1997; Greenwood, Raynard, Kodeih, Micelotta & Lounsbury, 2011; Patterson, 2001; Pettersen & Solstad, 2007; Sporn, 1996; Tahar & Boutellier, 2013). They exhibit a range of mechanisms of mediation or control and culture types (Cameron & Quinn, 1999; Ouchi, 1980), with adhocracy, clans or tribes (founded on norms and values of academics and their heterogeneous subjects or disciplines), hierarchy (or bureaucracy), corpocracy, managerialism, market and collegial entrepreneurialism all featuring somewhere (Altbach et al., 2009; Amsler & Shore, 2017; Becher & Trowler, 2001; Berrio, 2003; Clark, 2000; De Boer, Goedegebuure & Meek, 2010; Deem, 2004; Middlehurst, 2004; Pounder, 2001; Ryan & Guthrie, 2009).

The range of these types is often attributed to the inherent political nature of universities, which is particularly evident in the times of crises that are a regular feature inside them, when the legitimacy of disciplines/subjects, departments and other units and their purposes, objectives and actions come under scrutiny; for a NZ example around conflict over resources, see Coy and Pratt (1998). Indeed a whole university or an entire university system endures such times occasionally. 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. The model devised by Becher and Kogan (1980, 1992) derives from these ideas and the portion of it relevant to my analysis is shown in Figure 1.

Political control is a constant in most situations where conflicting values exist alongside exercising subjectivity, among other things, to distribute scarce resources (Hofstede, 1981) (see also Patterson, 1990). Indeed, it is through political means that ambiguities of purposes, objectives and actions are 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 social order, founded on organisations being constructed socially through interactions of social actors, during which normalcy is an outcome of negotiations and conflict arises sporadically, and in which accountings figure (Rahaman & Lawrence, 2001; Vollmer, 2003).

This last point resonates with the path dependence theory I use in this study for analysing and explaining changes. According to Modell, Jacobs and Wiesel (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 using path dependence 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. Path dependent change is more likely to occur if existing structures, processes and related matters tend to determine individual and collective expectations and adaptations, giving rise to the concept of path dependent social dynamics (David, 2007). There is a greater likelihood of existing forms being retained than there is of completely new alternatives being put in their place, but the retained forms 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). Emergent alternatives are incorporated more effectively into existing structures if they are consistent with established practices and do not generate much conflict between actors. Modified existing forms will be especially preferred over new alternatives if the latter are matters of dispute and their success is uncertain (see Greener, 2005; Kay, 2005).

As for accountings, some types of people have, since the late-1980s, become increasingly desirous of information purporting to be about the results, etc. of university activities, in order, among other things, to exercise "strategic" direction, managerial control and operational control over their academics and other members. These types are found both inside universities, mostly at the *institution level* shown in Figure 1, and outside them, including those who make up the *central authorities level*. However, determining, let alone measuring, these results, or accounting for much else of importance besides, has been perceived as challenging (Guthrie & Neumann, 2007; Hofstede, 1981; Lord, Robb & Shanahan, 1998), certainly compared with where modern financial and management accountings mostly developed, that is among profit-seeking organisations mainly involved in manufacturing and supply (Armstrong, 1987; Burchell, Clubb, Hopwood, Hughes & Nahapiet, 1980; Kaplan, 1984).

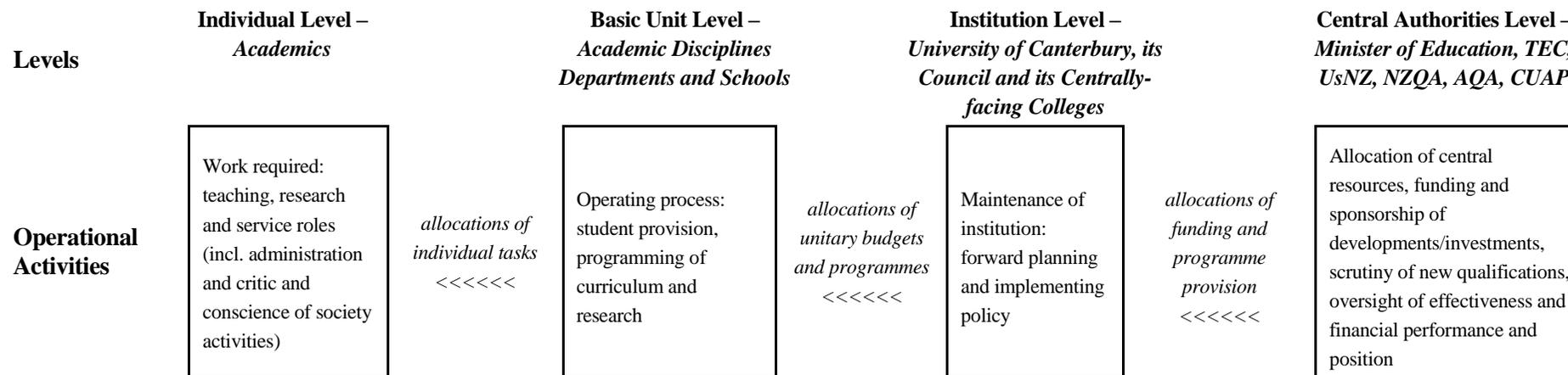


Figure 1 A model of higher education by levels and the operational activities at each level, with UC and NZ names added (Source: adapted from Becher and Kogan, 1980, 1992)

Note on acronyms:

AQA = Academic Quality Agency for New Zealand Universities (est. 1993 as the New Zealand Universities Academic Audit Unit);

CUAP = Committee on University Academic Programmes (est. 1993 by the then NZ Vice-Chancellors Committee);

NZQA = New Zealand Qualifications Authority (est. 1990);

TEC = Tertiary Education Commission (est. 2003);

UsNZ = Universities New Zealand (est. 1990 as the NZ Vice-Chancellors Committee)

Indeed, Pettersen and Solstad (2007) find in universities a mix of accountings whose influence on activities is weak, or which might be described as loosely coupled, decoupled and noncoupled (cf. Coy & Pratt, 1998; Modell, 2003). However, based on the research approach they took, it seems that Pettersen and Solstad were only likely to find things associated conventionally with accounting and management control systems, and so would have overlooked unrecognised forms of accounting, in particular the calculative practices that are the subject of this article. Although Pettersen (2015) brushed with these practices, her interest in them was to try to improve understanding of education input, process and output performance measures, anticipating they might qualify as accounting information to serve purposes and functions associated conventionally with accounting being useful for managers and others to improve control and decision making (e.g., see Mellemvik et al., 1988) and for effecting accountability (e.g., see Coy, Fischer & Gordon, 2001).

In contrast, my interest in the calculative practices in question is as a form of accounting emerging out of the aforementioned circumstances pervading in universities of complexity, ambiguity, mixtures of mechanisms of mediation or control, etc. Over many years, dealing with particular aspects of their workings gave rise to various responses in and around universities, some to make up for inadequacies in merely applying conventional accountings. My argument is that in recent times these responses synthesised, increased in coherence and became more quantitative, to the extent that the name curricular accounting is fitting. This accounting plays parts in universities that reflect their circumstances and, unlike conventional accounting found alongside it, is far from being merely symbolic or incidental.

In this article, I show that to appreciate my argument requires being prepared to go beyond the debits, credits, money measurements, departmental budget reports, annual financial statements and micro-economic reductionist tendencies usually associated with bookkeeping and accounting as “the process of identifying, measuring, and communicating economic information to permit informed judgements and decisions by users of the information” (American Accounting Association et al., 1966, p. 1). It means being disposed to examine practices, calculative and otherwise, that relate to students and learning, to graduates and qualifications, to academics and pedagogy, and to funders, funding formulae and steering mechanisms. It means appreciating the great extent to which these practices are manifested in, or are derived from, *knowledge* arranged into *courses* (or *units* or *modules*); and how courses are combined and their values summated, and how they are categorised and coordinated, giving rise concomitantly to study programmes and qualifications, and to discipline-based and other academic administrative units, etc.

## **1.2 Credit Points**

Fundamental to understanding my subject is the credit point, or often just *credits* or *points*, invariably in the plural. Points are the unit of measurement, account, value and exchange (or currency) at the root of the calculative practices I describe, analyse and criticise and that, for me at least, put the accounting into curricular accounting—I acknowledge the limitations of this currency metaphor based on criticisms advanced by Winter (1993). According to the principles of these practices and this accounting, the number of points ascribed to a course is indicative of the time necessary for a typical student to attain the learning involved in the course, as assessed during and at the end of the course. A single point represents a set number of notional hours of learning by the student (e.g., 10 hours in NZ, and in Scotland and elsewhere in the United Kingdom, 20–30 hours elsewhere in Europe). Thus, points express numerically the size, or volume, of a course, qualification or similar. Concomitantly, points express numerically the amount of successful study a student completes during a course, qualification or other formal collection of learning activities (Bekhradnia, 2004; Bridges &

Tory, 2001; Havnes & Prøitz, 2016; Mason, Arnove & Sutton, 2001; United Kingdom Credit Forum, 2010). They are the arithmetic to facilitate each person’s study being recorded by course, with the value of their study accumulating over two or more periods of study, including, in the case of some students, at different institutions.<sup>4</sup> Or, looked at another way, the arithmetic possibilitates each person having what Adam (2001) refers to as “lifelong learning accounts” (p. 302) expressed in a common currency, no matter where and when study occurred during their lifetime.

Points are used in the ways just described across all courses at all levels within a qualification, for example, the first, second and third stages, or levels, of a bachelor degree, and to all qualifications in a hierarchical taxonomy of qualifications, for example, doctoral level in a framework of qualifications offered by universities and other tertiary education organisations<sup>5</sup> in a national or single jurisdiction setting—the NZ Qualifications Framework, in which there are 10 levels, is one such framework (see Figure 2). However, the learning attained in the notional hours indicated by each point is supposed to be of an intensity of intellectual demand appropriate to the level of the course.

LEVEL	QUALIFICATION TYPES
10	Doctoral Degree
9	Master’s Degree
8	Postgraduate Diplomas and Certificates, Bachelor Honours Degree
7	Bachelor’s Degree, Graduate Diplomas and Certificates
6	
5	Diplomas
4	
3	
2	Certificates
1	

Figure 2 New Zealand Qualifications Framework (Source: NZQA, 2016)

So-called *level descriptors* are a means devised with the intention of clarifying and differentiating the learning associated with each level independent of the subject or content (Greatorex, 2003), and so distinguish among levels based on standards/qualities of cognitive and affective learning by students at each level, according to, for example, relevant educational theorising (e.g., see Roberts, Watson, Morgan, Cochrane & McKenzie, 2003) (Havnes & Prøitz, 2016). As such examples as NZQA (2016) and Open University (2005) show, these level descriptors usually take the form of *learning outcomes* expressed in broad terms to accommodate the extant wide range of disciplines (cf. Dillon, Reuben, Coats & Hodgkinson, 2007). How valid present level descriptors are is questioned by Winter (1993, 1994) but seemingly with little impact.

From student viewpoints and for qualification purposes, ascribing points as values of each course, or to express a course’s size or volume, means that a course is the smallest piece of learning on which such a quantity is formally endowed, said points then counting among those required to attain a qualification. Concomitantly, from academic, managerial and commercial viewpoints, courses are the smallest formal collection of activities that are taught, organised, managed and sold to students. This means that in addition to items already

mentioned or alluded to, points are also associated with a host of other items (e.g., students' academic records, transcripts and qualification supplements, assessment scores and grades, grade point averages, learning outcomes, course catalogues, graduate profiles and attributes, and assurance of learning), and so are prominent in knowledge measurement and certification and in organising academic and student activities forming the curriculum.

The use of points, being a set of numbers that are purported to quantify volumes of learning entailed in courses and qualifications, is as basic to curricular accounting as money units are to modern-day conventional accounting for capital, assets, liabilities and so on. Money features in universities' financial reporting, and in their efforts to attract resources, and allocate and control their consumption, using budgets, and to price courses, study programmes and other goods and services they provide. These are matters one would normally associate with accounting and finance in higher education (Coy & Dixon, 2004; Coy & Pratt, 1998; Parker, 2013). Points on the other hand are adjacent to the educational chalk face, and so seem to lurk just below the corporate surface, the latter being where accountants usually tread, or are confined. This lurking is despite points featuring in cross-overs between the two areas, for example in calculating grants from governments based on equivalent full-time students (EFTSs), in specifying tuition fees for courses according to their points values and levels, and in calculating EFTSs for purposes of allocating academic positions among departments. Thus, curricular accounting practices are not part of the usual remit of persons (e.g., bursars, finance registrars, college or faculty divisional accountants) whose daily specialist duties are identified with accounting in universities, but are dealt with by other institutional officials (e.g., administrators of students and academics, and managers of institutional strategy, programmes, policy and quality, student advisors) and academics.

Historically, points materialised in Scotland in the 1980s, alongside a *credit-based curriculum* emerging (Allen & Layer, 1995; Betts & Smith, 1998; Gosling, 2001), after which the system, or regional variants of it, came into widespread use in British higher education but noticeably outside of Oxbridge (Trowler, 1998b; United Kingdom Credit Forum, 2010). They were also adapted for use further afield (Butler & Hope, 2000), including NZ. There, methods of specifying qualifications and maintaining records of student achievements involving calculations had been used at UC and some other NZ universities but these were limited in scope and effect, and not well known. No doubt, other systems, with similar purposes and involving calculations, existed elsewhere. However, I need acknowledge only one such system, namely, the Student Credit hour System in widespread use in the United States of America (USA) for perhaps a century (Shedd, 2003). It is important to mention this system because of its standing and longevity, and because the name *credits* is given to the units of measurement used in it to express course values and qualification requirements (see Adelman, 2009; Heffernan, 1973; Mason, et al., 2001; Rothblatt, 1991; Wellman & Ehrlich, 2003). However, rather than deriving from the number of notional hours of learning by the student over the entire duration of a course, these USA credits express the weekly number of class contact hours contained in a course during a semester (see Bekhradnia, 2004; Theodossin, 1986; United Kingdom Credit Forum, 2010).

The rest of this article is separated into eight sections (S2, S3, etc.). S2 covers the study motivations and methods. S3 details the items enumerated above associated with a credit-based curriculum and curricular accounting. The next three sections cover the history of the present, including of the arrangements enumerated in S3 as a system of accounting, and how and why precursor arrangements, and particular items, fitted into the institution before and after it assumed its present UC title and status. S7 discusses curricular accounting and its past and future from an accounting standpoint. A conclusion and suggestions for further research are presented in S8.

## 2 Methodological Considerations and Methods

Given I came to believe I was researching a new accounting practice emerging alongside changes to what might be referred to as organisational patterns, social and institutional transformations, and public body practices, etc. (e.g., see Broadbent & Guthrie, 2008; Trowler, 1998a, 2001), I heeded the discussion by Burchell et al. (1980, see p. 23 especially) about investigating new accountings as they function. Thus, I pursued the following lines of inquiry at UC and in its broader NZ context, and occasionally beyond:

- (1) How does curricular accounting presently function officially?
- (2) How has it emerged and developed, who has been involved, and what issues and events shaped it?
- (3) How has it become intertwined with other aspects of life?
- (4) What consequences have arisen?

As my work around the first two questions proceeded, so insights, answers, etc. relating to the third and fourth questions emerged, thus the four lines were followed simultaneously.

My main methods were participant-observation and documentary analysis, as carried out at UC for the past 10 years. In addition, I drew on two earlier forms of experience. First, at two of my previous workplaces, namely NZ's Massey University (1987–97) and the England-headquartered but pan-European-active Open University (1999–2006), credit accumulation and transfer, and degree regulations expressed in terms of points were especially prominent. Both these universities provide courses in distance or extramural mode and the students on these are mostly part-time. Many of these students enrol having dropped out of more conventional universities, such as UC, but not before obtaining credit for completing some courses. They apply for this credit to count towards qualifications they hope their studies will achieve from these institutions. Furthermore, as the Open University has students studying in more than 40 countries, international credit accumulation and transfer is a major function, including for admission to higher-level qualifications, a situation that became increasingly common at UC as it rolled out an internationalisation strategy in the 2010s. Second, between the late-1980s and mid-2000s, I conducted research into accountability, governance and reporting of universities, particularly in NZ.

I mapped UC's extant 360 Point Degrees System and what I came to regard as broader curricular accounting practices, charting their historical development. I traced this development retrospectively through an institution that at its inception was known as Canterbury College (1873–1932) (hereafter "the College"), and then Canterbury University College (1933–1957) (hereafter "the University College"), before obtaining its present title and autonomous university status. I looked into the significance of UNZ (1870–1961), a non-teaching, examining, degree conferring institution of which the institution was an affiliated college before it obtained this autonomous university status and which it and the Otago College (known then and now as the University of Otago) were instrumental in establishing.<sup>6</sup> Among UNZ's broader functions were carrying out of various higher education policy and coordination responsibilities and administering matriculation examinations (later added to with *university entrance scholarship* examinations, and then superseded by *university entrance* and *national certificates of educational achievement* (NCEA) assessments). I also looked at influences on the system's development from other quarters, which I found were located within NZ and elsewhere, notably Britain and the European Higher Education Area (EHEA) (i.e., countries that are part to the so-called *Bologna Process*).

I examined various primary documents, printed and electronic; these include the annual calendars of UNZ, the College, the University College and UC, and the web pages constituting UC's Course Information System, which cover its qualifications as well as individual courses and course occurrences. I viewed the College's student ledgers for 1875–1910,<sup>7</sup> specimens of the student record cards that superseded them and used up to the mid-1980s<sup>8</sup> and selected pages of the computerised student records in place since. At staff seminars and in official meetings, I was party to many discussions of the subject matter with colleagues—agenda items relating to course, qualification and programme proposals, reviews of same, teaching, learning and assessment, accreditation-seeking activities, etc. are commonplace. I obtained other official documentary evidence from inside UC and elsewhere in the NZ university system, including its central authorities level, both present (see bodies listed in Figure 1) and past (e.g., the University Grants Committee (UGC)), and from other contemporary materials (e.g., *Canta*, the UC student magazine). Various officials of UC, NZQA and UsNZ provided information and comments to help with the contextual history as well as the accounting history. A further source type were official histories and contemporary studies about UC (Gardner et al., 1973; Hight & Candy, 1927), UNZ (Parton, 1979; UNZ, 1871–1925), and UGC (Eisemon, 1984; Gould, 1988).

Methodologically, my study is predicated on the popular, if inexact, assertion that “History Matters”. That is, on the idea that “Placing [accounting usages] 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). This idea is evident in S4, in which I show path dependence theory (see S1.1) is revealing in charting how curricular accounting emerged and developed. That is to say, the technology reflects lasting influences of its contextual history, not least initial and subsequent conditions and orders of what is now UC, the social actors involved and their groupings and relative standings, and critical events characterised by crises, normalcy, conflict, negotiations, compromise, cooperation, exigencies, watersheds and accidents (cf. David, 2007; Nietzsche, 2005). By knowing how we arrived at the present, at least in Christchurch and, I believe, well beyond UC, our capability for contemplating, and so informing, the future of curricular accounting is increased. Obtaining a fuller understanding of the technology and the many items it encompasses, helps understand its dynamics, with the prospect of addressing its inadequacies and improving its usefulness to society.

In applying the foregoing, I paid particular attention to the relatively rare events where more visible agency is exercised and competing interests become manifest and funnelled into deliberate attempts to change institutionalised structures, usually from within, to reveal how the “truth” of the present has arisen and may be understood (Dillard, Brown & Marshall, 2005; Foucault, 1994; Kearins & Hooper, 2002; Macintosh, 2009; Miller & Napier, 1993; Modell et al., 2007; Rahaman & Lawrence, 2001). That is to say, the series of metrics and non-metrics and accompanying narratives I allude to above as forming what I am calling curricular accounting need to be seen as socially constructed for various subjective, contextualised purposes in higher education structures and processes (cf. Becher & Kogan, 1980). Information in the form of these metrics, etc. make for bureaucratic and market controls, including for planning, coordination, competition, monitoring and evaluation. The controls in question extend from those of self and to those of others, be they peers, subordinates or superiors.

As Figure 1 shows, these controls may depicted as being at the levels of individuals, basic units, the institution itself, and the central policy, funding and oversight authorities. The controls in question are also between these levels, adjacent or otherwise. The upshot of these controls and the place of curricular accounting in them is consistent with Trowler's (1998b)

criticism of Theodossin (1986) that points, credit accumulation and transfer, and qualification frameworks are more than mere bookkeeping: they are socially constructed with neoliberal pursuits in mind.

Aware of accounting's role in said pursuits, including studies such as Chua (1995) about diagnostic-related groups having been fabricated in order to produce accounting information in hospital settings, which are often regarded as resembling universities in their organisational characteristics (see Becher & Kogan, 1980; Bourn & Ezzamel, 1987; Mintzberg, 1989), I saw potential for following up the idea of curricular accounting as a new form of accounting, one that, if Trowler (1998b) is to be believed, is just as economic and socio-political as its other forms. Thus, notwithstanding the rational nature of curricular accounting or the rational appearance of the various changes in circumstances at UC and involving organisations at the central authorities level, decisions and actions affecting resource attraction, resource allocation and many other matters continue to be subject to negotiations and similar, and so based on a mix of political, economic and educational considerations across the levels. The new quantitative data and calculations associated with curricular accounting have merely added to, and sometimes replaced, those that were already in the "public" domain. These data continue to be used to generate seemingly rational arguments for approving or rejecting proposals, whose fate is often determined on ideological grounds or to protect vested interests, and so are political, in keeping with the political nature of order and control in universities (see S1.1). It was considerations and determinants of these sorts on which I focused to chart curricular accounting's emergence, development and dynamics and inform its prospects.

### **3 Functioning of Curricular Accounting 2010s**

This section builds on S1.2 about credit points. The section is necessary because, even in the education administration literature, what I am calling curricular accounting lacks a "treatise" à la Pacioli (1494) or Spicer and Pegler (Gee, 1999) for either NZ or anywhere else. Not only that but also the impression I gained during my inquiries was that in all the relevant jurisdictions the items I identify as comprising curricular accounting practices are scattered in terms of the types of people in universities and higher education systems who influence their development, who are expert in particular items or groups of related items, who look after and maintain them, or who are regularly applying them or, conversely, who are ignorant of them or ignore them, if at all possible.

Certainly this is the impression I took from what I heard, observed and otherwise perceived at UC when embarking on this study in 2009, despite what was included in official documents then in circulation (e.g., UC, 2003, 2004, 2008a, 2008b, 2009), and the change since has not been particularly significant. Indeed, the situation at UC and elsewhere still has much in common with that reported by Wellman and Ehrlich about the USA's Student Credit hour System, as follows:

Despite a common folklore that ascribes certain meanings to the credit hour, there are no uniform or even consistent definitions for it. Like the laws in the Queen of Hearts' croquet court, it is often mandated but not defined (witness the role of the accrediting agencies regarding it). When the credit hour is defined (in appendices to data dictionaries that seem to be universally ignored), it continues to be as a measure of classroom time: one hour per week in class for fourteen or fifteen weeks equals one credit hour, twelve hours per week in class equals a full-time load, and 120 credit hours equal a baccalaureate degree. The metric is not justified in either learning goals or outcomes. It is also not consistently related to time or workload within institutions or between different types of institutions. (2003, p. 119)

This scattered state of knowledge may be attributable to the piecemeal coverage of the aforementioned items in series of documents published by various official sources, more recent examples of which are Bologna Working Group on Qualifications Frameworks (2005), European Commission (2009a) and Southern England Consortium for Credit Accumulation and Transfer (SEEC) (2013). Nor does the more comprehensive coverage provided by United Kingdom Credit Forum (2010), and EHEA, Bologna Process and European Commission (2015) seem to have helped, the former mainly being concerned with CATS and the latter with the European Credit Transfer and Accumulation System (commonly referred to as ECTS).

Thus, to make curricular accounting more understandable and allay some of these issues, I provide a list of the items curricular accounting comprises (see Table 1) and a diagram in which all the items are arrayed (see Figure 3). The items are listed in the table in alphabetical order and numbered according to this order. An explanatory definition is provided for each one. Mostly, these definitions derive from UC and its extant 360 Point Degrees System but are as generic as possible, first to NZ and then elsewhere. For ease of cross-referencing to the table, the diagram shows each item by number as well as name.

The diagram in Figure 3 is meant to portray the system as more circular than linear and relations between items being reciprocal, rather than unidirectional, and as mostly supple. I drew it using the items *student* and *graduate* as two poles of an axis running diagonally across the diagram, and then putting *learning* and *academic* and *funding* either side of this axis. I then arrayed all the other items around these five items. The relative standing of items is indicated on the diagram by font style and size. I have inferred connections among the items by proximity on the diagram. However, capturing all these connections on a single diagram has proved elusive. Similarly, including lines on the diagram to try to show connections did not help and cluttered it visually, and so are not included.

Figure 3 is also meant to show that the items comprising the 360 Point Degrees System form of curricular accounting traverse many functions, academic, administrative, etc. Experience since the system was implemented in the mid-2000s seems to be that many functions became easier than otherwise for many people inside UC, including in their dealings with people associated with NZQA, CUAP, TEC and UsNZ and with the various international networks of which staff at UC consider themselves part. The functions in question range from high-level functions to do with policy, educational audit and accreditation, including comparing standards/qualities of learning and qualifications and placing them in qualifications frameworks, through to more mundane but voluminous functions such as credit recognition and transfer, as reaffirmed in UC (2018a) and NZQA (2017). However, as is usual with these things, the 360 Point Degrees System in its present form has taken some time to become embedded and, with several issues continuing, this process of embedding continues, as related as part of S4. In illuminating why and how the items it comprises came about, the analysis in S4 provides further elaborate on how curricular accounting functions and what these issues are.

**Table 1: Items associated with Curricular Accounting (arranged in alphabetical order)**

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
1	Academic	A member of the University and involved there in teaching, research and administration. Academics are usually based in departments named after the subject or discipline in which they specialise.
2	Academic Qualification Certificate	An official document a student receives to certify that the University has conferred a qualification on the student. The certificate shows the names of the University, the qualification and the student, and the date of conferment; the University's seal is affixed with the requisite official signatures.
3	Academic Transcript	An official document about a student, their programme of study and qualifications conferred. The transcript shows courses on which the student enrolled and did not formally withdraw, the pass and fail grades achieved and the points obtained, and any courses successfully completed elsewhere for which transfer of credit was recognised. The student can obtain the document from the University on payment of a fee. The document is generated from the Student Record System.
4	Academic Workload	In the context of academics, this term is mostly used in the everyday sense of the variety and volume of their work tasks. However, used in the terms <i>academic workload framework</i> and <i>workload model</i> , it refers to imputing hours of an academic's notional 7.5 hours x 220 days = 1,650 hour year across three activity areas, namely teaching, administration and service, and research. The imputed hours are calculated using standard formulae based on class contact on courses taught, number of students whose work is assessed, course coordinator/examiner positions held, and specific and general administrative duties performed, with the residual being assumed as hours spent on research. A broader metric to estimation the workload of a collection of academics, say comprising an academic department, is a staff-student ratio (SSR); ratios are compared with a standard value to ascertain whether a department is under-staffed or over-staffed, and so may need to recruit or to shed academics.
5	Admission	The process and status of someone being admitted as a student to the University and, more specifically, to a programme of study towards a qualification, based on their eligibility and acceptance according to normal NZ criteria, such as <i>university entrance</i> (see NZQA, 2018d) in the case of undergraduates and degrees obtained elsewhere in the case of postgraduates.
6	Admission: Academic Equivalent Standing ( <i>Ad Eundem Statum</i> )	Admission into the University, and thence onto a programme of study, based on study and/or work elsewhere and being deemed to be equivalent to other recognised (specified) admission pathways. For example, someone without an undergraduate degree of those recognised in the qualification regulations may obtain admission to a postgraduate programme on successful application based on another qualification or other prior learning.
7	Annual Budget Allocation	The University plans, distributes and controls revenue and expenditure using budgets. Academic administrative units, such as colleges, schools and departments are allocated annual budgets. Among the components used to calculate budgets are EFTSs, SSRs, previous annual budgets and revenues other than general NZ Government grants and domestic student tuition fees.
8	Assessment (of Learning)	Students are assessed summatively as part of each course taken. Invariably the assessment for a course comprises an end-of-course assessment, usually a traditional, individual, time-limited invigilated examination or, for research-based courses, a report about research. Assessment can also be conducted at other times during a course, taking the form of examinations, tests or quizzes, written or oral assignments and presentations, artistic or technical production, etc. Most are done individually but some are done as part of a group. The scores for assessments done on a course are somehow combined into a single score and that score is used to determine a course grade. Courses vary in their use of criteria-based assessment and norms-based (i.e., standardised statistically or otherwise) assessment.
9	Assessment Activity	Activity undertaken by students to produce items that are summatively assessed, including sitting examinations, completing assignments that require making inquiries, reviewing course materials, etc.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
10	Assurance of Learning	In the context of a programme of study, a system for evaluating how effectively the programme is preparing graduates in terms of the learning that the programme is designed to achieve, and the resulting qualification is meant to signify. Said learning is usually expressed using graduate attributes and, below them, learning outcomes. Criteria derived from these outcomes are used as the basis of measuring the extent of the learning achieved by cohorts of students taking courses associated with the programme. The measurements are made as part of assessments on selected courses in a programme. The evaluations are conducted using these measurements of performance compared with how the cohort is expected to perform. The evaluations lead to changes in courses and programmes intended to improve learning achievements.
11	Class Contact Activity	Time an academic spends teaching formal classes, which along with preparing for the classes, assessing students and organising courses, makes up the teaching component of the academic's workload.
12	Co-Requisite Course	In the context of a programme of study, a course that students must take concurrently with another specified course, if they have not already passed said specified course.
13	Course (or Paper)	Learning activities forming the minimum formal unit that give rise to learning being recognised as credit, and so to credit points being obtained by students. Courses have unique titles and occurrence codes; they are classified by subject or discipline (e.g., accounting, zoology) and level (e.g., undergraduate or bachelor, masterate, doctoral. 100-, 200- and 300-). Credit values and course weights of courses can also vary but since about 2012 virtually all courses at the University have been sized at 15 credit points or multiples of 15 credit points (i.e., 30, 45, 60, 90, 120 and, in the case of a single course PhD qualification, 360). Most courses last for a semester, although other prescribed times include an academic year and, in the case of a PhD, three years. Courses are organised, supervised or coordinated by an academic, usually one who stages the course, possibly along with other academics, and who acts as examiner for the course. Students enrol on a course, obtain course materials, participate in course events (e.g., classes, assessment activities, other learning activities) and receive a course grade. As the minimum level from which credit may be derived, courses are combined into programmes of study and are the basic building blocks of qualifications; they are also the main formal component of the workloads both of students and of most academics.
14	Course Administration Activity	Time an academic spends administering courses for whose coordinating, staging or assessment they are responsible.
15	Course Catalogue (and Course Information System)	The schedule of courses available at the University during a year. This schedule formed a major component of the annual university calendar from the 1870s until 2017, since when it has been consigned to a supplementary document because the calendar, as a single physical document, had become so thick. Besides, the contents of the catalogue, with supplementary information about courses, had come to comprise the web pages constituting the Course Information System, which was instituted in the 2000s because technology was available and had come into common use for such things elsewhere. Each officially approved course has an entry in the catalogue, showing the name of the course, the course code, the course prescription, its credit point value and its weights expressed as a decimal fraction of one EFTS. In addition, the course page in the Course Information System usually includes tuition fees, the learning outcomes a student is expected to achieve by the course's end and demonstrate in the assessment, details of teachers, class times and assessments, and, since 2018, particular graduate attributes of the University that the course will provide an opportunity for students to develop.
16	Course Grade	A letter, from A+ to E (with others for special cases), used to designate a student's achievement on a course, based on assessment conducted as part of the course.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
17	Course Occurrence Code (or Course Code or Occurrence Code)	Each occurrence of a course has a unique code. The code comprises a course code, being a combination of a four-letter abbreviation for the subject (e.g., ACCT represents accounting) and a three-digit identifying number, and an occurrence code, being a combination of a two-digit code for the year (e.g., “18” represents 2018) and a two character code for the period or session in that year (e.g. S1 represents the first semester). The first digit of the three-digit identifying number indicates the level of the course (e.g., ACCT211 is a 200-level or stage II course in a bachelor degree programme).
18	Course Prescription	A brief description of the content of a course and, sometimes, other main features (e.g., style of learning, learning outcome(s)).
19	Course Weight (or Course EFTS Factor)	For NZ Government grant purposes, the proportion that a course represents of a notional normal annual workload of a full-time student, expressed as a decimal fraction of one EFTS—Ministry of Education (1996, p. 16) uses the terms <i>EFTS factor</i> and <i>course factor</i> in explaining the operation of the EFTS Bulk Funding System, the forerunner of the Student Achievement Component (SAC) of NZ Government funding. Since 2006, all undergraduate courses at the University of whatever level that are sized in credit points have had a course weight based on the relationship of 120 points $\equiv$ 1.0000 EFTS, or put even more simply, 1 point at every level equates to a course weight of 0.00833 EFTS ( $= 1 \div 120$ ), and so a 15-point course has a weight of .1250 EFTS. The fees charged to domestic and foreign students are mostly directly proportional to the course weight.
20	Credit	In the context of students studying courses that lead to qualifications, a name used to refer to learning by a student and constituting a course or programme of courses, and which, having been assessed as successfully completed, is formally recognised and credited to the student’s record of learning.
21	Credit Point (or, applied in the plural, often just Points or Credits)	A unit of measurement of learning by a student on a course. The unit indicates nominal hours of learning effort expended by a student studying and otherwise completing the course, with one point representing 10 notional hours of study or learning, no matter what the level. The hours can include time involved in contact with academics, whether formally (e.g., lectures, tutorials) or informally (e.g., consultations in academics’ offices or via email), and time involved in less formal learning, usually outside of classes, whether teacher-directed or self-directed, and including assessment activities. Points at one level differ from points at another not in the hours they signify but in the standards/qualities of cognitive and affective learning a student is expected to learn during a study hour. Point-values of courses are advised to potential students. Credit points accumulate as a student successfully completes courses (i.e., obtains a passing grade for a course). Points are used to express accumulated learning or knowledge as a value. They are used to specify the combinations of courses required to be completed overall and at each level in order to obtain particular qualifications, as reflected prominently in the name 360 Point Degrees System itself, said name deriving from the three-year duration of most bachelor degrees, which by some margin is the commonest qualification conferred. Credit points are used ostensibly to specify student workload, including that a full-time student should normally study 120 points per year, and to indicate how much work academics can expect and should demand of each student enrolled on courses they stage.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
22	Credit Transfer	A process whereby, subject to specified conditions, credit already achieved by a student for an incomplete qualification at a quality assured tertiary education organisation is recognised towards another qualification. Credit is transferable within the University, from other universities and tertiary education organisations in NZ, and from those recognised outside NZ. The system for credit transfer is based on the idea that learning attained, and credit points gained, in one context (e.g., a particular programme or qualification at a specified university) can be transferred or exchanged for equivalent recognition in another context, credit points denoting the exchange. The transfer involves evaluating information on a student's transcript, including courses and the credit points at which they are valued; further information about course syllabi, meanings of grades, and the programmes, institutions and higher educational systems involved are taken into account in the evaluation, as are precedents. Regulations for credit transfer incorporate the canon of disallowing so-called <i>double counting</i> or <i>double dipping</i> ; that is, the same credit cannot be counted towards two qualifications. Except in specified circumstances and according to particular conditions, when it is known as <i>cross crediting</i> . Thus, a major consideration in whether credit gained while studying a programme leading to one qualification can be transferred to another is whether or not the first qualification was conferred. The system for credit transfer extends to permitting students to be admitted to the University to study higher qualifications based on the recognition of qualifications already obtained at other tertiary education organisations—so called entry or admission by <i>ad eundem statum</i> .
23	Curriculum Map	A representation of elements of learning comprising a course, programme, qualification etc. to show how said elements are organised, structured and related or linked to each other. Elements can include topics, themes, skills, learning outcomes in the cognitive affective and psychomotor domains, etc.
24	Degree	The generic name for a qualification associated with the three broad levels studied towards by students at the University. Their first degree is called a bachelor degree and usually takes three or four years of full-time study to complete, depending on the subject or discipline. After a first degree, perhaps with a break from formal study in between, some carry on to higher, postgraduate degrees, called master degrees and then doctoral degrees, the most common of which is called Doctor of Philosophy, or PhD, despite being in virtually any discipline. Qualifications designated as certificates and diplomas are usually nested within the first and second broad degree levels—that is, they entail fewer courses and shorter study periods than the degrees—and usually labelled undergraduate, graduate or postgraduate certificates and diplomas.
25	Equivalent Course (and Credit Equivalence)	A course at the University or another institution that covers substantially the same subject, topics, themes, materials and has similar learning outcomes as the course of which it is said to be equivalent, and so, among other things, credit for it can be granted under credit transfer, and both courses cannot be counted in the points for the same qualification, to avoid double dipping. Courses at the University that are recognised as equivalent are usually labelled as being <i>restricted</i> one against the other, indicating both cannot be included in the same qualification.
26	Equivalent Full-Time Student (or EFTS (pl. EFTSs))	A unit of measurement of student enrolments at the University and in the various divisions of the University, where one EFTS is the total hours of work (or workload) a typical student would normally (have to) perform if studying full time for one academic year. This unit is also said to be the equivalent of 120 credit points, as studied by one full-time student or two or more part-time students. The way an EFTS is calculated has been standardised across all NZ tertiary education organisations since the mid-1990s, supposedly.
27	Examining (or Assessing) Activity	Time spent by an academic performing the role of the examiner for a course, and by academics associated with a course in setting and administering assessments, marking and grading student submissions (e.g., exam scripts), and supervising others doing same, and determining students' results, including in examiners' meetings.
28	Exchange Study	Study of courses at another institution recognised by the University as credit, mostly specified but sometimes unspecified, as part of a formal student-exchange arrangement between the University and other institution.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
29	Formal Class (or Similar Session)	Varies among a lecture, tutorial, laboratory-based session, seminar, lectorial, etc., organised by an academic for students enrolled on a course and, usually, formally timetabled; may include a timetabled test or examination. These classes or sessions contrast with time students spend on studying that is less formally organised or is informal or independent. For academics, classes or sessions make up their class contact activity.
30	Funding of Learning and Teaching	Revenue received from student tuition fees, NZ Government grants, particularly the grant labelled as the Student Achievement Component or SAC, and other sources, to meet the expenditures incurred in designing and staging courses, programmes of study, supervising students, assessing students, conferring qualifications, etc., as associated with teaching, academic administration, etc. and bringing about learning.
31	Grade Point Average (or GPA)	A measure of a student's academic achievement in the form of an average of grades obtained across courses. The GPA is calculated by multiplying each grade's numerical value (i.e., A+ = 9, A = 8, . . . D = 0, E = -1) by the points value for the course, adding these products together for all courses the student studied in order to arrive at a <i>grade point total</i> . Said total is then divided by the total number points in which the student was enrolled. Although mainly for internal purposes, on application, the University will provide a student with an official letter showing these calculations and the result. For internal use, GPAs can be calculated for each student by semester, year or qualification, and by level or stage of a qualification.
32	Graduate	A member of the University who has successfully completed a programme leading to a qualification and had that qualification conferred.
33	Graduate Attribute of a Qualification	A short statement of a most important quality, characteristic or similar that forms part of a graduate profile for a qualification or set of qualifications. Attributes are often expressed in terms of knowledge, skills or attitudes. Individually and collectively, they can be used to inform curriculum design of courses forming a programme leading to the qualification, by guiding the development of learning outcomes, teaching and learning activities, and assessment for said courses.
34	Graduate Profile of a Qualification	A summary of the attributes that graduates of the qualification develop through study as students of the programme leading to the qualification. The summaries usually comprise a series of bullet points, each one constituting a graduate attribute. Profiles have also been written for graduates of the University's undergraduate and postgraduate degrees generally.
35	Informal (or Less Formal) Study	Study on a course undertaken by students largely outside of formal classes, for example, working through textbooks, articles and other reading material, whether hardcopy, electronic or Web-based, completing exercises, and participating in practicals, lab-work, Web-based learning, research activities and projects, placements with employers, community organisations, etc., whether summatively assessed or otherwise, and some of which will be academic-directed and some self-directed; and informal contact with academics and peers.
36	Learning	In this context, change in knowledge, skills, meanings, beliefs and values as a result of activities, reflections and other processes of formal and informal study experienced by a student, under the or tuition, supervision or guidance of an academic(s).
37	Learning Outcome	A device used to try to specify learning and give it some tangibility in terms of what a student will achieve by the end of a course or programme of study. Outcomes supposedly express expectations of the learning process and activities in which a student should engage, and of the knowledge and skills that a student can demonstrate. They are applied so as to give rise to the notion of study being distinguishable by levels; or put another way, learning outcomes for a course can be referenced to the level at which the course is designated. Despite some official appearances, only some teachers use them in designing or staging courses, or in assessing students, including as criteria where criteria-based assessment is used. That is to say, although in official publications, series of learning outcomes are published purporting to describe the learning to be undertaken in particular courses and programmes, in practice some of this learning is often specified, outlined, represented or alluded to in other ways.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
38	Level Descriptor	In the context of several levels of learning constituting a hierarchical taxonomy of courses and qualifications, a description of the knowledge, skills, applications, competences and other learning outcomes expected of courses and qualifications designated as being at a particular level of learning. Level descriptors are intended to clarify the learning outcomes associated with each level independent of the subject or content, and so distinguish among levels based on standards/qualities of cognitive and affective learning by students at each level. The need to distinguish arises because in the 360 Point Degrees System each credit point denotes 10 hours of study being entailed but at different levels of intellectual demand, and so a 15-point 100-level course comprises 150 hours of study of 100-level intellectual demand, a 15-point 200-level course comprises 150 hours of study of 200-level intellectual demand, and so on. The issue is that, even though they are added together for various purposes (e.g., in stating that 360 points constitute a bachelor degree), the points from different levels are meant to differ in terms of the intellectual demands of the knowledge and skills learnt. Incorporating level descriptors is a way to stipulate, recognise, regulate and control for differences that should arise in courses of different levels, so that when the 360 points just mentioned is qualified by saying that at least 90 points must be at 300-level, the courses constituting those points differ intellectually from the courses constituting the other 270 points.
39	Level of Learning (or Cycle of Learning)	The basis of hierarchy in hierarchical taxonomies constituting national or international qualifications framework (e.g., see NZQA, 2016; UsNZ:CUAP, 2018). Further to qualifications and the courses they comprise being classified broadly as undergraduate and postgraduate, courses are classified into levels, such that, for example, courses that can count towards a bachelor degree are distinguished as 100-level (or stage I), 200-level (or stage II) and 300-level (or stage III)—the names <i>100-level</i> , <i>200-level</i> and <i>300-level</i> arose once computerisation occurred and numerical course codes were instituted. 100-level courses are those that full-time students normally study in their first year. The students in question usually have to pass certain courses in a subject—called prerequisites—before they can continue onto 200-level courses, and so on. These levels are also designated on the National Qualifications Framework as Level 5 to Level 7, leading to bachelor degrees and other undergraduate qualifications. The corresponding levels for postgraduate qualifications on the framework are Levels 8 and 9 for master degrees and Level 10 for doctoral degrees. Students wishing to enrol on postgraduate courses are usually expected to have graduated with a bachelor degree before they can enrol. In EHEA et al. (2015) the term “cycle of learning” is used instead of “level of learning”.
40	Pre-Requisite Course	In the context of a programme of study, a course that a student must pass before being allowed to enrol in another, usually more advanced, course.
41	Programme (of Study) (or Study Programme)	A set of courses, usually forming a progressive series in a subject or set of subjects, that a student studies, usually in some sort of chronological and curricular order, according to the interdependence of knowledge, skills, etc. and intellectual progression, and that usually lead to a qualification.
42	Qualification	Generic term meaning degree, diploma or certificate. Qualifications are usually designated as undergraduate or postgraduate and, in the case of degrees, as bachelor (an undergraduate degree), bachelor with honours, master and doctor (all postgraduate degrees). They are also usually designated by broad academic field (e.g., arts, science) and, within that, particular subjects. Under the Education Act 1989, NZ qualifications must be approved by UsNZ before being offered. They are part of a comprehensive list of all quality assured qualifications on the National Qualifications Framework maintained by the NZQA (2018b). Although each qualification on the list has a unique Qualification Number, these numbers are merely nominal. As proof that a qualification has been conferred on a student, the student is usually given an academic qualification certificate.
43	Qualification Regulations	Every qualification has a set of regulations that specify its name, structure, admission requirements, time limits, etc. The structures of qualifications comprise the combinations of courses that students must obtain to be awarded the qualifications in question. Credit points required at each level and in total are used in specifying these combinations—the name, the 360 Point Degrees System, was derived from 360 credit points being required for a three-year bachelor degree qualification. Qualification regulations are published annually in the University Calendar. Qualification regulations are part of University policies, rules and regulations of a general nature applying to all aspects of University activities and the members of the University participating in them, and approved by its Council.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
44	Qualifications Framework	In the context of education brought within a generic system (e.g., a system within an institution, a system across a group of institutions, a system across a nation or across several nations), a hierarchical taxonomy of the qualifications making up the system. Qualifications frameworks are in keeping with the idea that learning at different universities and other types of tertiary education organisations, and on different types of courses in different subjects, can be compared in order to assess equivalence and distinguish differences as to levels of knowledge, skills, and responsibility and autonomy. Thus, levels of learning making up qualifications and into which qualifications may be classified are a feature of qualifications frameworks.
45	Recognition, or Assessment, of Prior Learning	A process of formally recognising, and so assessing for credit, skills and knowledge a student has acquired from non-formal learning as part of work/life experiences (NZQA, 2017). Any credit value put by the University on this non-formal learning may only counts towards those qualifications whose regulations accept or recognise this experience as learning of a credit-bearing nature.
46	Staff to Student Ratio	A ratio of equivalent full-time academic staff to EFTSs, calculated for departments, schools, colleges or institutions, to measure, assess, evaluate, justify or make cases in relation to education quality, resourcing, efficiency, etc.
47	Student	A member of the University who is enrolled there on a course(s), usually as part of a programme of study leading to a qualification.
48	Student Achievement Component (SAC) of NZ Government Grant	The NZ Government, mostly through TEC, makes various grants to tertiary education organisations across NZ. The largest of these is known as the SAC, and is based on the numbers of student enrolments, and so EFTSs, an institution achieves and their composition or mix by discipline and level (i.e., undergraduate, postgraduate) (TEC, 2018b). SAC is a so-called bulk-funding grant; that is, it may be used to fund any expenditures the University has the legal authority to incur, including salaries, consumables and capital expenditure. The grant an institution receives is calculated using a formula based on EFTSs. Based on their discipline and qualification level, courses are classified by funding category. EFTSs on each class of course are calculated by converting enrolments using course weights or factors. Funding rates for each funding category are published annually (e.g., see TEC, 2018a). In applying the grant formula, the rules around SAC limit how much more than 120 credit points/one EFTS any one student can count as. The grant comprises the sum of the products of the number of EFTSs in each category and the funding rates for the category, provided the number of EFTSs in a category does not exceed a ceiling agreed between TEC and the institution, in which case grant is paid only as high as the ceiling.
49	Student Records System	A computerised database system with wide-ranging information about each student admitted to the University, including those who have graduated, dropped out, etc., and every course on which students in the system are or have been enrolled, as included in present and past course catalogues. The record for each student includes not only information about their studies available on their academic transcript, including courses and credit points enrolled for and credit points obtained, but also course withdrawals, their grade point averages by year and any approvals, warnings, official correspondence, etc. specific to them. The record for each course includes a list of students enrolled in a course occurrence and has the capacity for providing other information about the course and the student cohort.

<b>Row No.</b>	<b>Item</b>	<b>Brief Description</b>
50	Student Tuition Fee	The amount a student pays, or is deemed to pay, to enrol on a course. Fees vary between courses classed as undergraduate and postgraduate respectively. They also vary according to the SAC funding category of the subject with which the course is associated, these funding categories having been based originally (i.e., in 1991) on the costs of inputs needed to stage courses in each category. Thus, the fee charged on each course is according to its course weight and cost/funding category. What is more, there are two levels of fees for every course: first, domestic fees apply to most students who are citizens of the Realm of New Zealand or been permanent residents for at least three years; and second, international fees (also known as full fees or, even, full-cost recovery fees) apply to all other students, who nowadays are overwhelmingly foreign students, often referred to as “international students”. The fees for domestic students are substantially less than for foreign students, and are usually paid on behalf of the student by StudyLink, an agency of the Ministry of Social Development. Mostly, this gives rise to a student loan, which, once a student in NZ leaves tertiary education, is administered by the Inland Revenue Department; however, a significant number of domestic students, whose parental circumstances or similar qualify them, have their fees paid as part of a non-repayable allowance instead of a repayable loan. Former students repay these loans out of their taxable NZ and foreign earnings, if any. Former students living abroad are expected to repay the loans out of their foreign earnings, although this is less easy for the Inland Revenue Department to police or enforce. Foreign students’ fees are mostly paid privately, including by students, their families, their home-country governments or by private scholarships, but some are paid by the NZ Government, notably by the Ministry of Foreign Affairs and Trade as NZ Scholarships for citizens of so-called developing countries.
51	Student Workload	Further to any everyday meaning inferred by this term, it has the more specific meaning of the total of the credit points associated with the courses in which a student is enrolled at any one time, usually meaning in any particular semester. The University imposes limits on how many credit points a student is allowed to enrol in. These limits apply both generally and to specific students, for example, when they have failed too many courses in the previous semester or year. Based on one EFTS being represented by 120 credit points, and one such point notionally requiring 10 hours of learning activity, the annual workload of a typical full-time student amounts to 1,200 hours. The choice of 1,200 hours is sometimes justified in terms of 30 weeks (= 2 x 15 week semesters) comprising an academic year, with a week’s work averaging 40 hours.
52	Subject (or Academic Discipline)	A subject is a particular area of study (e.g., accounting, zoology) within a broad field (e.g., arts, science). Subjects are also referred to as (academic) disciplines. The arrangement of knowledge into subjects or disciplines reflects how academics plan, conduct research and stage courses. Courses are usually at a series of levels and are taken by students sequentially, and so give rise to a coherent programme of study in the subject or discipline.
53	Subject Endorsement, Major or Minor	Types of labels that may be appended to qualifications. The labels vary with the type of qualification and the regulations covering the ways the overarching qualification (e.g., Bachelor of Arts (B.A.), Diploma in Science) may be conferred, that is as endorsed in a subject or subdivided into major and minor subjects (e.g., Graduate Diploma in Commerce endorsed in Accounting, Bachelor of Commerce with an Accounting major and a Finance minor). Whether a particular label is conferred usually depends on the proportion of study, and so of credit points in a subject or subjects. For example, if in satisfying the requirement for a graduate or postgraduate diploma or certificate a student accumulates a minimum of 40% of the points in a subject, the qualification may be endorsed in that subject. Similarly, a 360-point bachelor degree that includes at least, say, 60 points at 300-level in a subject (and so numerous points in the subject at 100- and 200-levels because of pre-requisite provisions attaching to 300-level courses) may be awarded with a major in that subject. The same degree including at least, say, 75 points in a subject of which at least 45 points are above 100-level, may be awarded with a minor in that subject.
54	Subject-Based Department or School	A unit with academic and administrative significance, into which academics are organised according to their subject or discipline, and with which courses are associated, as denoted by, among other things, course codes.

<i>Row No.</i>	<i>Item</i>	<i>Brief Description</i>
55	Tertiary Education Qualification (or Diploma) Supplement	An official document issued by some universities without charge and forming part of the academic qualification certificate. EHEA et al. (2015) refers to this type of document as a “diploma supplement” (see also European Commission, 2009b). These documents have become common practice in countries party to the so-called Bologna Process, but in NZ, only some institutions provide them, not including the University. The supplements resemble academic transcripts, listing, sometimes among other things, the names of the courses successfully completed to obtain the qualification evidenced by the certificate, the level of and credit points for each course, and the grade obtained (see NZQA, 2018c). However, unlike most transcripts, supplements omit other courses taken and any indication of the number of times a course listed might have been taken without obtaining a passing grade. Another difference between transcripts and supplements is that supplements relate to only one qualification at a time, whereas transcripts usually cover students’ entire academic history at the University.
56	Transfer of Specified Credit	The process of transferring credit points from studying a so-called equivalent course towards a qualification as if a student had completed a specified course that forms part of the qualification, and so neither requiring the student to take said specified course in order to gain that qualification, nor permitting the student who might choose to take the specified course to count both the credit points from the course and from the transferred credit towards the qualification.
57	Transfer of Unspecified Credit	The process of transferring towards a qualification credit points from elsewhere which the University judges to have been gained from courses that are relevant to the qualification even though there are no equivalent courses offered at the University as part of the programme leading to the qualification.
58	University Calendar	An annual publication of the University recognised as the authoritative source of general, academic and programme specifications, regulations and other information for the University (e.g., see UC, 2016). Calendars exist for each of the other universities in NZ, and date back to the early years of UNZ and its affiliated colleges.

Sources: UC (2016, 2018a, 2018b, 2018c, 2018d), supplemented by Bergan (2007), Council of the European Union (2017), EHEA et al. (2015, pp. 10–12), Gosling (2001) and United Kingdom Credit Forum (2010)

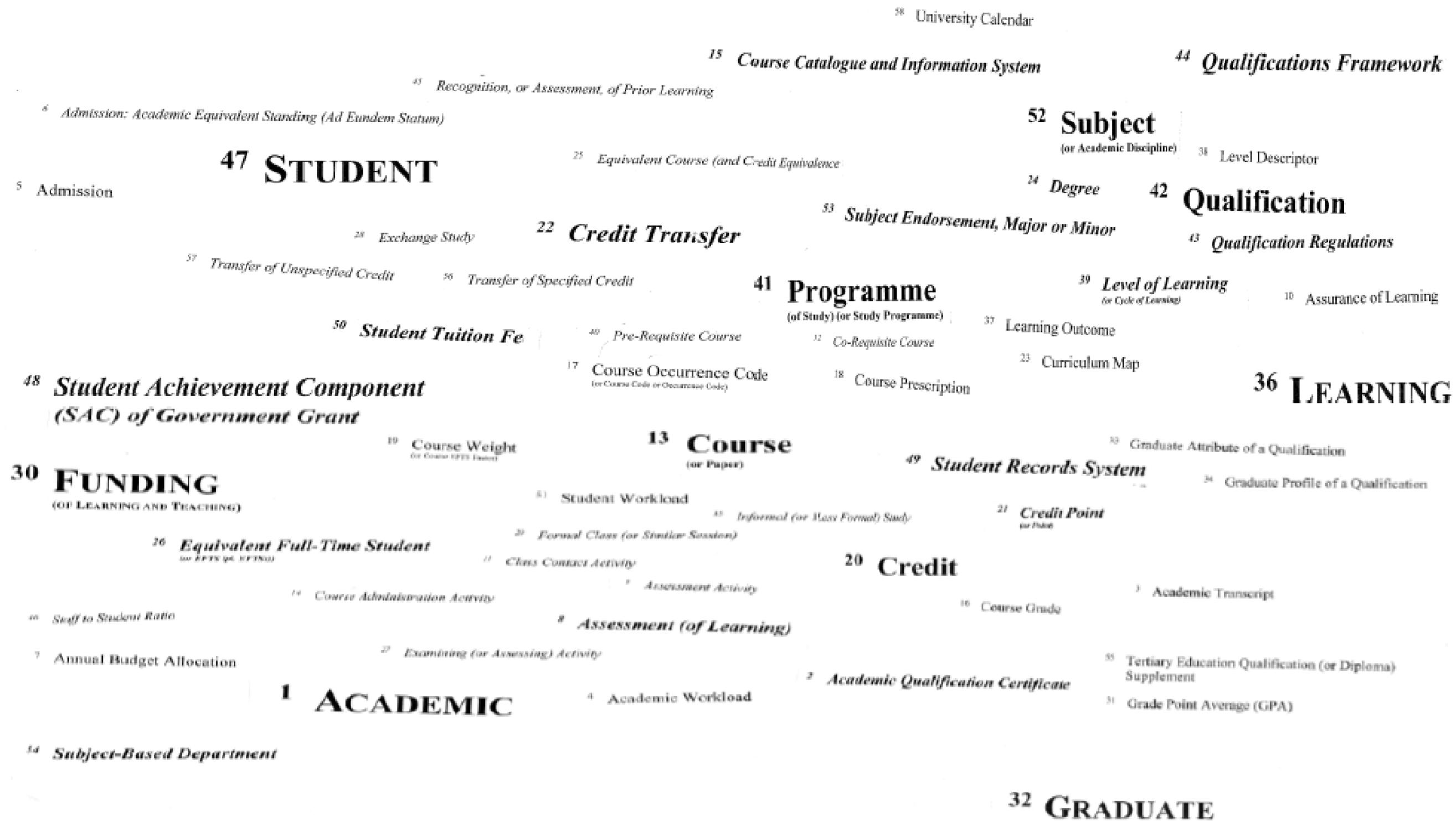


Figure 3 Patterns among items making up curricular accounting

#### 4 Chronological Stages in Emergence and Development of Curricular Accounting

Straightaway it is useful to appreciate that the present 360 Point Degrees System at UC, as decided upon in 2004, was implemented for undergraduate courses from 2006, and postgraduate courses were added by 2012. It resembles systems now used at universities and other tertiary education organisations throughout NZ and the CATS used in much of Great Britain and Northern Ireland (see United Kingdom Credit Forum, 2010)—the number 360 as the basis of the system was because of the properties of this composite number, including that it has no fewer than 24 divisors, any of which could serve as a whole number credit point value. It is the latest of four systems: each fitted their times, and so reflected various situations, occurrences and issues in UC under its various names, and in Christchurch, Canterbury and NZ, and, in turn, shaped, formed and influenced some of these situations, etc. and the system that succeeded them. Each system became inadequate, outdated or inferior to available alternatives, and so was replaced, as one expects will happen to the present system.

Previously from 1975 to 2005, UC had used a system, initially referred to as the *New Degree Structure* (hereafter, “New {1975} Degree Structure”). It too involved points for each undergraduate course and qualification but, compared with their successors, these, hereafter, “NDSPoints” were of a different magnitude—102 became standard for a three-year bachelor degree and they ranged between 3 and 12 per course—and had a more token meaning. Furthermore, the New {1975} Degree Structure only applied to engineering after 2000. Nor did it ever encompass postgraduate courses and qualifications, as was also the case with its precursor, the *Unit System* (1926–1974). UC inherited this earlier system from UNZ, and so it was common to the other universities that emerged following UNZ’s dissolution. The Unit System derived its name from all courses being designated as one unit (hereafter “USUnit”), eight of which constituted a Bachelor of Science (B.Sc.) and nine a B.A. It replaced arrangements initiated and gradually revised between 1873 and 1925 for setting, policing, evaluating and raising academic and student certification standards (Gardner et al., 1973; Hight & Candy, 1927). As these seem not to have had a name, hereafter I refer to them as the “1873-1925 Arrangements”.

I claim at the beginning of S1 that the coming about of curricular accounting was influenced by colonisation and settlement of NZ by English and Scots since the 19<sup>th</sup> century. This reflects what I say about each system fitting their times, and reflecting their contextual circumstances, being true of the 1873-1925 Arrangements. Settlers and their descendants aspired to establish and sustain, in Canterbury Province and other provinces of NZ, institutions worthy of the name *university*, as understood in other countries accumulatively associated with the Anglosphere, EHEA and Organisation for Economic Co-operation and Development (OECD), and so having equivalents to those countries in such aspects as values, qualities, facilities, participants and, last but not least, standards. Not only did the College become a matter of provincial pride and status but also, under the umbrella of UNZ, it and equivalent institutions in other provinces were significant in bringing about the educated population that would be important to the development of each province, and to the Colony (–1907) and, later, Dominion (1907–1947).

The 1873-1925 Arrangements were initially inspired by what members of the lay governors of the College,<sup>9</sup> and their counterparts at Otago, knew of universities in their home countries, particularly the Ancient Scottish Universities and Oxbridge.<sup>10</sup> This often included their personal experiences and those of their sons, whom they continued sending there until World War I—an important implication of the latter was that for the first 40 years, the College’s mixed gender student body mainly comprised the offspring of lesser settlers (e.g., minor professionals, trades people and small farmers); as they usually needed to earn a living while

studying, they were mostly part-time.<sup>11</sup> The foundation academics at both colleges were mostly Scotsmen and Englishmen from those institutions,<sup>12</sup> as were those recruited for the next half century at all UNZ’s affiliated colleges; indeed, any aspiring NZ academics were obliged to complete their studies there first<sup>13</sup> (Gardner et al., 1973; Hight & Candy, 1927).

Thus, what we see in the 1873-1925 Arrangements are ideas, subject disciplines,<sup>14</sup> curriculum, processes, methods and, even, outward appearances (e.g., buildings with façades of ancient-looking stone, formal academic dress) resemblant of England and Scotland. Standards were seen as tied to the quality of academics, this quality being in turn closely tied to where they had studied for their master or doctoral degrees. Moreover, by virtue of their involvement in common final examinations conducted under the auspices of UNZ,<sup>15</sup> renowned external academics (e.g. the economist, J. M. Keynes) had a hand in the curriculum. These final examinations took a traditional format (i.e., they were individual, time-limited and invigilated, and used unseen questions) and were held at the end of second and third year courses. The examination papers were set and marked by academics based in Britain; the scripts were literally shipped to Britain for marking.<sup>16</sup> The common final examinations meant that courses at affiliated colleges had a common curricula and common textbooks. Gordon (1946) describes UNZ as a “Policemen University, whose main duty was to Keep up the Standard” (p. 271); how it provided formal oversight, maintenance and development of the 1873-1925 Arrangements is reflected in its carefully documented “Minutes of Proceedings of Senate and Boards” (UNZ, 1871–1925).

Another major consideration in the Colony period was NZ as a sparsely populated settler-colony, in which planned immigration from Britain, wool, lamb, gold and other primary production for export, public works, social reform, etc. were gaining ascendancy economically and politically, particularly in Canterbury and Otago (King, 2003; Mein Smith, 2012; Phillips, 1937). Successively, the Colony had had shortages of women, labour, whether unskilled, skilled or professional, and schools—the Education Act 1877 was enacted, notwithstanding a teacher shortage, including of high school graduates to teach in primary schools, and of tertiary level graduates licenced to teach in high and other post-primary schools.<sup>17</sup> As immigration and settlement progressed, supply shortages arose in the other learned professions (e.g., engineers, lawyers, accountants, doctors, dentists, veterinarians) agriculturalists, home-produced academics, musicians, etc.

The ways found to ameliorate these led, perhaps too slowly, to a balancing of employment considerations with scholarly ones, inspiring some branching out of the disciplines, qualifications, programmes and courses offered at the levels of bachelor (see Figure 4),<sup>18</sup> bachelor with honours, master and doctor<sup>19</sup> (Gardner et al., 1973; Hight & Candy, 1927; University Degrees Act 1904).



Figure 4 Branching of UNZ Bachelor Degrees available at the College<sup>20</sup>

Regarding how other important connections between standards and items now associated with curricular accounting developed, a case in point is the use of levels of learning. The present use of levels or stages traces back to struggles to raise the standard of bachelor degrees (e.g., see Hunter et al., 1911; Royal Commission, 1925). The early B.A.s, although involving the equivalent of three full-time academic years, had been mere *pass* degrees, reminiscent it seems of Scottish ordinary degrees (see Theodossin, 1986) and of a lower standard than counterparts in Britain and elsewhere (Gardner et al., 1973). Initially, this deficiency was addressed by a regulation change requiring more subjects, and so more breadth. Subsequently, more depth was provided by adding *advanced* courses to *pass* courses, and then *first year*, *second year* and *third year*—from the 1940s, these became *stage I*, *stage II* and *stage III*—all the time meaning students having to study more intensely and pass more College-set term tests and more UNZ final examination papers. Eventually, the regulations were framed to afford students a choice between breadth (i.e., studying six subjects) and depth (i.e., studying four subjects), and by 1917, 96% were going for depth, which was already a characteristic of the other, but still less popular, bachelor degrees, that is in science, engineering, etc. Although the number of UNZ final examination papers involved varied depending on a student's personal study programme of subject combinations,<sup>21</sup> the typical number of these increased from 8 in total to 10, and then 12. However, as Gardner et al. and Parton (1979) relate, more far-reaching proposals that in 1926 came to be incorporated in the Unit System were resisted by a majority on UNZ's Senate for nearly 20 years, largely for being premature in what suited NZ.<sup>22</sup>

The Unit System was applied and amended in various ways over the five decades it lasted, the first three to regulate UNZ degrees and the last two to regulate UC degrees and those of the other three universities to emerge from UNZ. As intimated above, its name referred to students being required to accumulate a quantum of USUnits to obtain a bachelor degree. Specifying a degree in this way seems original: degrees of the University of London comprised nine course units (Theodossin, 1986) but this was not initiated until the 1960s, some 40 years in arrears of UNZ. A USUnit was defined rather loosely as one year's work in an approved subject, with subjects having progressively more intellectually demanding USUnits at stage I, stage II and, where applicable, stage III, and by implication requiring progressively more study time per week. The nine USUnits required for a B.A. had to include at least two stage II USUnits and one stage III USUnit and be drawn from five subjects. The arrangements of UNZ examinations applying to USUnits was such that the total number of final examination papers that students were required to pass during their degrees increased to between 18 and 27.

The second claim I made at the beginning of S1 is that the coming about of curricular accounting was influenced by the enlargement(s) of universities in terms of numbers of subjects, or disciplines, and students, with growth and related consequences for academics, qualifications, courses, modes of study (e.g., full-time, part-time, extramural or distance), the rates of participation among the general population, administrators, campuses, facilities, campuses, etc. These phenomena accompanied decolonisation, economic development, curriculum expansion and social change for most of the 20th century.

Between the two world wars and then even more so after the second, not only did demands for educated labour in NZ continue to increase and broaden, so mirroring those in the other Anglosphere countries and elsewhere, but also social policy shifted towards community welfare. Access to education from kindergarten to university was widened socio-economically, gender-wise, racially and culturally; secondary education was made compulsory; and higher education as a public policy area was restructured, its public funding increased and its curriculum expanded (Gardner et al., 1973; King, 2003; Mein Smith, 2012;

Murdoch, 1943; Parton, 1979; Tearney, 2016). The extent to which these changes led to the enlargement in question shows up in several metrics covering the 150 year history of UC, including student numbers (see Figure 5), numbers of qualifications (see Figure 6), courses (see Figure 7) and academics (see Figure 8).<sup>23</sup>

Enlargement did not mean consideration of standards abated in the workings of universities; on the contrary, for fear the new subjects, wider access and the new-found autonomy of universities (arising from UNZ’s dissolution) could lead to standards being compromised, its intensity increased.

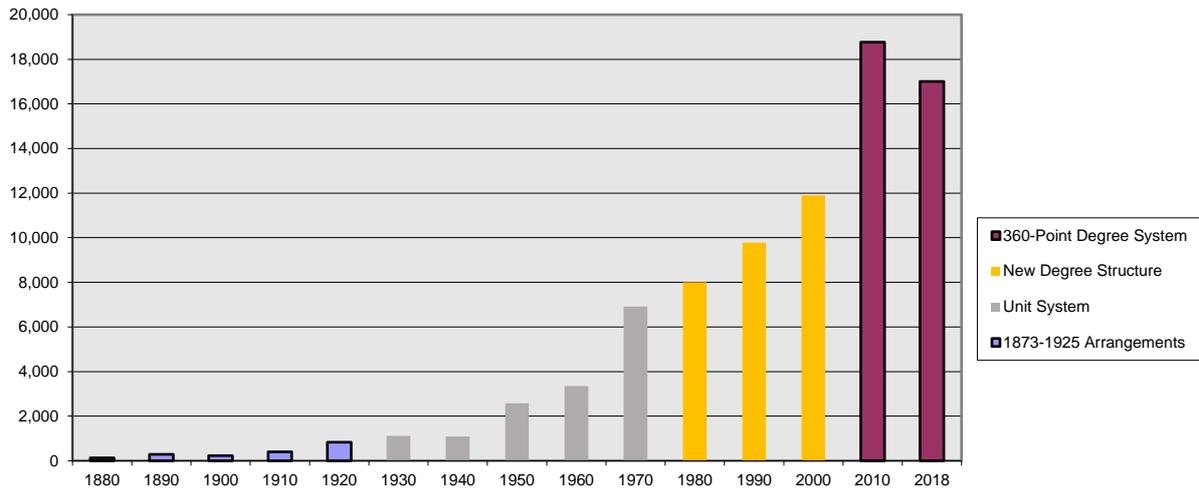


Figure 5 Individual students, whether full- or part-time, decade-on-decade (Sources: Gardner et al., 1973; collated from UC calendars and annual reports).<sup>24</sup>

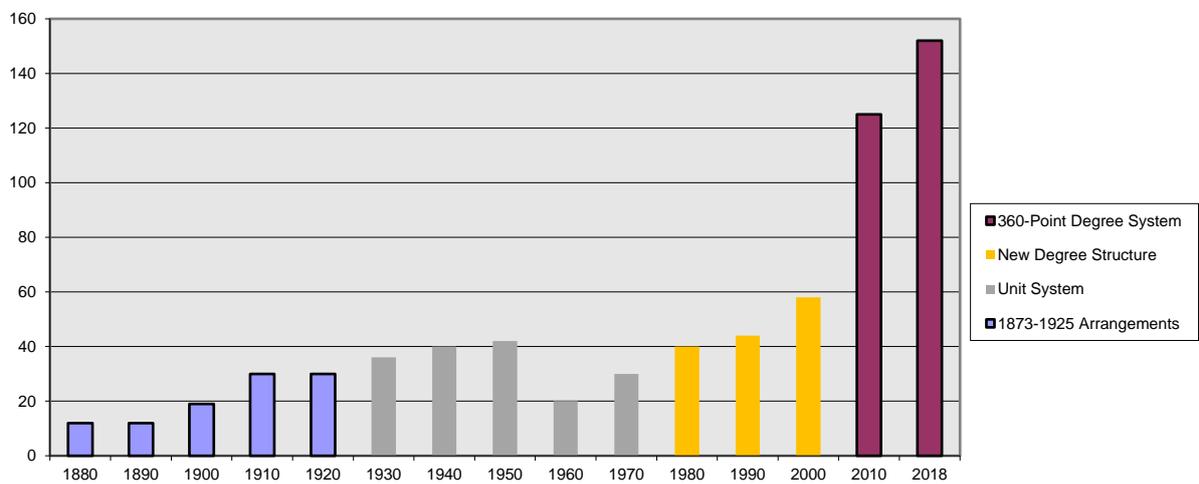


Figure 6 UNZ qualifications (1880s–1950s) and UC qualifications (1960–) (Data collated from UNZ and UC calendars).<sup>25</sup>

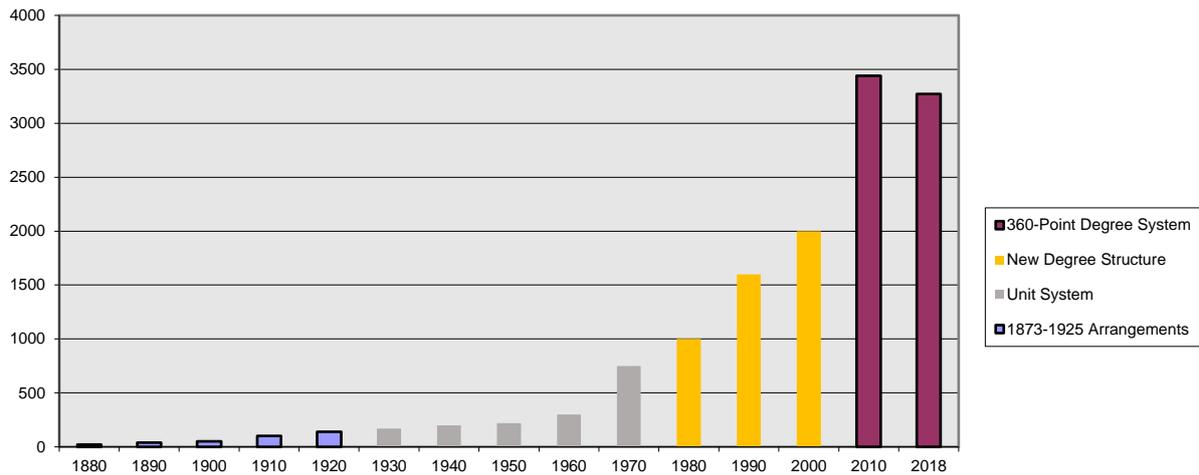


Figure 7 Courses catalogued decade-on-decade (Data collated from UNZ and UC calendars).

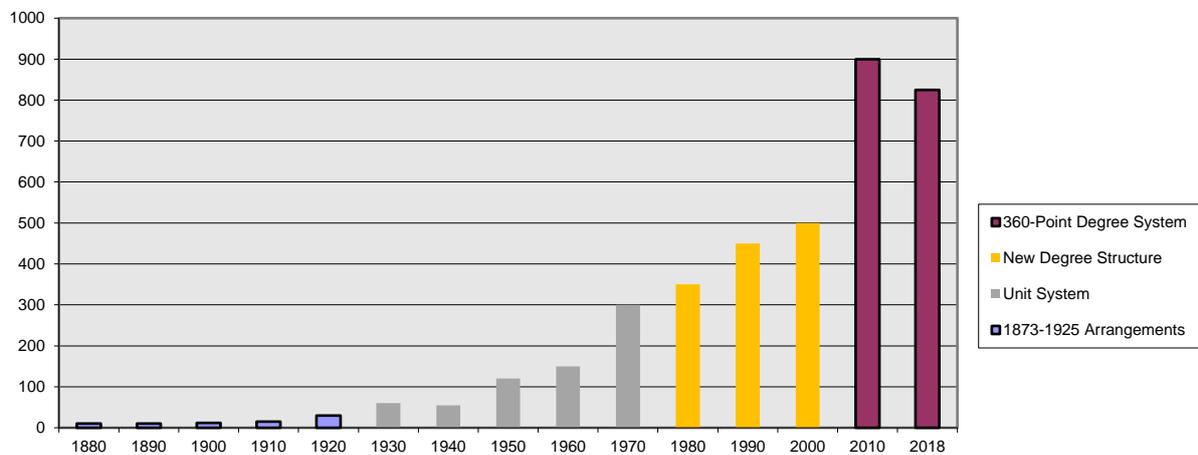


Figure 8 Individual academics, whether full- or part-time, decade-on-decade (Sources: Gardner et al. (1973) and data collated from UC calendars and annual reports).

By the 1970s, the academic challenges of standards and enlargement it faced led UC to introduce the New {1975} Degree Structure. Besides, this system to replace the Unit System also gave UC some leverage in revising its outlook from an essentially provincial one in which teaching responsibilities figured highly to a further affirmation that it was now a university in its own right, with national responsibilities, including socio-economic responsiveness and research, and an international outlook, and increasingly separate from Auckland, Wellington and Otago ('Credit points', 1974; Gardner et al., 1973; Parton, 1979; UGC Review Committee, 1982). The New {1975} Degree Structure helped all levels of UC deal with the two challenges just outlined. It facilitated new groupings of knowledge, and so of combinations of courses, within a coherent system of order and control. Novel at the time was how academics created sub-divisions of meta-degrees (i.e., B.A., B.Sc., Bachelor of Commerce (B.Com.), etc.), particularly endorsements and majors, and established diploma and certificate qualifications, which were of shorter duration than degrees but comprised courses that were also in degrees. In parallel with these increases in qualifications and sub-qualifications, more courses were established, adding to the growth in courses through extant large courses of one USUnit being split into two, three or four smaller ones of 8, 6, 4 and 3 NDSPoints.

This expansion in study options was timely for responding to the social and economic facets of enlargement, including the increased demand for well-educated persons across the NZ economy and further afield (e.g., Britain, Australia), growth in the number of school leavers expecting and expected (e.g., by parents/whānau, secondary school staff and employers) to attend university, the portion of mid-career and other mature people seeking university qualifications, and general expectations that universities would be more publicly responsive and accountable by broadening their intake according to not only age but also socio-economic status, gender, ethnicity, race, geographical origin (i.e., from NZ and overseas) and nationality.

The intensification of earlier considerations mentioned above repeated itself when, in the 1980s, what I claim has been the third influence on curricular accounting, namely Rogernomics and New Public Management (Kelsey, 1997; Pollitt & Bouckaert, 2004), encroached into NZ universities (see Boston, 1988, 1996; Coy, Tower & Dixon, 1991), arguably giving rise to a version there of New Higher Education (Grey, 2017). The transformations and consequences that accompanied this encroachment in all the Anglosphere countries, Europe and elsewhere are widely reported (e.g., Altbach et al., 2009; Coy & Dixon, 2004; Crawford, 2016; Deem, 2004; Dixon, 2015; Lerner & Le Heron, 2005; Lawrence & Sharma, 2002; Nagy & Robb, 2008; Olssen, 2002; Parker, 2011; Peters, 2013; Shore, 2010; Trowler, 1998b, 2001, 2010). Relevant ideas include the individual with responsibility for self and choices for self; commodification of public services or public benefits as valuable products, available in a competitive market place with countless other private goods and services; the allocation of resources based on government agencies purchasing outputs on behalf of benefit recipients from public benefit entities and private providers; recognising and augmenting the consumer rights of individual customers of public benefit entities; and applications of financial and management accounting, and audit and assurance, mirroring those associated with the business sector.

Among other things, UC and the rest of NZ's tertiary education providers, public and private, were incited to compete in business-like ways with each other for domestic students and with similar providers overseas for students from outside NZ, especially the many parts of Asia, Eastern Europe and, even, Africa and Latin America. For UC, success in this competition brings in revenue with which it has chosen to improve facilities, recover from the Canterbury Earthquakes, fund research, attract research-active academics, and overcome limits represented by NZ Government grants and reduce its dependence on SAC (e.g., see Stein, Andreotti, Bruce & Suša, 2016; cf. Yap, Ryan & Yong, 2014). These occurrences at UC further influenced its policymaking, administration and management, and presented additional issues around qualification recognition, credit accumulation and transfer, standards of learning and certification, accreditation and dealing with growth.

The growth in question is clear from the trends shown in Figures 5 to 8 since the 1990s. Indeed, growth in all these measures and many more besides has been such that recent pursuits, undertakings and accomplishments at UC dwarf those of only a generation ago, hence the imperative of administrative mechanisms that have the sorts of sophisticated capacity, coherence, contiguity and fluidity associated with curricular accounting. A further insight may be gleaned from the following: 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. Between them, students are expected to put in over 18 million study hours, during which they produce over a quarter of a million individual assessments, and participate in over 100,000 class sessions (e.g., lectures, tutorials, seminars, laboratories).

Curricular accounting has the potential to serve widespread purposes in these circumstances of size and complexity, and philosophy of higher education provision. These include the valuing of learning as a personal asset and accounting for same; giving students the status of consumer; academics and academic innovation being managed; qualifications being standardised and commodified; quality assurance being formalised, including using audit and accreditation methods; and public funding being tied to student volumes, qualification completions, and publications and similar research activity metrics. It has both facilitated and been brought about by the widespread use of metrics to measure services and performance, value benefits, set control boundaries and report public benefit entity performance within each entity and to the Government shareholder and to stakeholders more publicly.

## **5 Explanations of Curricular Accounting's Emergence and Development**

The present mass and ideological needs for curricular accounting contrast with corresponding needs at earlier stages of history. Even the University College, let alone the College, was characterised by smallness, intimacy, being close-knit and financially self-sufficient largely. Moreover, its relations with UNZ were far more important than with any other body. The need for any form of accounting was to administer and govern in ways requiring only conventional bookkeeping and financial accounting little different from that suited to any small or medium-sized organisation. Where there was need or desire for collective control, it was realised in the usual course of daily interactions and in the manner of professional networks or clans, which are forms often associated with older, even larger universities (see Becher & Trowler, 2001; Mintzberg, 1989; Ouchi, 1980).

Within UNZ, and in its relations with its affiliated colleges, control was also largely effected in this manner, as evidenced by the regularity of residential meetings of the senate and its boards and committees. There was little need of practices as quantitative and complicated as are entailed in present-day curricular accounting, and when calculative practices were introduced, notably as part of the Unit System, they were rudimentary, rather than what was otherwise available, for example, the Student Credit hour System. Indeed, most of those involved would probably have considered any form of control that facilitated flexibility for students in their choices of learning and devolved curriculum choices among all ranks of academic staff antithetical to their views about what constituted appropriate approaches to control.

The successive schemes of things during the nine decades of the College/University College and UNZ's other affiliated colleges, and UNZ itself for that matter, can be summarised as follows. Participants in the scheme included academics, students, administrators, external examiners, and academic and lay governors, among others. Students studied towards qualifications under the tutelage of academics. This tutelage lasted an academic year (February to November), which initially was divided into two terms but in 1920 was revised into three terms. Study was separated into subjects, and then into examination papers and courses of lectures/study. Qualifications were distinguished into levels (e.g., *bachelor*, *honours*, *master*, *doctor*), and bachelor degree qualifications were further distinguished into two and then three levels (see S4); each level was more intellectually challenging than the last, including in the study time required per week and year. Concomitantly, pass, or stage I, courses were gradually distinguished from the standard associated with matriculation examinations studied for in secondary schools.<sup>26</sup> Graduates used their learning and qualifications to enrich their lives, including to secure employment as teachers and in other learned professions,<sup>27</sup> and other work to which they were suited, which increasingly was in industry and commerce, as well as politics and public administration; relatively few graduates advanced to further study.

The functions of the College and the other affiliated colleges appeared mostly to dovetail quite well with those of UNZ, with examinations being especially central to their interrelations. Inevitably, however, mismatches and tensions arose intermittently. In the first few decades of UNZ, these had been unsatisfactory only to a minority, albeit a vocal, campaigning one, who under the auspices of the University Reform Association broached such issues as how UNZ might be reformed, how relations with the colleges might be revised, whether people with only NZ qualifications should be appointed as lecturers, whether UNZ examinations should be set and marked by NZ-based academics, and whether UNZ should be dissolved and separate universities established (see Hunter et al., 1911). To the rest, the arrangements were acceptable and sufficiently flexible for going about their activities, and they stood up for them, perhaps ensuring their continuance for too long in the end (Gardner et al., 1973; Gordon, 1946; Parton, 1979). Whatever, the relevant point is that these tensions in the university system, along with social, economic, technological and political occurrences in NZ and further afield, gave rise to modifications, and even major revisions, in fundamental principles and how they were applied, including to the items, practices and related arrangements that have now emerged as curricular accounting.

Of particular note is that various arguments raged throughout its existence about whether academics, as distinct from laypersons, should govern UNZ: the arguments were about whether academics being in charge would raise or prejudice standards (see Francis, 1997; Gordon, 1946; Hunter et al., 1911). As indicated in S4 and Note 7, laypersons, many associated with provincial governments and then the NZ Government, were involved with UNZ and its affiliated colleges, and so it has been with their successors. Academics eventually mostly prevailed, giving rise in 1915 to the Board of Studies, in 1928 the Academic Board and, indeed, by the 1960s UNZ's eventual dissolution, in favour of separate universities (Gardner et al., 1973; Hight & Candy, 1927; Parton, 1979). However, as Francis (1997) alludes, the idea of some golden age arising, when academics were free to gather and disseminate knowledge without political and administrative interference, and when universities were politically and administratively autonomous, is something of a myth.

Furthermore, in keeping with trends since the 1980s related in S1.1 and S4, what might be called the "pendulum of authority" (Altbach et al., 2009, p. 93) has swung away from academic ideas in favour of managerial ideas. A growing dependence since World War II of the university sector on grants of one form or another from the NZ Government pre-dated this swing. More recently, a dependence on student tuition fees and similar revenue tied to so-called outputs has accompanied it, or been part of it. These grants and the legal authority to levy fees were in some ways precursors of, responses to, and even consequences of, enlargement, widening access, massification and diversification; they also fitted with a revised, neo-liberal philosophy of how the cost burden of higher education should be divided between taxpayers and students or graduates (Boston, 1988).

The managerial practices associated with this neo-liberal philosophy are major aspects of the conditionality now accompanying NZ Government grants, deriving from ideas for controlling efficient-machine type businesses and effecting authority hierarchically through a command structure (see Hofstede, 1981; Mintzberg, 1991; Parker, 2011); they are at odds with academics exercising collective collegial authority, notwithstanding the proportion of manager-academics, or persons in managerial positions drawn from academia (Deem & Brehoney, 2005). That is not to say academics are rendered entirely powerless. This shows in the following example, which also indicates how curricular accounting practices have been shaped of late by political control processes and managerial thinking.

Proposals considered in 2008 to adopt the so-called common course size principle (see UC, 2008a, 2008b, 2009) sparked my interest in this topic. The proposals resulted in the present situation of virtually all courses at UC having a size of 15 points or, in what has turned out as a limited number of cases, multiples of 15 points, whereas in 2008 the vast majority of courses ranged in size between 11 and 28 points. I go into the mathematical logic through which this perplexity arose in S6; for now, it is sufficient to note the perplexity arose from compromises reached in approving and implementing the 360 Point Degrees System in the first place—UC (2004, p. 7) records this compromise as the “best solution available” at the time. In other words, the 2004 decision included issues resolved expediently but that gave rise to circumstances out of which new problems arose, and so had to be revisited a few years later.

The proposals had broad support within UC’s senior management team, among whose concerns was product presentation in a marketing sense as well as clarity over the position of particular students in an academic administration sense (e.g., it would be easier to calculate or determine what further study a student needed, if any, in order to graduate). This was part of a general argument behind the proposals that the then current situation was perplexing for all concerned, be they students, academics, manager-academics, administrators, etc. The senior management team gave the proposals to some of its academic members to take to UC’s academic community. After several loops of formal and tacit consideration, argument and counter-argument, debates of motions and amendments, reaching consensuses and voting, a considerable majority of academics accepted most of the proposals, albeit in amended form, and all parties set about implementing them, the whole change being more or less in place by 2012, including the application of a points system to postgraduate courses for the first time.

How and why these proposals were enacted exemplifies the socio-political processes around reaching decisions and carrying them out that characterised the coming about, application and eventual replacement of all four systems enumerated at the start of S4. The opposition to the proposals, based as frequently on resource allocation implications<sup>28</sup> as on curriculum and pedagogy, led to the sorts of compromises that are the stuff of such processes. I base this claim on my participant-observations of ways the 2008 proposals arose, then progressed, were implemented and have since become embedded among academics, manager-academics and administrators at the three levels within UC depicted in Figure 1 and on the findings from my subsequent inquiries into the history of curricular accounting and its three precursors enumerated in S4. In S6, I give a fuller exposition of this history, including more evidence to back up this claim.

A further noteworthy issue here is that, notwithstanding some matters referred to in UC (2009) about curricular redesign, the acceptance, or perhaps acquiescence, among academics of the common course size principle in particular, and of modifications to the 360 Point Degrees System generally, reflected seemingly how little they anticipated these particular changes would have medium- and long-term consequences for either their courses or their work circumstances in general. However, it needs to be appreciated that proceeding almost in parallel with the common course size principle proposals was another change process labelled *semesterisation*, being the unfinished business from almost a decade earlier of changing UC’s entire academic calendar, and so virtually all courses, from an academic year basis (i.e., February to November) to a single semester (or half year) basis (i.e., February to June or July to November), with about the same number of final examinations taking place bi-annually, in June and October-November. The immediate consequences of the two changes were conflated: not only did semesterisation involve many courses having to be divided in two (e.g., many 22-point and 28-point courses became two 11-point and two 14-point courses<sup>29</sup>)

but also it involved academics in a certain amount of course re-design, and so further re-design into 15-point courses was not seen as particularly significant.

This lack of anticipation of much more than these immediate (and conflated) consequences reflects the following: in external relations with central authorities level organisations (see Figure 1) and with officials at other institutions, dealing say with credit transfer or scrutiny of new programme proposals by UC, the credit point used in the present 360 Point Degrees System may be officially accorded the apparently precise size or quantity of a student completing 10 notional hours of learning. However, internally, many academics continue even now to be somewhat sceptical about the idea of points having much bearing academically, let alone being meaningful measures of learning, etc. with the aforementioned precision. In the first brush the UC academic community had with the idea of points, namely NDSPoints (see S4), other than indicating a set of activities, or a number of sets of activities, being deemed equivalent (i.e., any set of activities denoted as 6 NDSPoints were deemed equivalent, as were any two sets denoted as 3 NDSPoints each), these were vague in terms of what they measured and how they measured it, and so what they were a measure of; this applied also to the USUnits which NDSPoints replaced and from which they were derived.

Indeed, when the 360 Point Degrees System was proposed, the proponents of the proposal tried distancing it from points purporting to have this more specific meaning, so seeming to leave this new metric as vague as its precursors, that is NDSPoints and, before that, USUnits. This was because academics seemed comfortable to continue with courses being assigned a value in points, they regarded the idea of translating points into hours of student work as “inappropriate for a university” (UC, 2003, p. 5), there being a general belief that standards in UC and the other universities were superior to lesser institutions of tertiary education, whence, because it was used by NZQA in the NZ Qualifications Framework (see Philips, 2003; Strathdee, 2011), this idea that underpinned the system was believed by many to have derived (cf. Lester, 2011; Winter, 1993). This vagueness continues among many UC academics, as revisited below, no matter the incremental changes towards harmony between NZQA and CUAP in the principles and practices they use in their regulatory activities to deal with qualifications, courses and programmes (see NZQA, 2016, 2018a; UsNZ:CUAP, 2018), and the knock-on effects within UC of these changes.

Running parallel to the task of translating points into hours of student work is the desire raised in S1.2 and subsequently to maintain a similar standard across courses that are at the same level, and a hierarchy of standards according to courses being at different levels. A combination of level descriptors and learning outcomes is supposed to be a solution to this problem, but data for UC and NZ, and from other places CATS are used, suggest otherwise. These data indicate that the actual time spent on average by students who successfully complete a 15-point course or a 360-point degree varies significantly among disciplines at the same institution and among the same discipline at different institutions, and that the overall mean is less than 10 hours per point (e.g., see Comer & Brogt, 2011; Marshall, 2011; Neeves & Hillman, 2018). A further side to level descriptors and learning outcomes being an unlikely solution at UC is that, other than in complying with course approval requirements and in formally publicising courses (e.g., see UC, 2019), these often play little part in such aspects as course design and process or student assessment.

However, that is not to say that matters of standards, equivalence and differentiation are overlooked or ignored. As in the past, some effort is exerted within UC, and peer and student pressure is taken account of, to make courses no more or less demanding than other courses at the same level in the same discipline. Not least, this includes some reference to the numbers of assessments and contact hours, both of which, being formally measured

components of their workloads, are more salient to academics than the notional hours a typical student may be expected to spend studying. But, further than that, either at basic unit level or institution level, little effort is expended on what would be a very difficult task of comparing student workloads; this contrasts markedly with the recent enthusiasm for counting class contact hours and gauging academic workload from these and from assessment marking activities. Besides, in precursors to the 360 Point Degrees System not only were courses at advanced stages of a subject progressively more intellectually demanding but also they required more study time per week, and so per course.

In any case, standardising the demands that every course at UC, let alone in NZ, makes on students for their time would be extremely difficult for other reasons. For example, professional bodies that regulate courses and programmes in NZ for medicine, dentistry, engineering, law, accounting, etc., place extra-degree expectations on those students aspiring to join them and on the academics staging the programmes. Among the various reasons students choose subjects, and indeed universities, is because some programmes in some subjects at some universities differentiate them from other students on intellectual capacity, probably with economic and social advantages down the line.

## **6 More Details about the Genealogy of Curricular Accounting Systems**

I referred above to the succession or replacement of one system of curricular accounting by the next being characterised by socio-political processes for reaching decisions and carrying them out. By exploring further the history of UC and UNZ, this section elaborates on these processes. The section also incorporates coverage of matters that throw further light on the issue of inter-disciplinary and inter-institutional variations in standards and demands placed on students in order to graduate.

I pick up events subsequent to the 1873-1925 Arrangements having been succeeded by the Unit System but only after the protracted processes alluded to in S4 and S5 involving UNZ and the University Reform Association. The Unit System was applied to the UNZ B.A. from 1926 and to the UNZ B.Sc. from 1927, both degrees requiring nine USUnits. However, not long after, because of the laboratory work science students had to fulfil during stages II and III, the requirements for a B.Sc. were reduced to eight USUnits (Gardner et al., 1973; Parton, 1979). Even so, it did seem that, having gradually drifted apart since the 1890s, because academics in separate subject areas had much discretion in how they were developed, the Unit System brought the majority of bachelor degrees closer together to make them of a similar standard and equally demanding in what students had to attain to graduate.<sup>30</sup> Nevertheless, present day means of comparing study programmes, etc., such as by using learning outcomes, and evaluating them in terms of student achievements, for example by using assurance of learning systems, were not in evidence, even to confer legitimacy let alone serve practical purposes.

In any case, probably those in authority saw such modern technologies as unnecessary not only because the legitimacy of the institution was hardly open to question but also because of its close-knit nature, housed as most of it was until the early 1970s on a somewhat cramped, inner city campus (Gardner et al., 1973). Even so, the institution was growing, as was UNZ and its other affiliated colleges, and so academic and administrative organisational divisions were established, and functions were referred, remitted, delegated or devolved, in the name of effective administration. Consequently, by the time the College was renamed the University College in the early 1930s, it comprised seven faculties, spread among which were over 20 academic departments. From such divisions, etc., arose impediments to communication, cooperation, etc., a drifting apart of subjects, and segregation among students, according to their courses and qualifications being aligned with particular departments and faculties

(Gardner et al., 1973).<sup>31</sup> Moreover, the drifting apart of subjects contrasted with the uniformity and coherence within a subject at different UNZ colleges, as rendered by the subordination of teaching to the common final examinations,<sup>32</sup> and, by implication the things enumerated is S4, namely common curricula and textbooks, together with shared ways of discoursing standards, of activities being arranged and represented, and similar, all still overseen in some detail by UNZ.

However, as time went by, while the place of UNZ and its coordination and standards oversight mechanisms still had their supporters, they were an increasing source of criticism, with such words as cumbersome and outmoded often used to describe not only its processes but UNZ itself. Some critics also applied words such as paralysing and stifling to UNZ, frustrated at the lack of change needed to keep up with occurrences not only in Britain but also in North America, where a widening range of subjects was being offered and universities were becoming increasingly involved in research, industrial and social development, and, above all perhaps, developing and shaping the societies they served (Gardner et al., 1973; Gordon, 1946; Parton, 1979; Phillips, 1970). Contemporaneously, the OECD was exhorting governments in its member countries to pursue educational development and broader participation in order to advance technologically, and so develop economically (Theodossin, 1986).

These broader matters gained traction in NZ after World War II and resulted in many changes over the next three decades. Higher education functions, structures and processes were realigned and overhauled. In a transformation that even formally took several years (e.g., the University of Canterbury Amendment Act 1957 was superseded by the University of Canterbury Act 1961), and tacitly took longer, the University College became UC. It and the other universities were authorised to design and propose new qualifications for consideration by the NZ-wide body known as the Curriculum Committee of UGC and then CUAP, and to regulate the qualifications so approved (as well as regulate those inherited from UNZ, its Board of Studies and Academic Board), conduct assessment and confer these qualifications under their own seals. Besides, each began expanding in scope and participation levels. Indeed, partly in anticipation of the growth to come, UC relocated to its present, expansive Ilam campus, its mostly concrete buildings in the modern style of the 1970s representing quite a contrast to those on its former inner city campus with façades reminiscent of Oxbridge and St Andrews.

Now, these functions, along with academic audit and assurance and other new functions, are shared among TEC, NZQA and UsNZ (including CUAP and AQA) (see Woodhouse, 1997). Whereas, UC and the other universities now confer qualifications, maintain catalogues of courses and qualification regulations, conduct examinations, administer credit transfer, institute new courses and, subject to CUAP approval, new disciplines, study programmes and qualifications, and develop academics as researchers and teachers.

The New {1975} Degree Structure represented a further significant change in all this at UC. Devised in the early 1970s (see Committee for Educational Policy, 1973; ‘Credit points’, 1974), this new system was implemented in 1975, after the main sources of opposition were placated. As alluded to in S5, much of the opposition was about the resource allocation implications, rather than only curriculum and pedagogy, as patterns of enrolments among departments were not only likely but also intended to be affected, thus changing internal funding allocations—I give a fuller explanation of this below using examples based on the 360 Point Degrees System. The system was about revising UC’s bachelor degrees and related undergraduate qualifications: it facilitated the drawing up of standardised regulations for all these qualifications in a common language and currency. A wider range of courses, subjects,

departments and faculties was materialising at the time and the New {1975} Degree Structure was also about having a common means to track the progress of students across this range. Its timing and its social and political background were spelt out eloquently by UC Vice-Chancellor, Neville Phillips, who spoke of a social challenge, as well as an academic challenge. I deal with these in turn.

Regarding the academic challenge, Phillips opined this was

. . . implicit in the extraordinarily rapid growth of knowledge. Universities, Canterbury among them, have been major incendiaries in setting off this explosion. More knowledge has to be absorbed, refined, transmitted and – not least important – offered in new combinations. When we set out to study the environment, social work or regional planning – to take only three examples – we soon become acutely aware that new perspectives open and that regroupings of knowledge are imperative. All this lies very near the heart of the proposal to renew our degree structures. (‘Credit points’, 1974, p. 5)

Thus, here is evidence that in addition to concerns for standards inherited from their predecessors, UC’s leaders were now grappling with trends of enlargement (see S4), particularly that the range of recognised university subjects and disciplines was widening (Gould, 1988) and that to keep up with this UC’s faculty was becoming increasingly diverse in its knowledge and in its teaching and research interests.<sup>33</sup> The common language and related aspects of the New {1975} Degree Structure were intended to ameliorate problems stemming from the loss, brought about by the change to a larger, more expansive, less intimate campus, of personal interactions among academics across a steadily enlarging UC (see Gardner et al., 1973). By removing so-called rigidities in regulations built around the Unit System, the New {1975} Degree Structure improved mobility within UC among an increasingly large and less supplicant-like body of students. Each student would have more choice in the combination of courses and subjects he or she could study, including across faculties, and so breaking down artificial divisions between subjects that happened to be in different faculties, in particular making it easier for students to enrol on courses in new disciplines and subjects (Turbott, 1974).

In keeping with the last argument, the New {1975} Degree Structure eventually applied to all undergraduate courses and qualifications, except, as noted in S4, its application to engineering only occurred from 2000—this coincided with engineering students being permitted to choose courses outside the Faculty of Engineering, particularly in computer science (Personal communication from Dean of College of Engineering at UC, 2009)—and nor did it ever apply to postgraduate courses and qualifications.

The provisions of the New {1975} Degree Structure were for credit to take the form of NDSPoints, these replacing USUnits in how degrees and other qualifications were specified. As outlined in S4, extant one-USUnit courses were re-designated as 12-NDSPoint courses. The total NDSPoints requirement for a student studying a three-year bachelor degree, science and arts, was eventually set at 102, being a compromise between the sciences previous 8 USUnits x 12 NDSPoints and the arts 9 USUnits x 12 NDSPoints. Within this total, minimum or maximum numbers of NDSPoints were set for stage I, stage II and stage III. NDSPoints gained towards one UC qualification could be transferred more easily to another qualification, including retrospectively, which opened up many possibilities for students who were mid programme.

However, there was no attempt then or later to provide a common official definition of a point, other than to allude to the obvious but vague deduction that because previously a

USUnit was defined as one year's work in a subject, so 12 NDSPoints represented one year's work in a subject, with lesser numbers of NDSPoints representing proportions of same. NDSPoints were differentiated at each of stage I, stage II and stage III not only by academics in a subject being expected to exact a rise from their students in the level of intellectual power they exerted in proceeding from stage to stage but also by the official study time required to complete courses with the same NDSPoints value increasing from stage to stage. This official study time was signalled through how, on the one hand, the course weights of, say, all 6-NDSPoint courses at stage I were the same, and the same for all stage II courses and stage III courses, but, on the other hand, these course weights were higher as one went upwards through the stages (see UC, 2003).

Explaining how using a system based for the first time on points would be an improvement on the Unit System, the Vice-Chancellor Phillips, likened single USUnit courses to large stone blocks, perhaps reminiscent of the ancient stone apparent on the original campus, and NDSPoints to smaller, modern bricks. This was put into practice by academics being allowed and encouraged to divide the extant one-USUnit/12-NDSPoints courses into separate courses with typical values of 8, 6, 4 and 3 NDSPoints, resulting in the number of courses comprising a degree rising from 8 or 9 to upwards usually of 17. This dividing of large courses into smaller ones in order to increase student choice and multi-disciplinary study within qualifications, and to accommodate broadening staff interests and preferences, affected the number of courses staged at UC, and so accounts for some of the growth between the 1970s and 1990s indicated in Figure 7.

The New {1975} Degree Structure's points system, course coding and other numerical features combined with mechanical and then computerised systems provided greater administrative capacity in terms of student and course records. Given the growth that took place in the last three decades of the 20<sup>th</sup> century, this capacity was certainly needed (cf. Trow, 1973); indeed, it is arguable that without this administrative capacity, growth would have been stifled, particularly in knowledge combinations and qualifications, leading to students going elsewhere to study combinations that might not have been offered.

Regarding the social challenge, Phillips opined as follows:

Much water has flown under bridges both social and academic in the last half century. 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.

And 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.

The university will not and cannot stand aloof from these 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. ('Credit points', 1974, p. 5)

This opinion signals a desire to provide greater social and political leadership for NZ. This was something the universities had been criticised for not doing in the past (e.g., see Murdoch, 1943). Indeed, in some ways, the New {1975} Degree Structure represented more

than UC just departing from practices inherited from UNZ. It symbolised UC throwing off its previous character as an affiliated college of UNZ, with a provincial outlook and teaching responsibilities, and becoming a university in its own right with national responsibilities, including socio-economic responsiveness and research, and an international outlook, and increasingly separate from Auckland, Wellington and Otago (Gardner et al., 1973; Parton, 1979; UGC Review Committee, 1982). However, while many of UNZ practices were still in use at the other former affiliated colleges, changes were also afoot in each of these. Earlier in the 1970s, something similar to UC's new system was implemented in some programmes at the Victoria University of Wellington programmes and in the B.Sc. programme at the University of Auckland, and the University of Otago soon followed UC's lead in adopting a similar system.

However, UC and the other universities may not have been altogether successful in this regard because, in the late 1980s, they and the tertiary education sector in general were again accused of inadequacy in giving any sort of social and political leadership for NZ. This came from the political, official, business and academic proponents of Rogernomics, who in order to justify their encroachment into NZ universities used easy to come by evidence of capture by professorial oligarchies, poor responsiveness and accountability, and lack of relevance. The encroachment itself included abolition of UGC and, in its place, direct dealings between UC and a new Ministry of Education (replacing the Department of Education). It included the EFTS Funding System between the Ministry of Education and UC and the other universities, as well as the polytechnics and colleges of education. It included significant changes in annual reporting of financial and educational performance matters from universities to the Government, Parliament and Public of NZ (Coy et al., 1991).

I now revisit the coming about of the 360 Point Degrees System, including the form in which it was adopted in 2004, the common course size principle revision after 2009 and other issues since. Although in a national, or even international, sense, the New {1975} Degree Structure was novel in the 1970s, it was overtaken from the mid-1980s by the development of the points used in CATS and other aspects of that scheme, such as specifying and measuring learning in student-centred ways, including student study hours (see UC, 2008a, 2008b) and student-orientated learning outcomes. CATS originated in Scotland, spread to the other countries of the United Kingdom, albeit not altogether smoothly (Betts & Smith, 1998; Fernie, Pilcher & Smith, 2014; Gosling, 2001; Robertson, 1994; Trowler, 1998b; United Kingdom Credit Forum, 2010), and by 2005, it was widespread in the tertiary education system in NZ.

A major factor in UC introducing the 360 Point Degrees System in 2006 was the already widespread use in NZ of systems resembling it. This was voiced officially alongside the claim that "the generic nature of our degrees derives from flexibility of pathways" (UC, 2003, p. 7) and it being desirable to maintain and enhance these circumstances. By adopting the 360 Point Degrees System, UC was expected to be able at least to match its so-called competitors, that is other tertiary education organisations, in credit recognition and credit transfer matters, and in qualification and course information matters. The system would make it easier to answer the question of how equivalent these qualifications are to those of other institutions, both in NZ, because the National Qualifications Framework applies, and elsewhere.

However, the 360 Point Degrees System was not approved without a round of socio-political processes for reaching decisions and carrying them out. Some of the opposition that arose was similar to that faced by the New {1975} Degree Structure, much of it being about EFTSs and resource allocations as about curriculum and pedagogy. Changes to course sizes, whether expressed in points, course weights or whatever have knock-on effects on patterns of

enrolments among departments, or schools, and colleges, thus changing their EFTS counts, and so internal funding allocations;<sup>34</sup> indeed, it is possible that they affect the total of enrolments and EFTSs across the whole university, and so affect UC's revenue from NZ Government SAC grant and tuition fees.

As highlighted in S5, a compromise reached in the approval of the 360 Point Degrees System resulted in the values of undergraduate courses in UC's ever expanding catalogue of offerings ranged among 11, 14, 18, 22 and 28 points for the first several years. As some critics predicted in 2004, this range soon became a source of perplexity, adversely affecting marketing and academic administration. Thus, within four years, the issue of course sizes was revisited and renegotiated, and the common course size principle was implemented (UC, 2009). There is more than mere curiosity value in these changes; they illustrate some of the continuing diversity in thinking about points and the tensions connected with curricular accounting that surface intermittently at UC and beyond.

To understand the effects of decisions agreed in 2004, and attempts in 2009 to simplify the somewhat baffling array of points they resulted in, it helps to appreciate the logic and related reasoning behind the 2004 decision, which in turn relates back to the logic in the New {1975} Degree Structure. Table 2 comprises data representative of these two logics: the three rows all show data for undergraduate courses, labelled P, Q and R (Col. (a)). Under the New {1975} Degree Structure, each was a 6-NDSPoint course (Col. (b)) but as indicated in Col. (c) they are at different levels, or stages, and so were expected to require different proportions of a full year of work by a student. This was signalled by their differing course weights, with higher lever courses being weighted more heavily (Col. (d)), although who chose those shown, and precisely how is lost in the mists of the early 1990s and the introduction of the EFTS Funding System. Except that following on from the Unit System, and its requirement for a B.A. of six stage I courses, two stage II courses and one stage III course (see S4), followed by the dividing of 1-USUnit courses into two 6-NDSPoint courses, and the B.A. and B.Sc. both requiring the compromise of 17 such courses, or 102 NDSPoints, then the total of the course weights of the courses equals 3.000 (almost), given a combination of 11, and later 9, stage I courses, 4 and later 6, stage II courses and 2 stage III courses.

Table 2 New {1975} Degree Structure and 360 Point Degrees System Comparison

<i>Example Course</i> (a)	<i>Value under in NDSPoints</i> (b)	<i>Bachelor Degree Level</i> (c)	<i>Course Weight in EFTSs</i> (d)	<i>Implied Student Study Hours</i> (e)	<i>360 Point Degrees System Implied Value in Credit Points</i> (f)
Course P	6	100- or stage I	.1550	186	18.6
Course Q	6	200- or stage II	.1850	222	22.2
Course R	6	300- or stage III	.2550	306	30.6

Note: Cols (e) and (f) are calculated using the notion of 1 EFTS = 1,200 hours, and 10 hours = 1 point.

When course weights were carried across to fit the logic of the 360 Point Degrees System, and so translated into hours of student study, as per Col. (e) of Table 2, it meant that the three courses shown in the table could be sized at the credit point values shown in Col. (f). However, rather than the non-whole number points shown in the table, UC (2003, 2004) translated the courses at the different stages into 18, 22 and 28 points, respectively. This form of rounding ensured that the combination of eight 100-level courses ( $8 \times 18 = 144$ ), six 200-level courses ( $6 \times 22 = 132$ ) and three 300-level courses ( $3 \times 28 = 84$ ) added up to 360 points, because alongside a new system being agreed to, a change in the distribution of courses was agreed to, with more courses at the two higher levels and fewer at stage I or 100-level.

In S5, I wrote about the processes around reaching decisions on the 360 Point Degrees System and carrying them out. Approval of the system in 2004 seems to have included more than a pinch of unwitting acquiescence among many of the academics, administrators and students involved. Indeed, appreciating widespread shortcomings in the understanding among academics and administrators of the principles unpinning it—a particular misunderstanding was associated with points at one level differing from points at another not in hours but in the standards/qualities of cognitive and affective learning they are expected to learn during a study hour (cf. Winter, 1993, 1994)—its proponents went along with a similar, more simplistic and, perhaps for that reason, more telling logical flaw in order for the proposal to be approved by UC’s Academic Board. This was embodied in the precept that courses at higher levels should be allotted more points purely because they were more intellectually demanding than courses at lower levels, and not allowing for the, perhaps suspect, position that they required more study time (Personal communication from senior UC manager, 2008). In other words, some of those needing to be convinced were less than mindful of the values in Col. (e) of Table 2 and their supposed significance, or dubious of their veracity.

In considering proposals to bring about today’s mostly 15-point courses, which no matter what the level or discipline are now accorded the same course weight of .1250 EFTS, the rationale of differing intellectual demand just stated continued to be cited by some opponents. But the desire for simplicity of one-course-size-fits-all won out, and the principle of courses at higher undergraduate and, now, postgraduate levels requiring higher levels of attained learning, officially and rhetorically, was provided through other means, notably level descriptors and learning outcomes. That is at least on paper, because as outlined in S5, as far as academics are concerned, the vagueness attaching to points and study hours, levels and level descriptors, and learning outcomes and assessment continues, being manifested in widespread loose coupling, or even decoupling, between practices in courses and the formalities associated officially with each course and programme, let alone each qualification and its place on a qualifications framework (cf. Fernie et al., 2014; Gleeson, 2013).

## **7 Relationships Facilitated through or Colonised by Curricular Accounting**

Curricular accounting, in accordance with principles, policies and practices embodied in the 360 Point Degrees System, has helped to facilitate processes, interactions and similar that are external to UC, both nationally and internationally, and relations within UC. Much of what I am writing about has been alluded to already in various sections of the discussion, and so here, I provide a synthesis, dividing it into two parts. The first focuses on external relations UC has with the central authorities and overseas agencies of a similar nature and with other universities, and the second with relations among UC’s academics and administrators at the institutional, basic unit and individual levels depicted in Figure 1, and between these people and UC students, and even among these students.

### **7.1 External Relations**

The point was made in S4 that curricular accounting, in the form of the 360 Point Degrees System, has come of age, and is substantially different from its precursors, being fit for the contextual circumstances of the present. In this regard, two sets of external relations are of particular significance and worthy of further elaboration.

The first set of these relations concern such matters as regularising policy, quality assurance, accreditation and audit, and financial dealings. These relations are mostly national, being between UC, along with the other NZ universities and tertiary education organisations, and the central authorities level agencies listed on Figure 1, although these agencies in turn have some international relations. For example, they were party to NZ acceding to the Lisbon

Convention (Council of Europe, 1997), reaffirming and enhancing recognition in other signatory countries of NZ's qualification system and its registered qualifications, which includes those conferred by UC (see NZQA, 2018a; NZQA & European Commission 2016). Nationally, the agencies at the central authorities level provide policy advice on, and reports about, the tertiary education sector to the NZ Government. In addition, they share other functions that entail having relations with UC, etc. The agencies provide the public with quality assurance of qualifications, including by scrutinising new qualification proposals lodged by UC, etc. and by subsequent monitoring of those being awarded. They provide similar assurance of the institutions, including by performing academic audits. They fund university activities, primarily in the areas of teaching, learning and research. They evaluate universities financially to ensure that the NZ Government's so-called residual ownership interests are protected. They maintain the qualifications framework applying throughout NZ (i.e., Figure 2).

As explained in various parts of S3 to S6, several features of curricular accounting inform these processes or bring order to them. Indeed, one might even suppose that, as with other conventional forms of accounting, curricular accounting provides a systematic basis of control of UC at a distance by these agencies (cf. Vollmer, 2003). I illustrate the nature and extent of this by superimposing on Figure 3 the names of the five agencies at the central authorities level, as shown in Figure 9. I have placed their names adjacent to the sets of curricular accounting each has the closest interests in or most to do with, although that is not to say that each agency is uninterested in other items as well.

The second set of external relations concern the qualifications that UC confers being of a certain standard and quality, and successful study of courses towards incomplete qualifications, whether conferred by UC or recognised by UC for admission to, or as credit towards, a UC qualification. Employers and others interested in the qualifications a graduate has (e.g., clients) are the most obvious and numerous persons and organisations who would probably have relations with UC, etc. in this regard; these persons and organisations are located locally, nationally and, increasingly, internationally. However, the external parties most likely to be in most need of the detail that UC's curricular accounting offers, and who have shaped it and been influenced by it, are the other tertiary education organisations in NZ, especially the other universities, and equivalent institutions outside NZ, which, having historically been limited to Britain, the Anglosphere and continental Europe, are increasingly widely spread around the world, following the growth in foreign students and exchange study by UC students. Thus, the following focuses on these relations.

Curricular accounting facilitates student mobility among institutions through mutual qualification recognition and the possibility of transfers of credit from one institution to another. Having adopted a form of CATS by virtue of the 360 Point Degrees System, UC now uses a currency of points in widespread use in Britain and elsewhere. Moreover, as exchange rates or translation of qualifications, courses and learning specified in CATS have been devised with ECTS and the European Qualifications Framework (see Council of the European Union, 2017) on one side of the Atlantic, and with the Student Credit Hour System on its other side, students can more easily transfer study at UC transnationally, and conversely, study that students completed elsewhere is more easily transferable to UC. These transfers are for purposes not only for recognition of qualifications that serve as entry requirements for higher degrees (e.g., in gaining entry to PhD study based on a master degree) but also as courses, and so credit, that can count towards graduating with UC qualifications. Making credit transfer easier within and among jurisdictions increases possibilities of qualification completion, and conversely reduces the rate of non-completion. It also increases access to higher degrees for holders of bachelor degrees.

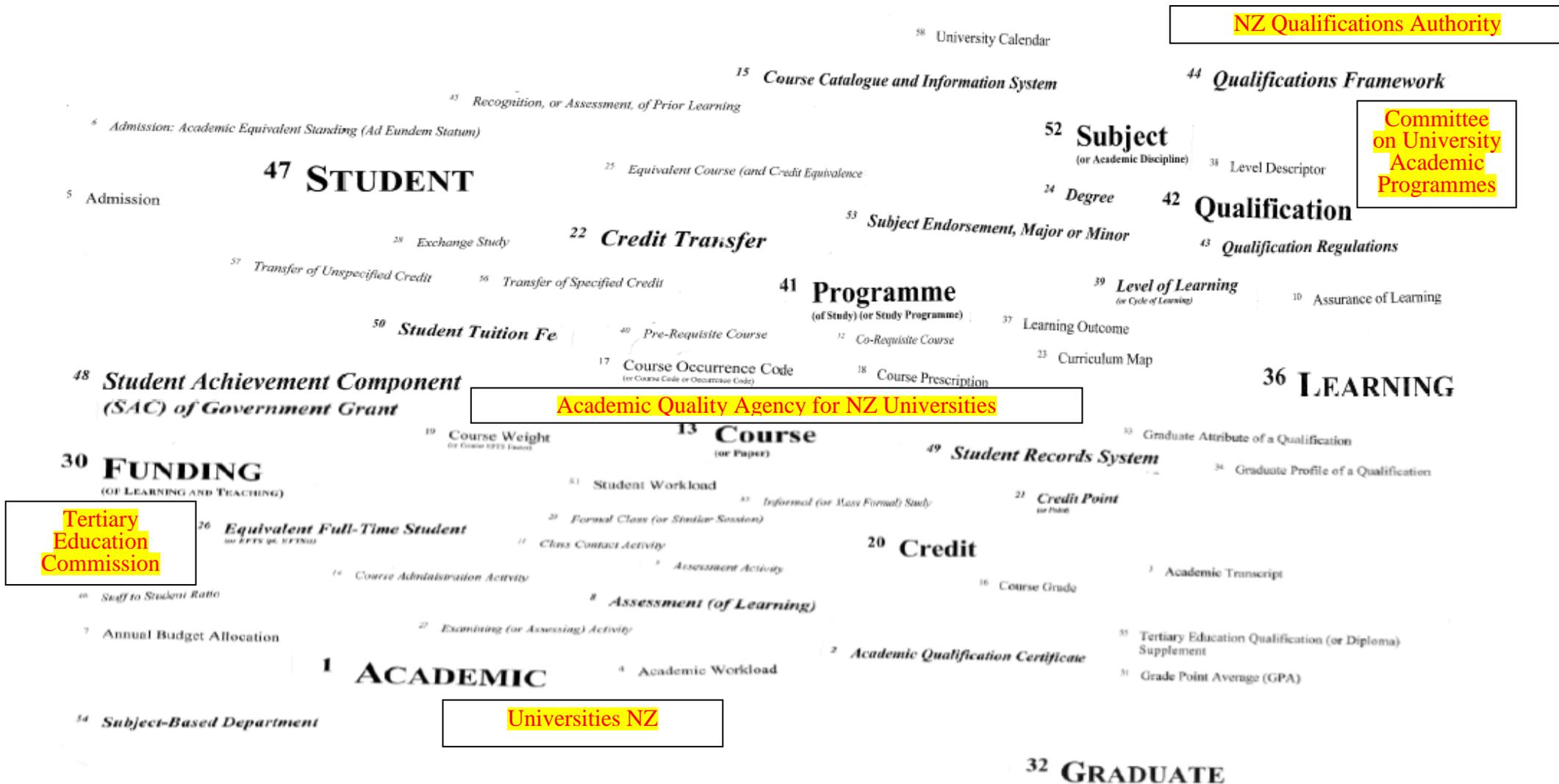


Figure 9 NZ external agencies and the steering, patrolling and controlling that curricular accounting affords them at a distance

The practice of transfer of credit and, with it, equivalence of learning dates back to the 1880s in NZ. However, what they now involve academically and administratively has changed in nature and grown out of all proportion to even the recent past—this is so outside NZ too, as can be inferred by reading Toyne (1979) and issues he felt were pertinent then. This growth has been in terms of both the volume of applications and of the pieces of credit applied for, by course, subject, institution and country. Concomitantly, many more past UC students, graduates or otherwise, apply for credit elsewhere, with a consequent increased administrative burden falling on UC to provide other institutions with details of courses and qualifications. Although some of this transformation paralleled the growth in student numbers and qualifications shown in Figures 4 and 5 and the dissolution of UNZ, and so UC being separate from other NZ institutions, the major factor having come into play since the 1990s is the aforementioned national and international mobility of students, only a minority portion of which is through formal exchange study (cf. Junor & Usher, 2008; Robertson, 1994). Indeed, egged on by successive NZ Government administrations (e.g., see NZ Government, 2018), UC has followed other NZ universities in actively recruiting foreign students (see UC, 2013), motivated both by a desire to internationalise and because of the additional potential fees revenue (cf. Shore & Taitz, 2012).

Regarding the history of international transfers, for several decades from the 1870s transfers inwards were limited to complete qualifications from 14 specified universities located mainly in Britain but also in the other Colonies that became Dominions, with a few universities in these same places, the USA and on continental Europe gradually added. These additions were made according to precedents set following the UNZ Senate's detailed consideration of particular applications and, if necessary, due inquiries being made of the standing of an institution. As for the applicants, their motive for obtaining a UNZ degree was that these made it easier for an immigrant to the Colony (or Dominion) to be accepted into teaching and another learned professions. Soon, situations arose where applicants wanted to study for a UNZ higher degree and so sought recognition that their degrees were at least equivalent to UNZ degrees in order to gain admission to a university college based on *ad eundem statum*.

By the 1920s, credit for incomplete qualifications and individual courses emerged as a matter for consideration. These applications continued to be considered by the UNZ Senate, and then its Academic Committee, as part of their broader agenda. However, by the 1950s, the number of both types of applications warranted the process being delegated to a standing committee set up solely for dealing with applications. This committee was no longer needed once UNZ handed on its powers to confer degrees to UC and the other universities, which then not only took over the function of overseas credit recognition and transfer but also assumed the new function of credit recognition and transfer among NZ universities and, later, other types of public and private tertiary education organisations in NZ.

Table 3 is an attempt to gauge the increase in the volume of credit transfers during the UNZ and then UC eras. The data are from various sources, including “Minutes of Proceedings of the Senate and Board of the University” (1871–) and reports to UC Academic Board. That the data vary in nature reflects the pattern of changes to who sought credit transfer and why. Thus, the data are not strictly consistent in what they measure but they are reflective of the growth that occurred and illustrate the total transformation of the significance of this area of academic administration and forms of curricula accounting.

Table 3 Numbers of Applications for Transfer of Credit towards UNZ or UC Qualifications

<i>Year</i>	<i>Nature of data</i>	<i>Incomplete tertiary qualifications</i>	<i>Entire tertiary qualifications</i>	<i>Matriculation (or university admission) from Secondary</i>
1888	UNZ, all NZ colleges, all applications	0	3	0
1908		0	3	0
1928		1	11	0
1948		28	10	55
1958	UNZ, all NZ colleges, only successful applications	30	15	108
1968–1998	UC, only UC, all applications	No data retrieved		
2008	UC, only UC, all applications	1,383	464	
2015	UC, only UC, all applications	4,454	685	

The data in Table 3 up to 1958 are purely international transfers. Regarding transfers of credit within NZ, in contrast to the present, the situation under UNZ was that students studying a particular UNZ meta-qualification (i.e., B.A., B.Sc., B.Com., etc.) were permitted to transfer from one affiliated college to another, say from Auckland University College to Canterbury, or vice-versa, without the need to apply for transfers of credit. Once at Canterbury, they could continue their studies, having passed the same national UNZ external examinations at Auckland as they would have taken at Canterbury. Although present-day means of expressing norms, such as learning outcomes, were not yet in use, the use of the same examination paper established *de facto* norms for what was taught or learnt, how it was taught and learnt, and even the textbooks and some of the other materials used.

Meanwhile, and in contrast, students wanting to transfer credit between one UNZ meta-qualification and another (e.g., a B.A. to a B.Com., etc.), even without leaving the University College, could do so only under regulations laid down by the UNZ Senate, whereas as alluded to above this became a far more routine matter under the New {1975} Degree Structure and is even easier now. These transfers still make up the majority of recent transfers, having risen in part because of the growth in the numbers of foreign students not only at UC but also throughout NZ in the past 25 years, notably during the mid-2000s and again in the past few years, because of universities' *internationalisation* strategies.

As applies to relations between more conventional forms of accounting and their environments, curricular accounting has both reflected some of the many other trends in universities and education in Canterbury, NZ and further afield, and helped constitute their furtherance. Thus, on the one hand, curricular accounting's development has enhanced what is possible in the areas of possible contents of students' study programmes and qualifications that institutions can confer and employers, etc. will recognise, and of student mobility between programmes and institutions. On the other hand, one of the main drivers of curricular accounting's development at UC and around NZ is having to cope with growth and complexity of student transfers. This includes the development by NZQA of the qualifications framework (see the 2016 version in Figure 2), and the often tortuous process of university qualifications being incorporated into that framework

(Hall, 1994). The framework now incorporates a register of all officially recognised qualifications available in NZ (NZQA, 2018b). This register has existed for some time, having been referred to previously the NZ Register of Quality Assured Qualifications and Kiwiquals (e.g., NZQA, 2009), and has been associated as much with employment and immigration as with the administration and regulation of tertiary education.

There are various issues relating to the efficacy of curricular accounting in matters of credit recognition and transfer. A particularly important one is that while the widespread adoption in various jurisdictions of international forms of such accounting has made some aspects easier, the validity of the notion that points earned in each and every jurisdiction are of the same quality. For example, how do 30 CATS points at 300-level in a particular subject or attaching to particular learning outcomes from the University of Durham (England) compare with 30 points at 300-level similarly specified from Canterbury Christ Church University (England), and are both the equivalent of two 15-point 300-level courses with similar specifications at UC?

Questions like this go beyond the matter of equivalence to the matter of standards. The use of levels, points, learning outcomes and other features in ways that, on the surface at least, correspond to how other institutions (e.g., those whose qualifications appear on the NZ Register of Quality Assured Qualifications, those using CATS) use them has made it easier to compare standards and to test the equivalence of qualifications. However, heed still has to be taken of a warning that Bekhradnia (2004) raises in an international context: the increasing focus of mainstream CATS developments on the quest to define meaningful and commonly acceptable 'outcomes' for each course and module is, along with other bureaucratic structures, risking undermining the whole enterprise of learning recognition among institutions; and it may be deter academics from using learning outcomes as such in their teaching processes for fear of interference from institutional managers (Havnes & Prøitz, 2016).

Study of 30 points at 300-level at some institutions is going to be more equal than study of 30 points at 300-level at other institutions for the various reasons that distinguish some tertiary institutions, disciplines and academics from others. Besides, given the increased importance accorded to international university league tables and guides of where to study over the past two decades (e.g., see Quacquarelli Symonds, 2018; Times Higher Education, 2018) one might doubt just how equivalent points are across departments, subjects, institutions, countries or whatever. However, what may matter most is whether the students are comparable who hold points and qualifications that are officially similar but are probably different.

## **7.2 Internal Relations**

Reinforcing things said in earlier sections, the 360 Point Degrees System continues and enhances the purposes of its precursors of facilitating the regulating and conferring of qualifications, staging courses and programmes of study, designing and controlling learning and teaching, providing order and control among students and academics, etc. The practices of curricular accounting to effect these purposes give rise to various issues.

Although some academics may find it complicates the designing and specifying of proposals for new qualifications and courses (e.g., by requiring information about student activity hours, learning outcomes, links between hours, outcomes and assessments), the 360 Point Degrees System may make it easier to steer proposals through the consideration and approval processes within UC and vis-à-vis CUAP, and so expand the catalogue. This has enabled easier response to student demand for new courses, subjects and qualifications. It has also made it easier to handle

enrolments, maintain student records and confer qualifications, and much in between. Further growth in enrolments has been accommodated and stimulated, coming from an increasingly wide body of students, taking an ever-increasing range of courses from more and more subjects, within an ever-increasing range of qualifications.

However, as Trowler (1998b) analyses elsewhere, at UC and other places of the researcher's experience, it is not uncommon for forms in support of proposals like those mentioned above to include content whose main intention is merely to complete the form, such as by words or numbers being entered in spaces next to questions so as not to leave the space blank and so deflect the attention that an unanswered question would attract. Whatever, in practice, some portions of the information provided in proposals are of better quality, and seem to be taken more seriously, than other portions do. Although some of these shortcomings may be attributed to lack of knowledge and skills, at least as significant are the many ambiguities and difficulties that arise for academics in trying to compose level descriptors and learning outcomes, along with their non-acceptance, even resistance, of managerialist ideas of education, knowledge and learning that academics perceive as underpinning proposal document templates (see also Greatorex, 2003; Havnes & Prøitz, 2016; Trowler, 2001).

An example reflecting what I relate in S5 is that even now academics are reluctant, individually and collectively, to recognise, acknowledge or contemplate the notion of being able to quantify hours of learning undertaken by a student on their courses, or indeed to design courses in ways that make a serious attempt at the now standard 15-point course involving 150 total learning hours by the student who successfully completes the course. Thus, this standard is heard quite frequently in the discourse among administrators, manager-academics and, even, academics, particularly those who at least feign to accept the truth of the system, and it occurs in some official documents (e.g., see UC, 2008b, 2018c). However, the standard is less than prominent in the Calendar (UC, 2016) and the UC Policy Library (UC, 2018d), the contents of which must pass through various academic committees before they are issued but where it might not enjoy a smooth passage.

What I have just said ties up with the widespread loose coupling, or even decoupling, between course practices and course formalities mentioned at the end of S6 and elsewhere. Opportunities to reassess the state of this coupling are ad hoc, sporadic in coverage, incidental and only occasional. For example, opportunities seemingly occur when proposed courses and qualifications go through approval stages, although it is not uncommon for compliance with the abovementioned demands of paperwork to be a greater consideration than intention to implement what is written in proposal documents. Opportunities may also occur when academics meet to consider course results but only if there is a problem in the statistical distribution of student results for a course or set of courses, and even then the discussion of learning hours and learning outcomes is likely to be, at most, incidental. Opportunities can occur when courses are included in data gathering for assurance of learning evaluations, although at present, rather than being about policing standards or formatively evaluating the curriculum, this process is done primarily to comply with requirements of being accredited by the Association to Advance Collegiate Schools of Business (also known as AACSB International) and covers business school courses mostly. Opportunities may also occur during visits by accreditation review panels and other events and processes connected with academic audits and accreditation but again only incidentally to the many other, probably more important, things that come into these processes.

A more specific and perhaps directly relevant period when this coupling might have been considered among courses, and sets of courses, was while the common course size principle was being considered and implemented. However, time restrictions and expediency resulted in courses being converted to 15 points and multiples thereof somewhat perfunctorily. Extant courses of 11, 14 and 18 points were re-designated en bloc as 15 points; extant courses of 28 points were re-designated as 30 points, with the further option or expectation that they would be divided into two 15-point courses; and the choice to re-designate extant courses of 22 points to 15 points, or 30 points, or two courses of 15 points was left to the academics coordinating them. None of the re-designated courses, including those of 22 points that lost 7 points or gained 8 points, were treated as if they were new courses, and so did not go through the new course approval process. Beyond that, to carry out the changes these point increases or decreases might have entailed, the academics coordinating them were left to their own devices. Thus, any opportunities these changes might have presented for tightening the coupling were not capitalised on.

On the other hand, there does not seem to be sufficient belief in points, student learning hours, learning outcomes, level descriptors and other curricular accounting items for anyone to want to push for tighter coupling than already exists for fear of precipitating unrest among academics, students and administrators. Nevertheless, curricular accounting, as epitomised in the 360 Point Degrees System, and before that in the less sophisticated New {1975} Degree Structure, caused or possibilitated changes to processes, interactions and similar aspects of internal relations among the types of people just enumerated, including some changes that were consequent on changed external relations, particularly as are detailed above.

Such changes to all these relations occurring is consistent with Becher and Kogan (1980, 1992), whence Figure 1 derives, or any of the other political control theories alluded to earlier, because, make no mistake, each change in practices from the 1873-1925 Arrangements to the Unit System, then to the New {1975} Degree Structure and now to the 360 Point Degrees System, and various embellishments done without replacing a system (e.g., adopting the common course size principle) shifted what Becher and Kogan call *norms* or *normative values*, both external and internal (or extrinsic and intrinsic). Indeed, not only that but also the curricular accounting systems themselves have embodied values of their advocates; for example, see the value-laden quotes from Vice-Chancellor Phillips reproduced from 'Credit points' (1974) in S6 and the way the senior management team framed its opinions in UC (2008a) around "clear leadership" and "the long-term academic and financial interests of the university". The changes in question are also consistent with what Becher and Kogan call *external pressures* being modified, and mollified, in direction and intensity. What follows is restricted to only a few examples, chosen because they were controversial, and so were accompanied by criticisms.

The implementation of curricular accounting and its subsequent embellishment are paralleled by criticisms of diminishing learning to the status of an economic product, output or commodity. Considering the trend since the 1873-1925 Arrangements through to the 360 Point Degrees System, it does seem one of education, knowledge and learning portrayed increasingly as atomistic, mechanistic and explicit in character, and so capable of commodification (Trowler, 2010). Evidence in support of this criticism may be obtained through comparing the information about each course in UC's Course Information System (i.e., the course name, code, points, prescription, description and learning outcomes, the UC graduate attributes with which the

course is aligned, and the course domestic and international prices) with the listing for a product in the retail sales catalogue typical of many businesses.

Started during the debate about adopting the New {1975} Degree Structure in the 1970s, these kinds of criticisms go to the very flexibility that those who championed that system and the 360 Point Degrees System hold dear, a flexibility afforded by their use of points to specify the requirements of qualifications and one intended to help new subjects to flourish and open up greater possibilities for choice among students. Some of the critics might be regarded as “traditional academics” for regarding any new subject, introduced in the 1960s or since, with a mix of suspicion and disdain, as well as for regarding students still as supplicants. However, a wider group of critics has also had concerns about the ability of students to make informed choices, in response to which and other misgivings in the 1970s, 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” and to prevent “a kind of ‘supermarket’ shopping for imagined ‘soft options’” (‘Credit points’, 1974, p. 25).

While countered by new thinking in the 1990s associated with public sector reform and greater acceptance and understanding of markets, this counselling has continued since, with a raft of advisors at basic unit and institutional levels specialising in dealing with domestic and foreign students; this is in addition to what academics offer in this regard more tacitly. The other thing to continue is the growth in choices students face and must make about courses and qualifications.

A related change to have arisen is for courses to acquire precise and more transparent financial values than previously. This followed the introduction in 1991 of the EFTS Funding System, which as indicated in S 6 was introduced in parallel with the UGC being abolished. Between the 1960s and 1980s, EFTSs were a prominent feature of determining the quinquennial block grants that it distributed to each university. However, the UGC’s funding decisions were somewhat covert. This was at odds with NZ Government policies after the mid-1980s that demanded *transparency* and *accountability* in the use of public money and market mechanisms in the allocation of resources from funders (or *service purchasers*) and institutions (or *service providers*).<sup>35</sup> In contrast, the new funding system was much more overt, including in a course’s value in revenue terms to an institution being calculated using the funding formula of the number of students enrolled on the course multiplied by the sum of the grant and fees generated by one student enrolling on that course.

A further aspect to this has been that by virtue of courses being coded to specific disciplines, university revenues can be attributed more convincingly to colleges, schools, departments and even academics. This made it easier for academics and administrators at basic unit levels to challenge the institutional level about their resource attraction and resource allocation activities, not that the academic, subject-based departments had been slow previously to use EFTSs data in arguing for resources (cf. Coy & Pratt, 1998). The particulars of the system reinforced criticisms of learning being commodified, a view added to because the system was associated with Rogernomics, Structural Adjustment and New Public Management, and because the practice of student tuition fees being set by UC for each and every course was legislated for and implemented alongside it (Coy et al., 1991; Kelsey, 1997; Pallot, 1998; Patterson, 1996; Tahar & Boutellier, 2013).

That enrolments on courses have a direct bearing on university revenues was reinforced by continuation of EFTS-based funding in a slightly revised form as SAC and now administered by

the TEC rather than the Ministry of Education directly. Furthermore, the 360 Point Degrees System has made the connections more overt among enrolments on courses, points and funding from this source and from domestic student tuition fees, not to mention the even more lucrative level of funding from fees paid by foreign students. These connections are not lost on academics, manager-academics and administrators involved in negotiations over the allocation of resources across UC or in activities associated with strategic planning, operations management, and student recruitment and retention. However, they do give rise to a list of concerns about the behaviours they might be incenting at the academic, basic unit and institution levels, and between these levels. This list includes student recruitment methods, packing students into large 100-level and, perhaps, 200-level courses taught by new junior staff and casual staff (including postgraduate students),<sup>36</sup> student grade determinations, student retention practises, course assessment, qualification conferment, qualification regulations and qualification standards (cf. Richmond, 2018; Yap et al., 2014). Of further concern is how the incentives and behaviours just alluded to are driven by UC having to compete for student enrolments with the other NZ universities and larger polytechnics, rather than cooperate with them in pursuit of common purposes and societal, macroeconomic and similar objectives.

It may seem curious that I seem to be suggesting that an accounting I earlier associated with maintaining, or sometimes raising, standards is a possible source of concerns about lowering standards. However, such is the nature of this accounting as any other, what matters is how curricular accounting is applied and practised, and by who and for what ends. Thus, as well as being a source of functional order and operational control and a mediation process at UC, curricular accounting is a source of legitimation, both in terms of UC's qualifications being recognised, and so study there being seen as esteemed and valuable, and in terms of attracting resources and students.

As alluded to above, the visible presence of curricular accounting is no guarantee of it functioning in the ways that safeguard standards; that is, to use ideas already discussed, it is possible that curricular accounting as a coherent system is decoupled or loosely coupled, rather than tightly coupled (cf. Godemann, Bebbington, Herzig & Moon, 2014). Indeed, such coherence is unlikely for at least two sorts of reasons, that is, of the need to know variety and the credibility variety. While the activities in different basic units and institutional level units of many academics and administrators are touched by at least a few of the various items comprising curricular accounting, the activities do not need any of these people to recognise, let alone understand, the items as a coherent system; for as long as they play along with the system's needs in performing their activities, their behaviours will not attract unwanted attention. Besides, with responsibility for said items being distributed around UC, no one in particular is in charge of ensuring that the entire system is coherent or is performing coherently. Whether this article appeals to the people just referred to by having something to offer in improving understanding of curricular accounting as a system is a moot question, if such understanding is neither necessary nor desirable.

A related issue is whether curricular accounting and its component items variously facilitate curriculum changes and reduce their risk, or, conversely, deter and prevent changes by constraining the discretion academics can exercise. This issue is tied to whether courses and study programmes have become separated from the academics teaching and examining them.

In the days of the College, things were so small that academics and their individual courses were inseparable. However, even then, things associated with UNZ were expanding: that is, there were

more affiliated colleges and more stagings, in different places, of courses with the same name, prescription, textbook, examination paper, etc. Thus, the activities constituting courses were less dependent on the particular academics staging them, this being one of the pressures to reduce UNZ's influence because, among other things, it made curriculum change difficult. By the 1940s, the situation was swinging back the other way.

Certainly after UNZ was dissolved and UC inaugurated, and perhaps for at least the decade before, many courses were inseparable from the academic(s) teaching them; if the academic(s) changed, the course code, title and prescription and other formalities might not change but the course as an educational experience (e.g., lecture content, textbooks and teaching materials, assessment instruments and questions/tasks, grading practices) would very likely do so.

As curricular accounting has come more to the fore, so things swung the other way yet again. The formalities of each course extended to include points and learning outcomes, and the places of individual courses in programmes became more overt. More recently, additional pressure has arisen through application to programmes of such items as graduate profiles, graduate attributes, curriculum maps and assurance of learning. Applying these items has gradually reduced the discretion afforded to academics to change their courses. The development of a graduate profile in the past decade is a case in point. This was devised first for the B.Com.<sup>37</sup> and then across all UC undergraduate qualifications. The profile comprises a series of five graduate attributes and most of UC's many undergraduates courses are linked to at least one of these, and sometimes more than one, at least in their official publicity (e.g., see UC, 2019). By then attaching some detailed learning outcomes on a course to each attribute, and compiling courses, their attributes and these learning outcomes by programme, administrators in some parts of UC claim to be charting their programme and providing curriculum maps.

Although the loose-coupling attaching to profiles, attributes, outcomes and maps has far from removed any individual academic discretion, courses have, even so, taken on more separate existences from the academics teaching them in the past decade or so. This developing situation has been reinforced by courses having individual financial values to departments, colleges and institutions. A further factor is of new academics, taking over a course from someone else, usually having higher priorities and calls on their time than the efforts and time that might be needed to make appreciable changes. Of course, it is a moot question as to whether having discretion and exercising it is a mark of quality, or a risk to quality: change may not mean improvement.

The matter of a course becoming a product in its own right and separate from the academic(s) designing and staging goes beyond product specification and commodification, and into ownership. If an academic leaves UC, is s/he obliged to leave a course, resources and all, with UC? If an academic joins UC, should s/he be permitted to bring with him/her a course designed and staged at a previous institution? For academics, these questions pose real challenges, especially when coupled with matters academic choice, being able to exercise academic expertise and academic freedom, not to mention intellectual property ownership. They also have implications for quality and standards. Having a great deal of discretion, and being permitted to exercise it responsibly and with reasonable time and other resources, should enable each academic and academic group to do things that see courses, programmes and students/graduates improve, including by incorporating recent research into courses.

However, this is no panacea, as the evidence mentioned in S6 about professorial capture, poor responsiveness and accountability, and insufficient relevance had been used to show. But it is arguable that the pendulum of authority mentioned in S5 has swung too far the other way, towards managers and bureaucrats (see Altbach et al., 2009), perhaps resurrecting problems that occurred during the UNZ era, when, as mentioned in S6, its structures were described as cumbersome, paralysing, stifling and outmoded. The ultimate response then was to dissolve UNZ and entrust its curriculum oversight roles in a smarter form to what is now CUAP. Should an equivalent swing back occur, it will be interesting to see whether the baby of curricular accounting is tossed out with the bathwater of managerialist bureaucracy.

Students are referred to liberally throughout this article already. However, a few things can be said to reinforce earlier points. Reflecting issues their advocates raised during consideration of the New {1975} Degree Structure and the 360 Point Degrees System, they include matters affecting student workloads, including the number of courses in a degree or other qualification, the volume of materials in courses and the amount of assessment in courses and in qualifications.

Typical of concerns about courses, the student advocates questioned the likely sizes of the individual courses enabled by the new systems compared with courses in the old systems they replaced. For example, four courses of 3 NDSPoints and two of 6 NDSPoints in the New {1975} Degree Structure were supposed to replace one USUnit course in the Unit System; and courses of 18, 22 or 28 points in the 360 Point Degrees System were supposed to replace courses of 6 NDSPoints in the New {1975} Degree Structure. The advocates were suspicious of lecturers including in the new smaller courses excess of materials and assessments drawn from the old bigger courses they replaced; indeed, students were encouraged “to watch the staff, and administration, very carefully” (Bishop, 1973, p. 4). Correspondingly, they had concerns for study programmes leading to qualifications, reflecting that smaller courses meant each qualification would be comprised of more courses than previously; the advocates questioned whether, when aggregated, more courses would mean qualifications would require greater numbers of assessments to be passed and larger quantities of materials to be studied.

Although evaluating these issues is not straightforward, the general trend since the 1970s has been for more courses to be required for students to successfully attain bachelor degrees, whether of three years or, for example in engineering, four years, and virtually all the other undergraduate and postgraduate qualifications. The most obvious example of this occurring has been the recent adoption of the common course size principle. This change has meant most three-year bachelor degrees now require 24 courses, compared with 8 or 9 in the Unit System, 17 in the New {1975} Degree Structure and 18 or 19 under the initial version of the 360 Point Degrees System. Notwithstanding the old one-USUnit courses usually entailing two or even three final examination paper, these progressive increases in courses have undoubtedly led to progressive increases in numbers of final examinations having to be completed to attain a qualification, as well as more assessments of other kinds.

Most 15-point courses have a major piece of assessment about mid-semester, which often takes the form of a test, and a major end-of-course assessment, usually a final examination, and many have a third or even fourth minor item of assessment (e.g., quizzes, tutorial participation, reflective journal). Both the test and final examination are usually in the traditional format mentioned in S4 about UNZ’s common final examinations, but set by the academics staging the course, rather than having any involvement of external examiners. Indeed, as matters of assessment are mostly decided independently by academics running each course, these overall

increases in assessments within a qualification may be inadvertent or unintentional. However, even though the volume of assessments are reasonably easy to ascertain, there is a reluctance either among academics or between academics and managers to address any perceived problems of *over-assessment* because of controversies this would be likely to cause (cf. Scott, 2015).

Besides, some of the increase in the number of assessments may have happened for other reasons. Although not new (see Gibbs & Simpson, 2005), a prime cause stems from a perception among academics that increasingly students are motivated primarily by obtaining marks from summative assessments counting in the calculation of their final grade. Increasing the number and frequency of assessments on a course is seen as a way to compete for students' attention to the course, compared with the attention they give to their other courses, not to mention other activities and distractions making up their seemingly increasingly busy lives. However, such behaviour by one academic is frequently responded to in kind by academics running other courses, with the net result that the aggregate amount of assessment across all courses in a programme increases.

Further adding to the mix are deliberate policy choices intended to raise the standard of qualifications at UNZ and then UC. As related in S4, such choices were made in relation to the B.A during the time of the 1873-1925 Arrangements; that is more subjects were required and then courses at the advanced level of a subject became the norm. Similar has occurred subsequently, in moving to or during the currency of the Unit System, the New {1975} Degree Structure and the 360 Point Degrees System. These were expressed in the units and course levels of the day. In Table 4, I have presented the main provisions of the B.A. or B.Sc., with conversions into present day points. The latter are based on possibly questionable assumptions about 360 of today's points being a constant since the 1920s, whereas I suspect that there has been an overall trend of more time being demanded of students as the years have passed. Whatever, the data in the table indicate higher intellectual demand being required of students over time, inferring today's degrees being of a higher standard than previous periods. However, many might question that, pointing to the greater proportion of the population being admitted to UC and equivalent universities, and not all of it because of desirable social changes, including admitting a diverse range of people according to their social class, religion, gender, ethnicity, race, skin colour and nationality.

According to UC (2003), the policy change that came in with the 360 Point Degrees Structure (see Cols. (i) and (j) in Table 4) was influenced by a policy adopted by NZQA in relation to NZ bachelor degrees generally. This was for a minimum of 20% of the study for this level of degrees having to be at stage III, or 300-level, or at Level 7 of the present NZ Qualifications Framework (see Figure 1); NZQA (2016) contains an updated version of this policy. UC (2003) acknowledged that 84 points exceeded this 20% minimum (i.e., 72 out of 360 points) and justified it on grounds of being committed to high quality degrees. In these changes, the proportion of stage II points has also been increased compared to stage I points. However, seemingly null and void by now are earlier arguments against increases in requirements of higher stage study because it lessens the breadth of degrees and so their liberality (see UC, 2004). In similar vein, in adopting the common course size principle, a choice had to be made between 75 or 90 points at stage III, and UC chose the higher. Not altogether by chance, this brought UC bachelor degrees in line with equivalent three-year degrees in England, commonly called bachelor degrees with honours<sup>38</sup> (see Quality Assurance Agency for Higher Education, 2008), so affirming, if not increasing, how these UC degrees are seen in terms of international equivalence.

Table 4 Distribution of Study for a Bachelor Degree among Stages or Levels under each System since the 1930s

<i>Level of Course</i>	<i>Unit System</i>		<i>New Degree Structure (1970s–1980s)</i>		<i>New Degree Structure (1990s–)</i>		<i>360 Point Degrees Structure (2000s)</i>		<i>360 Point Degrees Structure (2010s)</i>	
	<i>Units</i>	<i>Present Points Value</i>	<i>6-NDSPoint Courses</i>	<i>Present Points Value</i>	<i>6-NDSPoint Courses</i>	<i>Present Points Value</i>	<i>2006 Courses</i>	<i>Present Points Value</i>	<i>Present Courses</i>	<i>Present Points Value</i>
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
(Pass) Stage I, 100-	6	240	11	207	9	166	8	144	9	135
(Advanced) Stage II, 200-	2	80	4	91	6	132	6	135	9	135
(Advanced) Stage III, 300-	1	40	2	62	2	62	3	84	6	90
<b>Total</b>	<b>9</b>	<b>360</b>	<b>17</b>	<b>360</b>	<b>17</b>	<b>360</b>	<b>17</b>	<b>360</b>	<b>24</b>	<b>360</b>

Various matters pertaining to student course and programme choices and fees are related in previous sections. From one generation to the next, alongside, and often through, curricular accounting's development, students' courses and qualifications choices have widened and their mobility opportunities have increased. On paper at least, all students have been paying fees for some time, albeit that most NZ students have not actually handed any money over and, except those whose parents' incomes are below a certain level, will leave tertiary education with loans to discharge once they join the workforce and earn taxable income.

The aligning of course weights and points accompanying the implementation of the 360 Point Degrees System strengthened and clarified the relationship between the rate at which students accumulate credit towards a qualification and the amount they are charged in tuition fees. The situation became even more straightforward with the adoption of the common course size principle, which means that tuition fees each year only vary if a student varies from the eight courses per year norm, otherwise they change if, as is usually the case, fee rates are increased according to inflation. However, this paying of fees for courses, and so for points, may be encouraging a view among students of a sense of entitlement to qualifications, as if these charges are the same as for other commodities they purchase through market transactions, especially among students paying full, or international. Indeed, when combined with the availability of choices, this state of affairs fits the rhetoric of the reforms inside tertiary education, and to the NZ economy, of students as customers in education qualification markets, who can select particular combinations of courses covering the knowledge and skills they want, and purchase these personalised programmes of study. It also resembles concerns cited above about the New {1975} Degree Structure possibilitating circumstances analogous to supermarket shopping.

Correspondingly, when, perhaps rather than if, they complete their programme successfully, they are presented with qualifications, which still bear general names in many cases (e.g., B.A., M.A., B.Sc., M.Sc., B.Com., M.Com.), although so-called named degrees or named qualifications are steadily increasing, accounting for much of the recent incline in Figure 6. These named degrees are seen as more precise as to the knowledge they contain or what they are meant for in terms of employment, among other things. This then fits with the labour market, in which another group of people, mainly comprised of the people representing employers, are seeking to purchase the services of graduates with particular knowledge, skills and other characteristics (cf. Berkhout & Wielemans, 2001). Alternatively, if the combination of courses a student chooses does not fit a UC qualification package, or their studies at UC are interrupted and they wish to continue them elsewhere, they can take the credit and be confident that they will be able to count it towards a qualification available at another institution, particularly in NZ but elsewhere too.

## **8 Curricular Accounting as a Form of Accounting**

As they sometimes encounter, or feel affected by, the practices it covers, the research reported in this article has attracted interest from some academic colleagues. However, many, particularly from the accounting discipline, have questioned whether it is accounting research and should be reported in the accounting literature. One went as far as to say, "The use of the term curricular accounting as the link with accounting appears spurious at best."

My response to this doubt and criticism is first to acknowledge that use of "accounting" by Theodossin (1986) may have only been allegorical, or at most meant to convey some simile with "bookkeeping" in a mundane, recording sense. However, criticisms by Raban (1990) and Trowler (1998b) of Theodossin (mis)understating various significances of CATS led me, first, to

reflect on the question “What is accounting?” and on associations between the answer and curricular accounting; and, second, to find other accountings resembling curricular accounting.

On the first, matters of scope, process and consequence of accounting are surely now more contested than is implied by narrow, conventional definitions (e.g. see the definition in S1.1 attributed to American Accounting Association et al. (1966)) that convey accounting as being restricted to recording, analysing and reporting financial transactions of businesses (or even nonbusinesses); or, going a little broader, as system-generated information (see Davis, Menon & Morgan, 1982), with potential for such purposes as communication and discussion in carrying out planning, control and evaluation, including of organisations, even universities (e.g., see Pettersen & Solstad, 2007). Thus, in Miller’s work, including with others (e.g., Miller, 2001; Miller & Napier, 1993) and work such as Neu (2000) on postcolonial views of colonial times, accounting is seen as enabling knowledge to be conveyed over great distances, plays distributive and ideological roles, and shapes social and economic relations, politically and culturally. People involved in interactions from which accounting usages arise, or which these usages cause, derive various meanings from these interactions, ones not limited to rationality as portrayed in neo-classical economic rhetoric. In a different field, Dillard et al. vouch that:

Management and accounting information systems are a particular kind of symbolic representation embodying expertise, facilitating hierarchical controls, and manifested as administrative technology that informs the purposeful action of organizations in the transformation process. These systems can foster sustaining processes, exploitative process [sic], or some combination of both. (2005, p. 81)

Indeed, discussing the world of 40 years ago, Burchell et al. (1980) point out the significant extension of accounting in the functioning of modern industrial (and now global) societies. They argue that “No longer seen as a mere assembly of calculative routines, [accounting] now functions as a cohesive and influential mechanism for economic and social management” (p. 6); and note that “accounting developments are seen as being increasingly associated not only with the management of financial resources but also with the creation of particular patterns of organizational visibility” (p. 5). These patterns 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 practices.

However, regardless of this economic, political, cultural and social breadth, one image that seems constant is that of calculative practices, and interpreting reality through numbers or criticising ways numbers are used to interpret reality (Davis et al., 1982; Dillard, 1991; Miller, 2001; Miller & Napier, 1993). Which leads me into the second. As alluded to in S2, hospital and related health organisations and health system settings are a likely place to find accounting with similar purposes, roles, metrics and practices to curricular accounting. Case-mix accounting, around diagnosis-related groups and involving calculative practices, based on humans receiving clinical treatment while passing through medical institutions, is an accounting that most obviously fits this image.

Case-mix accounting emerged and developed in the 1980s onwards in several jurisdictions, as reported in the accounting literature by Chua, Degeling, Lowe, Preston, etc—for recent reviews of their work, see Chapman, Kern and Laguecir (2014) and Leotta and Ruggeri (2017). Case-mix accounting started with DRGs being fabricated as a means of funding healthcare in hospitals in the USA, which brings to mind associations between curricular accounting and the EFTS

funding system. Since, DRGs have expanded in use, including to categorise and code patients, standardise clinical procedures and cost them, count hospital outputs, measure hospital operations and otherwise account for hospitals. Case-mix accounting is prominent among a wide variety of research about public bodies that points to the extension of accounting that Burchell et al. (1980) were concerned about having been as rampant in public services (for an overview, see Broadbent and Guthrie, 2008) as in any other kinds of organisational activities, leading to social and institutional transformations, including in higher education, and so to the possibility of new accounting practices.

On new practices, Burchell et al. (1980) speculated they could be responses to helping the emergence of networks or other organisational forms with many interdependencies, or made increasingly complex otherwise. They could allow operating information to be relayed around participants comprising these networks, etc. They could facilitate evaluation of activities and participants by other participants and external parties, according to set priorities and expectations in relation to, say, divisional and product performance. They could fulfil recording demands and allow reports and such like to be distributed among participants and to external parties, according to legal and regulatory requirements, administrative needs and market expectations.

By comparison with these speculations, in my outline of the functioning of curricular accounting (see S3) and my analysis of it retrospectively (see S4 to S7), I show curricular accounting to be the coherent collection of practices suited to the large and complex organisation UC has become over its history, seemingly as part of a higher education system that is still expanding in size, coverage and complexity. Curricular accounting is about operating information around this complex network, it is part of recording, reporting, administration and marketing, and it is a means of measuring, monitoring, servicing, supervising and evaluating students, academics and other participants, and the units into which they are organised. I also show curricular accounting to have emerged and developed in conditions conducive to the demand for and possibility of developing a new accounting. In other words, there is 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).

Incidentally, further to mention above of their respective criticisms, while Trowler seems to see “accounting” as an inadequate label for CATS, because of accounting’s mundane, technical connotations and lack of the political and social ramifications he attributes to CATS, Raban links these ramifications to issues by which accounting is often distinguished from bookkeeping, including around valuation, accumulation and exchange. My claim is that the evaluations and criticisms of Raban, Trowler and others about CATS are equally probable for the 360 Degree Points System, given the similarities and roots of the two systems. Indeed, paralleling some things reported in this article in mentioning Rogernomics, Raban notes 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 on these matters, as indeed does Trowler (1998a, 2001, 2010). And it does not end there: for further discussion of these and similar ideas, but in which the word *accounting* is not used, see Restrepo-Abondano (2008).

## 9 Importance of the Study and Scope for Further Research

I have tried to show in this study how and why knowledge in the form of higher education learning has come to be accounted for using calculative practices, which I refer to as curricular accounting. I have used the NZ higher education system, and UC in particular, to elaborate these practices and their implications, from close to the “chalk face”, within the educational milieu of a tertiary education organisation and a policy system, across to their association with orthodox accounting and financial management used for determining and administering public funding, student charging, allocating institutional resources, controlling activities and people, etc. The items involved in curriculum accounting are explained in S3, including a full listing and set of definitions in Table 1 and an array on Figure 3 and Figure 9, the latter also featuring central authorities in the NZ higher education system. The histories of the items and of how they emerged into a coherent new form of accounting are analysed and discussed in S4 to S7, with further consideration in S8 of whether curriculum accounting is a form of accounting.

What this article refers to as curricular accounting may be mundane and unexciting to readers who work with it daily in universities: familiarity can breed apathy, even contempt. However, those feeling and attitudes are probably misplaced when one reflects about the conditions of possibility this accounting has created and their implications and possible consequences, some of which I have brought attention to in this article. Moreover, it is more than coincidence that the extension of curricular accounting to many countries occurred contemporaneously with several other strategic changes affecting higher education in these countries.

Indeed, analysing how and why curricular accounting has emerged and developed in universities is akin to analysing universities as increasingly complex organisations with a seemingly ever broadening place of significance in society. In UC’s case, I show how this occurred in the setting of a former British settler-colony and dominion that is now a parliamentary democracy. The College and the UNZ it was a major part of were influenced significantly by people educated in and by practices from the ancient universities in the colonising country. This was in an effort to attain equivalence in standards to these institutions, but at the same time being cognisant of the colony’s needs for secondary school teachers and the dominion’s needs for various professionals. Consequent to political, economic and social change, especially in the post-WWII years, increased demands for educated labour, restructuring of higher education as a public policy system, broadening of the higher education curriculum, wider access to higher education, and mechanised forms of accounting also became influential. The third major twist was the imposition on and adoption by higher education institutions of various ideas associated with neo-liberalism and managerialism. These include giving students the status of consumers, appointing manager-academics, managing academics and academic innovation, standardising qualifications, and formalising quality assurance, including using audit and accreditation methods.

At UC, in NZ and far beyond, numbers of students in higher education have risen significantly and participation rates are several-fold greater than even a generation or so ago. Numbers of institutions providing higher education also rose, and there are far more institutions calling themselves universities, or otherwise having degree-granting powers, or who are accredited to teach and examine students for degrees conferred by other degree-granting institutions or bodies. Huge diversification has occurred in disciplines and subjects. Degree and other qualifications broadened and became more modular and accommodating of student choices. This led to customisation in knowledge and skills coverage. Some national and international integration of qualifications occurred, 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 became more mobile and more knowledgeable of the market. Fees levied on domestic students increased relative to government grants and as a proportion of the revenues of universities and other tertiary education organisations. Furthermore, those fees, the corresponding fees charged by institutions to foreign students and significant proportions of grants that institutions receive from governments are all linked more closely than in the past to an individual student enrolling for a specified course.

The trends in universities from small to large, simple to complex and élitist to common are associated with, among other things, the range and quantity of participants (including academics, students, examiners, administrators, manager-academics, 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, and academics staging them, all accommodated within the tangible and intangible structures and processes of the university. 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.

Concomitantly, the ways curricular accounting evolved are consistent with universities exhibiting complexities and ambiguities and the political nature of how they are ordered and controlled. Between the College or University College and UNZ and then at UC, political control has functioned, as elsewhere, through knowledge structures and negotiation processes, and been part and parcel of daily interactions within the institution's legally demarcated boundary, that of the higher education system, and outside both. At any one time, the extant order has been both internal and external to the institution, giving rise to possibilities for analytical purposes not only of mapping its logic, activities, events, behaviour and values, but also of recognising the transient nature of these, as the future becomes the present and the present becomes history.

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#### Notes

- <sup>1</sup> For an extensive list and synopsis of these frameworks, see European Centre for Development of Vocational Training, European Training Foundation, United Nations Educational, Scientific and Cultural Organisation and UNESCO Institute for Lifelong Learning (2017).
- <sup>2</sup> Derived from the name of the Minister of Finance, 1984–88, Roger Douglas. The more functional and wider used terms outside New Zealand referring to this include Structural Adjustment (of the economy and its sectors) and New Public Management (inside the public sector and public services).
- <sup>3</sup> This name is based on UC (2004, p. 6), which refers to it as the “the new degree structure proposal (360 point degrees)”, and derives from the number of credit points required by a student to graduate with a three-year bachelor degree being 360. However, at UC now it is sufficient to say *points system* or *credit system* for most people to know what is being referred to, although the system is so tightly coupled with operations at UC that even those names are not in any official glossary or similar (e.g., UC 2018a, 2018b).
- <sup>4</sup> Much of the development of the UK’s Credit Accumulation and Transfer Scheme (CATS) was led by institutions, notably the Open University, whose students are part-time or distance learners, often “excluded” or “failed” by more conventional universities, and whose study towards a single qualification ends up being spread temporally and spatially.
- <sup>5</sup> The appellation *tertiary education organisation* is one the NZ Government began using relatively recently, replacing *tertiary education institutions* and, before that, less specific references, such as universities and other tertiary providers, the tertiary sector, polytechnics, institutes of technology, etc. The recent change seems to have occurred alongside NZ Government policies of the past two decades favourable to the formation of private tertiary organisations and their ability to compete with, if not replace, public institutions, particularly in the polytechnic and further education sector (Crawford, 2016; Xiaoying & Abbott, 2008).
- <sup>6</sup> UNZ existed until 1961 but along the way, it had to survive several calls for its dissolution. One such call resulted in the change of name in 1933 from College to University College, which thus should be regarded as more significant of something that did not happen, that is, UNZ was not replaced by the universities that eventually were established in 1961, rather than of anything that did. The change applied to UNZ’s four main affiliated colleges, in Dunedin, Christchurch, Wellington and Auckland, and meant they could distinguish themselves from other, mostly secondary education establishments in NZ using the name *college* and to confirm their university-level status to the outside world (Parton, 1979).
- <sup>7</sup> I located these ledgers in the corner of a UC storeroom gathering dust; now, they are in its archives. The ledgers contain fascinating records of student and course enrolments, student payments of tuition and examination fees, and course completion records. They are handwritten and resemble ledgers used in those days by businesses and public bodies to keep financial accounts.
- <sup>8</sup> These cards were originally handwritten but later were typed. They resembled those used by local banks for accounts of individual customers.
- <sup>9</sup> A board comprised of the lay male elite among the settlers governed the College. Within 20 years of the College being established, this Board of Governors also oversaw the financially separate Schools of Art, Engineering and Technical Science, and Agriculture (now Lincoln University) and had responsibility for the Canterbury Museum, the Public Library, the Boys’ High School and the Girls’ High School. It also oversaw the rents received from land endowed by the Canterbury Provincial Government, which were the main source of non-operating revenues for several decades (Gardner et al., 1973; House of Representatives, 1894).
- <sup>10</sup> Incidentally, on aspirations to emulate Oxbridge, according to Gardner et al. (1973), if the idea of UNZ, its functions and its relations with affiliated colleges were inspired by any British institution, it was the University of London, not Oxford and Cambridge and their college system.
- <sup>11</sup> Even by 1925, well over half the students at the College and the other UNZ affiliated colleges were part-time (Gardner et al., 1973; Hunter, Laby and von Zediltz, 1911; Parton, 1979). The colleges seem to have had more in common with Britain’s civic universities than its ancient ones.

<sup>12</sup> 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 more modern Scottish and German universities (see Paulsen, 1906) as models for NZ to follow, rather than the still tradition-bound English ones.

<sup>13</sup> The proportion of College academics holding an Oxbridge degree among their retinue of qualifications peaked at over 60% about 1910. Even in the 1950s, there was still a majority in the professorial ranks of academics from Britain or similar, and recruitment methods included shortlisting and interviewing candidates in Britain (Gardner et al., 1973). However, during this time, many NZ-educated talents (e.g., Ernest Rutherford, Alan MacDiarmid) were going the other way.

<sup>14</sup> The bare dozen courses with which the College started were in the subjects of 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.

<sup>15</sup> It was these UNZ examinations that were credit bearing as far as UNZ qualifications were concerned, not the assessment carried out at the College/University College or the other affiliated colleges. Until the 1940s or, in some cases, 1950s, students had to “keep terms” at the colleges in order to be eligible to sit UNZ examination papers. For a long time, “keeping terms” meant attending lectures and then passing annual College examinations, but later it included completing coursework. The notion of “keeping terms” continued at UC, only dying out in the 1990s, although before then calculating final grades for a course usually involved combining marks obtained on assessment administered both during the course and at the end of the course.

<sup>16</sup> The duration of the process to collect, ship, mark and communicate results to NZ was such that formal degree ceremonies (or capping) took place several months after the examinations were sat in November each year, and the Easter break in April remains the normal time to hold this event at UC.

<sup>17</sup> A three-stage end-on pattern of formal education—primary (ages 7–13), post-primary, or secondary, (14–19) and tertiary (18+)—was created, similar to the present one. This incorporated ideas from Britain and elsewhere but with a greater sense of democratisation and a lesser sense of social class than, say, the system in England—although the indigenous peoples of NZ (by then called Māori) were permitted to attend the various schools, etc. that were part of this pattern, the schemes of education they practiced did not figure in establishing this scheme. Attending primary was supposedly compulsory as early as 1877, and this level came to be divided in the 1920s between primary and intermediate schools. Post-primary comprised high schools of various types, including district and technical, and both public (i.e., state) and private. Before 1900, post-primary was something of an exclusive luxury but it expanded thereafter, catering for primary school high achievers by guaranteeing them a free place regardless of their economic circumstances (Education Act 1914). However, only a minority of youth ever participated until compulsion was introduced in 1944, when the school leaving age was raised to 15. Until then, and arguably for a long time afterwards, most secondary education was oriented towards the matriculation examinations (Murdoch, 1943; Tearney, 2016).

<sup>18</sup> Notwithstanding bachelor degrees being offered in others areas, Arts was by far the most popular: of 858 degrees conferred by UNZ by 1900, 80% were of the B.A. variety (Parton, 1979). The second most popular was the B.Sc., but even in 1920 the ratio of Arts to Science was 7:1, and it was still 2:1 in 1946 (Gardner et al., 1973).

<sup>19</sup> Regarding masterate and doctorate degrees, even as late as the 1950s, the annual number conferred by UNZ for the whole of NZ were only 220 and 15, respectively. There were fivefold and tenfold increases in these numbers by 1981 (UGC Review Committee, 1982).

<sup>20</sup> Degrees in other subjects were offered at other colleges affiliated to UNZ, including, after 1904, agriculture, medicine, dentistry, public health and veterinary science. Incidentally, demonstrating British influence was legal as well as social or cultural, new qualifications required amendments to be made to UNZ's Royal Charter, proposals as to which were scrutinised by the Privy Council at Westminster and resulted in many not being approved (see Parton, 1979).

<sup>21</sup> Facilitating student choice of courses, so that each student could follow a personal programme of study, is given as a reason for curricular accounting, including the New Degree Structure. This does not mean that choice was non-existent before this. Thus, Professor C. H. H. Cook calculated that in 1883 there were over 5,000 ways for a student to proceed to a B.A. (Gardner et al., 1973).

<sup>22</sup> Up until the 1920s, the state of and deficiencies in secondary education rendered incoming students insufficiently prepared for anything more demanding. Moreover, even then, although secondary education as a source of students had improved since 1890, when the majority attending the College were non-matriculated, it was still the case that some 30% of students who were attending lectures did so before having matriculated, and so were ineligible to sit the examinations that followed (Gardner et al., 1973).

<sup>23</sup> Various issues of definition and availability affected collection and processing of the data provided in Figures 5 to 8. The reliability of the charts lies in the trends they illuminate, rather than precision of individual data points. Data between 1891 and 1923 include the School of Engineering and Technical Science, for which separate records were kept during that time (Gardner et al., 1973). Since 2010, they reflect the Christchurch College of Education (i.e., a teachers' college) merging with UC c. 2009. Net decreases between 2010 and 2018 reflect the effect of the 2010–2012 Canterbury Earthquakes and recovery so far.

<sup>24</sup> As the majority of students up until the 1930s were part-time, the steepness of growth between then and the 1960s would be even greater if EFTSs were used. The proportion of part-time students has now fallen to just over 30%.

<sup>25</sup> The data relate to meta-qualifications and do not include majors and endorsements within these, which are themselves now substantial. For example, in 2019 there are 30 major divisions of the B.A., 18 of the B.Sc. and 13 of the B.Com.

<sup>26</sup> Incidentally, these examinations were set by academics at the College and the other affiliated colleges. They meant the colleges and UNZ had strong influences on pre-tertiary education, which were arguably as significant to NZ as their higher education activities (Gardner et al., 1973). The examinations were designed to evaluate suitability for university entrance, and so had a strong academic bent, epitomised perhaps by the prominence of Latin. Even so, they were held in high regard by employers of secondary school graduates (Murdoch, 1943; Tearney, 2016). After UNZ's dissolution, the function of university entrance examining was transferred to UGC, so keeping it within the purview of the university sector. After UGC itself was abolished, it has moved to the NZQA, and taken the form of NCEA.

<sup>27</sup> Up to 1913, 60% of the graduates of the College entered the so-called learned professions, including the clergy, which was notwithstanding the legal prohibition of theology from being on the curriculum (Gardner et al., 1973).

<sup>28</sup> UC revenue would be affected by adopting the common course size principle as follows. Between 2005 and 2010, the array of points from 11 to 28 meant students often completed the 360 points they needed over three years by enrolling for 126 points (= 7 x 18) in their first year, 128 (= 1 x 18 + 5 x 22 (or 10 x 11)) in their second year, and 106 (= 1 x 22 + 3 x 28) in their third year. When the common course size principle was implemented and worked itself through after two or three years of transition, the equivalent students would normally study 120 points annually. Although the amount of revenue from each student would be the same in either case, the distribution of this revenue over the three years would change, with a perpetual delay in revenue received under the proposed system. In addition, students who drop out at the end of their first year or second would pay less under the common course size principle than previously.

<sup>29</sup> This dividing of courses, like that which occurred in conjunction with splitting single USUnit courses in implementing the New Degree Structure (see S6), affected the numbers of courses displayed in Figure 7 after 2000.

<sup>30</sup> The B.Com. was something of an exception proving the rule. Although it was changed c. 1930 in the aftermath of further changes to the B.A., its actual simplification as a nine-USUnit degree only occurred c. 1960.

<sup>31</sup> Gardner et al. (1973) observed that, later, as the University College and then UC grew, academics and students even 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 Rogernomics reforms. These allegiances continue to have various effects on universities, including at UC, where a regular stream of initiatives has been championed from by UC's institutional level, including the senior management team. Although my experience is that their ties to disciplinary tribes, rather than institutions, is not as strong at UC and in NZ as Becher and Trowler (2001) describe it elsewhere, attempts to re-align the thinking of academics away from the tribal towards the institutional still seem high among the motives of institutional level managers for these initiatives. The initiatives include replacing faculties schools and colleges, watering-down discipline-based departments by creating subject groups, which have become used for purposes of qualification naming, marketing and related purposes, championing a particular research theme from the centre and encouraging so-called multi-disciplinary research activities around the theme (cf. Trowler, 2010).

<sup>32</sup> This also applied in accounting because, through an arrangement with the NZ Society of Accountants, UNZ conducted the membership examinations for aspiring professional accountants (see Gaffikin, 1981).

<sup>33</sup> Lest it is forgotten, research is now regarded as vital in terms of standards of learning and teaching, and so of courses and qualifications, and for other, probably more compelling reasons too, so much so that it absorbs most of the time of many academics, including outside official working hours. In the College days, the library and other facilities were “sadly insufficient” (Gardner et al., 1973, p. 129), thus curtailing research activities severely, although by 1919 it was sufficient for an annual list of research work to be published. By the 1930s, a list of staff publications was appearing in Calendars and in the form of an annual research report. The University College Council took steps to increase the volume of research activity and the resources it commanded in 1944, spurred on by philosophy lecturer, Karl Popper (Parton, 1979). Research that academics were engaging in became a little more prominent and the number of published items increased from 19 in 1948 to 274 in 1971 (Gardner et al., 1973). Today, research, research outputs and the Performance-Based Research Fund (PBRF), are a significant part of daily discourse (Dixon, 2015) This is reflected in the number of published items reported for 2018 in UC’s research database being in excess of 2,000, rising to 3,000 when oral presentations, theses and other non-formally published items are brought into account.

<sup>34</sup> These knock-on effects are mostly an outcome of the calculations involved in how the NZ Government distributes SAC to UC and the other universities, etc. The effects date from the 1990s, when SAC’s forerunner, the EFTS Funding System was implemented (Coy et al., 1991; Ministry of Education, 1996). Its overt provisions led to an increased consciousness at the institution level of student enrolment numbers and how these could be managed through marketing of courses and qualifications (cf. Reale & Seeber, 2013). Admittedly, this consciousness was not new, but it did become more intense, particularly as other considerations entering into resource attraction diminished. Basic units and individual staff had also long been conscious of the numbers of students and EFTSs they were teaching. This stemmed from longstanding use, among other things, of SSRs to argue for more resources when other reasons (e.g., retirements, resignations, higher enrolments) had made resourcing unfavourable. However, the post-1991 circumstances made it much clearer and less disputable how much revenue was being received at the institution level because of the activities of the different basic units and individual staff, compared to the costs of the resources that the institution level was allocating to each of these (see Coy & Pratt, 1998). Indeed, in 2003, colleges, with profit-centre style, delegated annual budgets closely aligned with EFTSs were established across UC.

<sup>35</sup> UC’s Vice-Chancellor Brownlie, who was also the chair of UGC when it was abolished, opined that these changes, coupled with pressure on resources, made 1991 a difficult year (UC, 1992).

<sup>36</sup> By doing this, departments can maintain their EFTSs, SSRs, quota of academics and budgets, while allowing senior academics to focus on research outputs and score highly in the sexennial PBRF quality evaluation (Dixon, 2015).

<sup>37</sup> I believe this was the first attempt at UC to devise a graduate profile for anything. The need for this graduate profile arose because accreditation was being sought from the Association to Advance Collegiate Schools of Business, also known as AACSB International. This and other uses of graduate profiles at UC is commended in NZ Universities Academic Audit Unit (2010).

<sup>38</sup> The term *honours* is used at UC and elsewhere in NZ as an appendage to bachelor degrees, but in contrast to its use in England as an indicator of progressive levels of achievement (e.g., 1<sup>st</sup> class, 2<sup>nd</sup> class), in NZ it indicates completion of an additional, fourth year of study after a three-year bachelor degree has been conferred. As shown on Figure 2, honours level study appears on the NZ National Qualifications Framework at Level 8 (the three-year bachelor degree is at Level 7) and is designated as postgraduate study constituting the first year of a two year master degree.