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# Accounting for higher education: Calculative practices in curricular administration

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ABSTRACT

Calculative practices resembling conventional accounting and sometimes termed 'audit culture' have materialised in higher education to account for learning and related activities. I posit these practices as *curricular accounting*, thus contributing an unrecognised but very real form of accounting to our discipline. Comparable with other accountings, the processes and practices this one comprises are potentially constituting the people, activities and organisations it involves (i.e., scholars and administrators, teaching and learning, disciplines and universities) as economic actors and entities, with the potential inadequacies and consequences that entails. Thus, my purpose is to increase and distribute knowledge and understanding about curricular accounting to students and academics, among others, to give them agency to allay the inadequacies it holds for them. The paper involves insider research: it reflects my observing and participating in the development and ubiquitous expansion of this accounting from within universities in Britain and Aotearoa New Zealand. Framing the study historically and critically, I treat curricular accounting as a form of accounting, define and configure its aspects, explain its functioning and show that this is another accounting which never simply began. I find that its development connects with student growth, because of demand increasing for university-educated labour, wider access to universities becoming a social policy imperative, and knowledge, discipline-diversification and modularisation expanding. I also find that its recent development and current practice connect with neoliberalism and managerialism taking hold in government, public policy and higher education. Among the critical matters I raise are whether curricular accounting is serving to emancipate society; or whether it is enabling the business of higher education to fabricate products which consumers find compelling, resulting in exploitation of students and constraint of academics.

## 1. Introduction

Curricular accounting (Theodossin, 1986; Trowler, 1998b) comprises a collection of calculable objects and practices of a curricular nature: that is, pertaining to teaching, qualifications, learning, assessment and resources. In the context of universities and higher education in Aotearoa New Zealand (ANZ), curricular accounting amounts to more than a routinised and standardised system for the keeping and application of *credit points* (or just *credits* or *points*) and related data for monitoring and application. It is comparable to an

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infrastructure for operating administration, management control and evaluation, and governance (cf. Power, 2015). It engenders wide-ranging conditions of possibility among higher education participants to experience desirable or undesirable environments and outcomes whose range includes emancipating, empowering, stifling and dehumanising (cf. Dillard, Brown, & Marshall, 2005; Gallhofer & Haslam, 2020; Lombardi, 2016; Miller & Rose, 2008; Newfield, Alexandrova, & John, 2022; Walker, 2008).

The same applies to varying degrees elsewhere, including in the European Higher Education Area (hereafter, Europe). Throughout Great Britain in particular, several credit accumulation and transfer schemes (or systems) (CATSs) were devised in the 1980s (Pollard, Hadjivassiliou, Swift, & Green, 2017). That is where the infrastructure now in ANZ (hereafter, the ANZ_CATS) originates (Philips, 2003), as the institutions using it there did in the late 19th century (Gardner, Beardsley, & Carter, 1973; Parton, 1979; Wilson, 2023).[1] Furthermore, in many countries and regions where comparable infrastructures are used, *a qualifications framework* is now prominent in them. ANZ's Qualifications and Credentials Framework (hereafter, the ANZ Framework) (see New Zealand Qualifications Authority, 2024) exemplifies their use to regulate tertiary qualifications within a jurisdiction, and, correspondingly, to validate the standard and equivalence of qualifications between jurisdictions (see also Souto-Otero, 2013; Turnbull, 2020; Watson, 2009).

Two interrelated considerations have gone into framing this article in order to contribute to the accounting literature. First, despite curricular accounting being a form of accounting with uncertain implications, there are no previous articles examining, let alone criticising, it in this literature. Nor has it received much attention in the education literature either, as reflected in Blackmur (2015) being critical of work about qualifications frameworks for underemphasising or missing the significance of credit points to these frameworks. In contrast, I see curricular accounting as a form of accounting which is as potent as conventional accounting is as a technology of order (or stability) and legitimation (Gårseth-Nesbakk & Timoshenko, 2014; Martin-Sardesai, Guthrie, & Tucker, 2020; Vollmer, 2019). Accordingly, to study curricular accounting, I heeded the four socio-political-inspired lines of inquiry advocated by Burchell, Clubb, Hopwood, Hughes, and Nahapiet (1980, p. 23) for analysing socially new, or previously unrecognised, accounting practices and roles they play; these lines cover functioning, participants, historical matters and consequences. I followed these lines as a participant insider immersed in the milieu of a university and higher education field, namely the University of Canterbury (UC) in ANZ.

Second, I was soon struck by how, on the one hand, this accounting might be a force for what Wolff (1974) refers to as the full and satisfying development of human potentiality (e.g., by extending access to knowledge that is emancipatory and enabling incomplete, interrupted or within-border study to be resumed, completed or achieved across or without borders). On the other hand, the way the accounting in question was applied sometimes had overtones of an 'audit culture' (Shore & Wright, 2015) and abetted neoliberal fabrication of commodified products, comprising not just (study of) knowledge but also students and graduates (James, 2008; Parker, Guthrie, & Martin-Sardesai, 2024). Thus, in reference to the concept of alienation, curricular accounting might be associated with the progressive, mechanistic dehumanization of intellectual, industrious wo/man (cf. Marcuse, 1965, 1978; Power & Brennan, 2022), and so worthy of critical examination. The detailed practice of curricular accounting has implications for higher education which are comparable with uses of numbers in other contexts (e.g., see Miller, 2001; Vollmer, Mennicken, & Preda, 2009). I came to realise that, even though some aspects of how and where curricular accounting may be applied are potentially at odds with academic values, not to mention with higher education being a force for improving the human condition and the quality of society and the environment, I and other academics routinely calculate and apply its measurements, as do our students and the officials by whom we are all administered. Regarding the academics in particular, this seemed to be a case of experts allying themselves with political authorities concerned for liberalising public policy but also trying to maintain their own disciplinary, and even interdisciplinary, alliances around academic values (Miller & Rose, 2008; cf. Becher & Trowler, 2001).

Mindful of these two considerations, my aims are to articulate curricular accounting in ways to distribute knowledge and understanding about it among those caught in its infrastructural web, especially students and academics, intending to give them agency to allay the inadequacies it holds for them. As with other forms of accounting, these inadequacies may be born of their and others' misknowings and ignorance (re students, see Di Paolo & Pegg, 2013), or the accounting's "black boxed" complexity, or of the advantage it accords other parties (e.g., government agency officials and university administrators) to utilise their dominion (cf. Miller, 2001; Miller & Rose, 2008). This follows my experience of not appreciating until well into my research journey the extent to which I was entangled with this form of accounting: on reflection, this began as curricular accounting was emerging and consolidating in an England where I was a student, an academic and an academic administrator, and in ANZ as a student and academic.[2] Accordingly, to examine curricular accounting infrastructure, I borrow from ideas of entanglement (Hodder, 2014); that is, higher education participants use each other and other things to enable their activities and intentions, but then come to be dependent on and needful of each other in ways which are so constraining and deactivating as to also have unwanted consequences. Doing this in conjunction with configurative analysis (cf. Hinings, 2018), I discuss how and why people and objects | other things are interrelated or connected pluralistically, in many dimensions and directions, with consequent interdependencies, some being potentially so repressive that they hinder human development and social change (cf. Marcuse, 1964).

My aims to provide agency and allay inadequacies reflect my being critical of how higher education and universities have come to

[1] My attribution of curricular accounting as a British origination is notwithstanding resemblances to the much older Student Credit Hour System used in the United States (US) (Wellman & Ehrlich, 2003).

[2] Because they had the largest numbers of distance, and so mostly part-time, students in, respectively, ANZ and the United Kingdom (UK), credit recognition and transfer were more prominent at two universities where I previously worked than at traditional universities, including UC. The important part played by one of them (i.e., the Open University) in the development of credit scheme practices in Britain and the rest of Europe is recognised in Dillard et al. (2013) and UK Credit Forum (2020).

function during the five decades I have spent studying and working in them. Abundant literature, accounting and otherwise, has chronicled utilitarian and neoliberal trends, including that, like businesses which manufacture, retail or service, many people in the ascendancy in universities exhibit micro-economic reductionist tendencies: They think in terms of production goals, profits and private economic value. Their thinking is heavily dosed with aspirations, or delusions, of corporatism. They have inspired *economizing*: that is, "processes and practices through which individuals, activities, and organizations are constituted as economic actors and entities" (Miller & Power, 2013, p. 560) (see e.g., Gebreiter, 2021; Newfield, 2016; Parker, 2013; Restrepo-Abondano, 2008; Shore, 2010; Singh, 2002; Trowler, 2010).

These trends can be seen as part of university life: the standings of participant groupings in universities and higher education jurisdictions oscillate over time between an academic culture and a culture of administration, as captured in the idea of a "pendulum of authority" (Altbach, Reisberg, & Rumbley, 2010, p. 93; cf. Botta, 2016). They reflect contrasting conceptions of universities, which cause perpetual conflict on campuses and within and across higher education jurisdictions. For some, they encompass philosophical, meditative, romantic and idealistic values (e.g., reason, knowledge for its own sake, learning, criticism, self-fulfilment, self-determination, emancipation, preparation for citizenship, cultural reproduction, "critic and conscience"). For others, they supply the economy with trained workers, research outputs and other utilitarian, calculable things. For most, they combine both (e.g., Gibbs, 2020; Huisman & van Vught, 2009; Parker, 2011; Pelikan, 1992). For all, they are dynamic, impelled politically and otherwise, by scholars, administrators, public policy makers, markets and societies (Becher & Kogan, 1992; Coy & Pratt, 1998; Restrepo-Abondano, 2008).

Alternatively, the trends in question can be viewed as unidirectional, consolidating an undesirable and debilitating state. In this state, academics lack authority, autonomy and freedom[3] (cf. Parker, 2011); the personal construction of each student in some pedagogical–pastoral partnership with a free thinking academic holds no longer (cf. Singh, 2002); knowledge is separated from knowers (James, 2008); and the ages of professors and disciplines are threatened, if not dead already (Roberts, 2022; cf. Watts, 2017).

Either way, typical of critical researchers' concern over inadequacies in the status quo (Macdonald, 2017; Roslender, 2006), my motivation is to curtail curricular accounting's part in these trends towards repression (cf. Parker, Martin-Sardesai, & Guthrie, 2023) and, even if the pendulum metaphor of an automatic swing back does apply, nudge it towards autonomy | empowerment of students and academics, and so away from intrusive officials and administrators.

The rest of this article is structured as follows. In Section 2, I outline methodological considerations, and the methods employed to obtain and interpret empirical materials, whether primary (i.e., from UC and in the ANZ higher education field) or secondary (i.e. literature from ANZ and beyond). In Section 3, using ANZ for illustration, I itemise objects comprising curricular accounting, configure the objects and descriptively analyse the accounting's functioning. I embellish this in Section 4 with a historicised interpretation of the sometimes rugged path to reach the present curricular accounting infrastructure. I discuss my findings and criticisms in Section 5, including implications of recognising *curricular accounting* as accounting. I frame this discussion around the questions of whether curricular accounting is emancipatory for students, empowering of academics exercising autonomy and freedom altruistically, and good for society; or, inversely, whether it is exploitative and subjugal for these and other higher education participants, with adverse consequences for society. My conclusions comprise Section 6.

## 2. Study considerations and methods

In 2008, being still new to UC, I took an inquisitive, participant insider interest in proposals to revamp its version of the ANZ_CATS. My colleagues were addressing issues arising after its contested adoption a few years earlier when, because it covered bachelor's degrees being awarded to students once they accumulated courses to the value of 360 credit points (hereafter ANZ_CATS points), it was called the 360 Points Degree System. The issues stemmed from an assortment of misknowings of concepts, difficulties with points' arithmetic[4] and undesired consequences of compromises made in negotiating approval of the system (personal UC communication; cf. Dillard, Rigsby, & Goodman, 2004).

Four things led me to consider the ANZ_CATS as a form of accounting, namely *curricular accounting*. First, Theodossin (1986) had used this term in discussing modularisation in British higher education, as had Raban (1990) and Trowler (1998b) in critiquing Theodossin. Second, ANZ_CATS points seemed akin to a currency, just as equivalents elsewhere are (e.g., CATS points in Britain and European Credit Transfer and Accumulation System (ECTS) credits across Europe) (cf. Bekhradnia, 2004; Pollard et al., 2017); they are used in quantifying qualifications and as a unit of account on student records. Third, the (manual and computerised) forms of these records of UC and its precursor, the Canterbury (University) College of the University of New Zealand (UNZ), were strikingly similar to manual customer records of an ANZ bank. Fourth, curricular accounting is similar to casemix accounting (Chua, 1995; Covaleski, Dirsmith, & Michelman, 1993): for example, the two are associated with, respectively, qualification or study pathways and clinical pathways; they are involved in how public funds are distributed to institutions (i.e., universities, hospitals) and resources are wrestled for among professionals (i.e., academics, clinicians) and distributed among their disciplines.

Thinking curricular accounting was likely to be as economic and socio-political as other forms of accounting are, and open to

[3] The question of whether academic discretion, autonomy and freedom are inherently good and exercised altruistically has been around as long as academics have. However, I am taking it to be so, without regarding it as a panacea or free of egoism and abuse, potential and otherwise (Anderson, 1934; Shore & Wright, 2012; Watermeyer et al., 2022), and regardless of questionable claims that it is widely abused (Newfield, 2008).

[4] In conducting this study, including looking through history, there have been several junctures where Wilmott's (2008, p. 923) notion of "the 'swampy lowland' of calculative practices-in-use" has applied. Although often fascinating, I refrain from going into their maths in this article.

equivalent criticisms, I analysed and interpreted it as a form of accounting. Furthermore, I was well placed to conduct research at UC in ANZ whence I could articulate curricular accounting in the dynamic context in which it operates (cf. Hopwood, 1983). However, I have taken care not to infringe the ethics of insider research (cf. Trowler, 2014); for example, I restrict my cited data to those which were already public. To provide wider insights, and guard against myopia, I have also drawn on an extensive body of grey literature, academic articles and other secondary sources from inside and outside ANZ. This literature covers higher education, accounting by, for and about higher education, new accountings, and curricular accounting's presence in the higher education literature.

Through following the lines of inquiry of functioning, participants, historical matters and consequences, I compiled a list of technically and socially contiguous objects within the scope of curricular accounting. I improved my understanding of these objects and prepared to relate them in this article by crafting a configuration (cf. Hinings, 2018) to show the objects as comprising an accounting infrastructure and raising questions about the implications of this infrastructure in the context of the academic, administrative, financial and related activities which comprise university work. Further inspired by Pierson (2000), that historical analysis enriches understanding (see also Cummings & Bridgman, 2011), I reviewed various written sources to trace the historical progression since higher education was founded in ANZ (i.e., 1869–73) of the listed objects and their application, adaptation, mutation, revision and coming together to constitute the infrastructure as it is in 2025.

During this research journey, my understanding deepened as to how the processes, recording, classification and communication which curricular accounting involves transcend credit transfers and qualification regulations. Concomitantly, my concerns increased that, like conventional accounting, curricular accounting opportunes conditions for (re)constructing and (re)producing identities of students, academics and other participants, ill-informing perceptions of people and situations, and harming social relationships (cf. Miller & Rose, 2008; Walker, 2008). Of immediate concern was how power relations were altering around me. These relations arise from participants in higher education being distinguished as scholars in the field and administrators at the organisational and central oversight levels (cf. Habersam, Piber, & Skoog, 2021), how they are entangled with its structures and processes, and the variations in these participants' relative standings. Indeed, the historicising line of inquiry I incorporated was based on the logics underpinning power relations (or causing them to fracture), that is, that the results of critical events may be described as accidents, uneasy compromises, conflicts, cooperation, crises, exigencies, negotiations, normalcy and watershed moments (Morris, 2000; Parker et al., 2024; Trowler, 1998a; cf. Bleiklie, Enders, & Lepori, 2015; Pierson, 2000). Taking this line of inquiry accords with the argument that our capability as scholars for contemplating curricular accounting in its present context increases through knowing how that accounting arose, not just in Christchurch but well beyond; we strengthen our understanding of the technology, the objects it encompasses and its operating context (cf. Burchell et al., 1980; Miller & Power, 2013). As Power (2015) shows in examining accounting for research impact in UK universities, to know an accounting's beginnings, one has to consider "multiple sources and arenas which contingently become temporarily aligned and mutually reinforcing" (p. 48). Accordingly, the prospects improve for addressing inadequacies of curricular accounting and increasing and realising its good qualities (cf. David, 2007).

Further to the distinction above between scholars and administrators, I have applied a specific and respected analytical framework, namely, Becher and Kogan (1980/1992) synoptic model of British higher education structures and processes. I use it as a map of participants in higher education to better explain my configuration of curricular accounting and articulate the rest of my findings. This framework, as adapted for ANZ, is shown in Fig. 1.[5] The framework depicts a flat structure of four groupings of these participants (i.e., individual level, …, central authorities level). Regarding UC, three of these levels are within the institution and have equivalents in the other seven ANZ universities, and the fourth comprises central policy, funding, oversight and audit authorities operating from the nation's capital (Coy, Tower, & Dixon, 1991; cf. Newfield, 2008; Trowler, 2010).

Becher and Kogan (1980/1992) constructed their model recognising oscillations which occur in *norms* or *normative values*, both intrinsic and extrinsic. This is consistent with the conception that accountings and the contexts in which they operate are influenced by how norms vary or stay the same (Hopwood, 1983). A particular aspect of the model which appealed to me is that it incorporates ways in which allocations of resources and authority occur between the four levels, including through socio-political and economic methods associated with conventional accountings (e.g., funding, budgets and performance measures). Given extant knowledge of how calculative practices shape power relations (e.g., see Habersam et al., 2021; Miller & Rose, 2008; Pettersen & Solstad, 2007; Vollmer, 2019), these conventional accountings afford people positioned in the model from right to left many opportunities to exert economized control (cf. Miller & Power, 2013) over those in levels to their left, albeit with varying intensities, depending on, for example, their altruism and magnanimity and the politics of the situation (cf. Coy & Pratt, 1998).

Although curricular accounting per se is absent from Becher and Kogan's model, the model alludes to some curricular accounting objects (e.g., qualifications registration, academic activities), inferring that what I said above about conventional accountings also applies to curricular accounting (and to research impact accounting). Curricular accounting is a complex infrastructure through which learning, study, teaching and other aspects of universities are transformed into the kinds of calculations seen in similar areas of human service development (cf. Miller, 2001). Likewise, curricular accounting resembles conventional accounting in reflecting organisational patterns, sizes, practices and complexities, in being a product of its social and institutional context, past and present, and in having measurement limitations. The variety of relevant issues I surface in this article flow from discussing these matters in the next two sections. These should enable better understanding of curricular accounting among its participants (cf. Hinings, 2018; Wellman & Ehrlich, 2003) and inspire critical analysis.

[5] The suitability of this model is unsurprising for several reasons. I have alluded already to ANZ and its higher education having colonialistic roots, and to the ANZ_CATS tracing its origins to Great Britain. For several decades, most academics had degrees from England or Scotland, and relationships continue between, for example, Oxbridge and UC (Gardner et al., 1973; Manathunga, 2017; UC, 2024e).

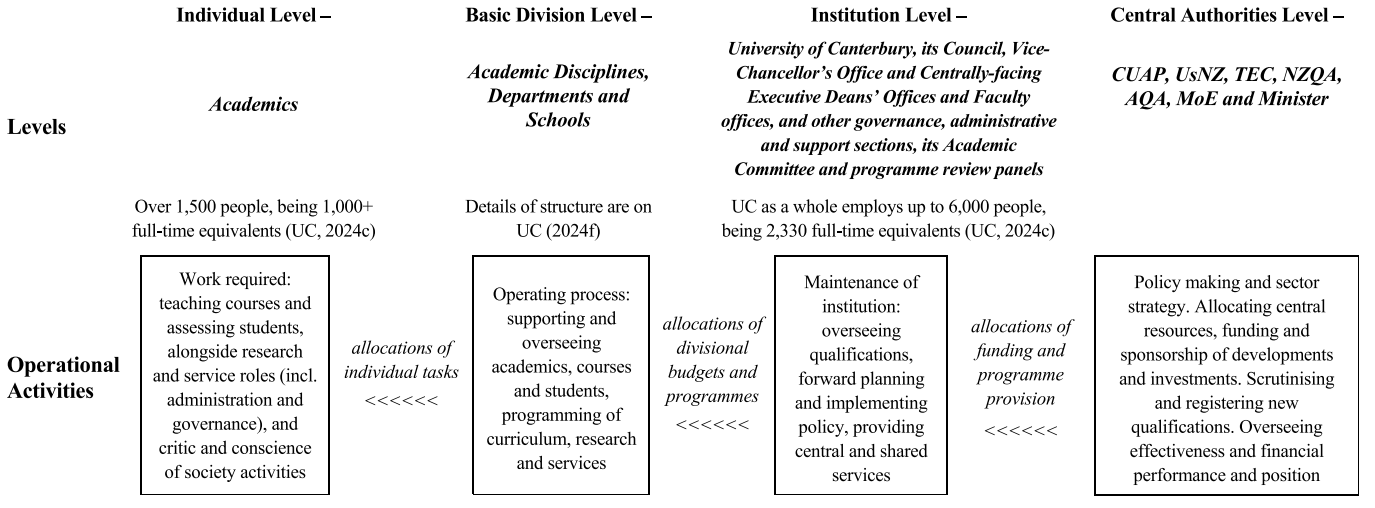


**Fig. 1.** Model of UC and ANZ higher education by levels and their operational activities (/1992). Notes on acronyms: AQA = Academic Quality Agency for NZ Universities (est. 1993 as the NZ Universities Academic Audit Unit). CUAP = Committee on University Academic Programmes (hereafter, the Academic Programmes Committee) (est. 1993 by the then NZ Vice-Chancellors Committee (NZVCC)) is a curriculum oversight committee. The NZVCC established it to protect against loss of autonomy vis-à-vis the Government of New Zealand (hereafter the Government) and the Qualifications Authority (). MoE = Ministry of Education (est. 1989, superseding the Department of Education 1877–1989). NZQA = New Zealand Qualifications Authority (est. 1990) (hereafter, the Qualifications Authority) regulates all qualifications in ANZ and is custodian of the ANZ Framework. TEC = Tertiary Education Commission (est. 2003) (hereafter, the Funding Commission) administers grants from the public purse. It superseded the University Grants Committee (1962–1989). UsNZ = Universities New Zealand (hereafter, UniversitiesNZ) is a university sector, self-coordinating body (est. 1990 as NZVCC).
Source: adapted from Becher & Kogan, 1980; Larner & Le Heron, 2005; Philips, 2003

## 3. Findings: composition and functioning of curricular accounting

The ANZ_CATS used at UC comprises some 70 objects, as configured in Fig. 2 to enable greater understanding of not only its composition and functioning but also its infrastructure qualities. Being a pan-ANZ variant of curricular accounting, it exemplifies comparable infrastructures elsewhere, and so many people in higher education will recognise most objects. But to fill gaps, I have compiled a list of definitions of the objects, available in a Supplementary Table at https://doi.org/10.1016/j.cpa.2025.102805.[6] As for the configuration, because it is not self-explanatory, either in what it conveys or how I arrived at it, I incorporate explanations in the contents of the rest of this section.

My definitions come with a caveat. Wherever variants of curricular accounting are practised, use and experiential knowledge of its objects are scattered among generalists and specialists located in higher education's distinct levels (see Fig. 1): for example, among government officials associated with the Funding Commission in contrast to the Qualifications Authority, and among institution-level administrators in contrast to either academics with administrative accountabilities for the basic divisions (e.g., heads or deans of disciplines/departments and schools) or academics and others with fewer or no such administrative responsibilities. Furthermore, the meanings these people and others accord the objects and the applications they make of them fluctuate according to the activities in which they engage (e.g., learning and teaching, qualification specification and conferment, financial management and control). Indeed, to be useful to these parties sharing them, including cooperating with each other and having an effective working (mis)understanding (cf. Bohannan, 1958), many of the objects are imprecise and adaptable, having the characteristics of *boundary objects* (Briers & Chua, 2001).

In addition to many people in higher education recognising most objects in Fig. 2, they will appreciate to considerable extents how great are the intricate, reciprocal connexions among these objects. These connexions and their implications are critical to reducing misknowings and ignorance of curricular accounting and increasing people's agency. Despite this, using lines to depict them on the figure would result in such a tangle as to obscure the objects. Similarly, too much space would again be taken up if I were to detail the connexions. However, to lessen any impression of Fig. 2 being haphazard, I have superimposed three arrows on the diagonals of the figure. I use these to discuss four main ideas: credit points are used to quantify credit-bearing learning, express qualifications and calculate funding; people undertake a learning journey as students; students attain qualifications which accord with pan-discipline qualifications frameworks; and academic–student–administrator relations are (re-)constructed according to the first three ideas. In the rest of this section, I discuss these four ideas in turn to justify the configuration of the objects and, more importantly, to enable readers to initiate self-inquiry to better understand the objects and their connexions, and the curriculum accounting infrastructure and associated power relations.

### 3.1. Accounting for credit with credit points

The basis of curricular accounting is that students attain *credit* and earn *points* by completing *courses* (or (examination | examinable) *papers*, *units*, or *modules*), which are the smallest formal collection of activities which are taught, organised, managed and "sold" to these students (in return for tuition fees). The points in question are the units of size, account, worth, exchange and currency used to define, quantify and value each course. In broader terms, points state and quantify the credit, or volume of learning, which qualifications encompass by discipline and intellectual level, or *level of learning*. An example of this, already mentioned in Section 2, is to express a three-year bachelor degree in a discipline as courses to the value of 360 points, with these points distributed between 100-, 200- and 300-levels, and between the discipline and choices from other disciplines (e.g., see UC, 2024d).

Each point signifies a number of notional learning hours which a typical student should spend learning and completing assessments successfully while enrolled on a course, regardless of the course level or discipline. For example, in ANZ, one point equates to 10 h, the same as in Britain; in European Union member states, one point varies between 25 and 30 h (Bekhradnia, 2004; ECTS, 2024; NZQA, 2024; Pollard et al., 2017). Correspondingly, points feature on academic records of students | graduates to show the credit-bearing study activities in which they are | were engaged during their journeys through a university(ies).

The imprecision I mention above probably applies to credit and points as much as any of the other objects in Fig. 2 (re a similar observation about student credit hours in the US system, see Wellman & Ehrlich, 2003, p. 119). Despite this caveat, not to mention limitations of the currency metaphor more generally (see Hall, 1997; Winter, 1993; cf. Laitinen, 2012), ANZ_CATS points are as basic to matters falling within the ambit of curricular accounting in ANZ as NZ dollars are to conventional accounting for the revenues, assets and wealth of universities and any other organisations. Points also figure in the calculations to determine how much money UC and other tertiary education providers receive annually in EFTS-driven grants[7] from the Funding Commission. Thus, I reflect the importance of points and the credit they measure by positioning these two objects where the three arrows in Fig. 2 intersect.

[6] The definitions are mostly based on UC (e.g., UC, 2024b), but even so are general across the other universities in ANZ. They also coincide with other jurisdictions, including objects and definitions in Britain (UK Credit Forum, 2010) and the rest of Europe (EHEA et al., 2015, 2018).

[7] I have taken this name from the grant system's original 1991 name, the *EFTS (Equivalent Full Time Student) Funding System*. The name captures the essence of these grants (or tuition subsidies) as being based on student enrolments calculated into EFTSs. Incidentally, having previously been together, separate grants for research, from the Performance-Based Research Fund (PBRF) were established in 2003. These grants are determined by a sexennial PBRF research assessment exercise (Chatterjee et al., 2020).

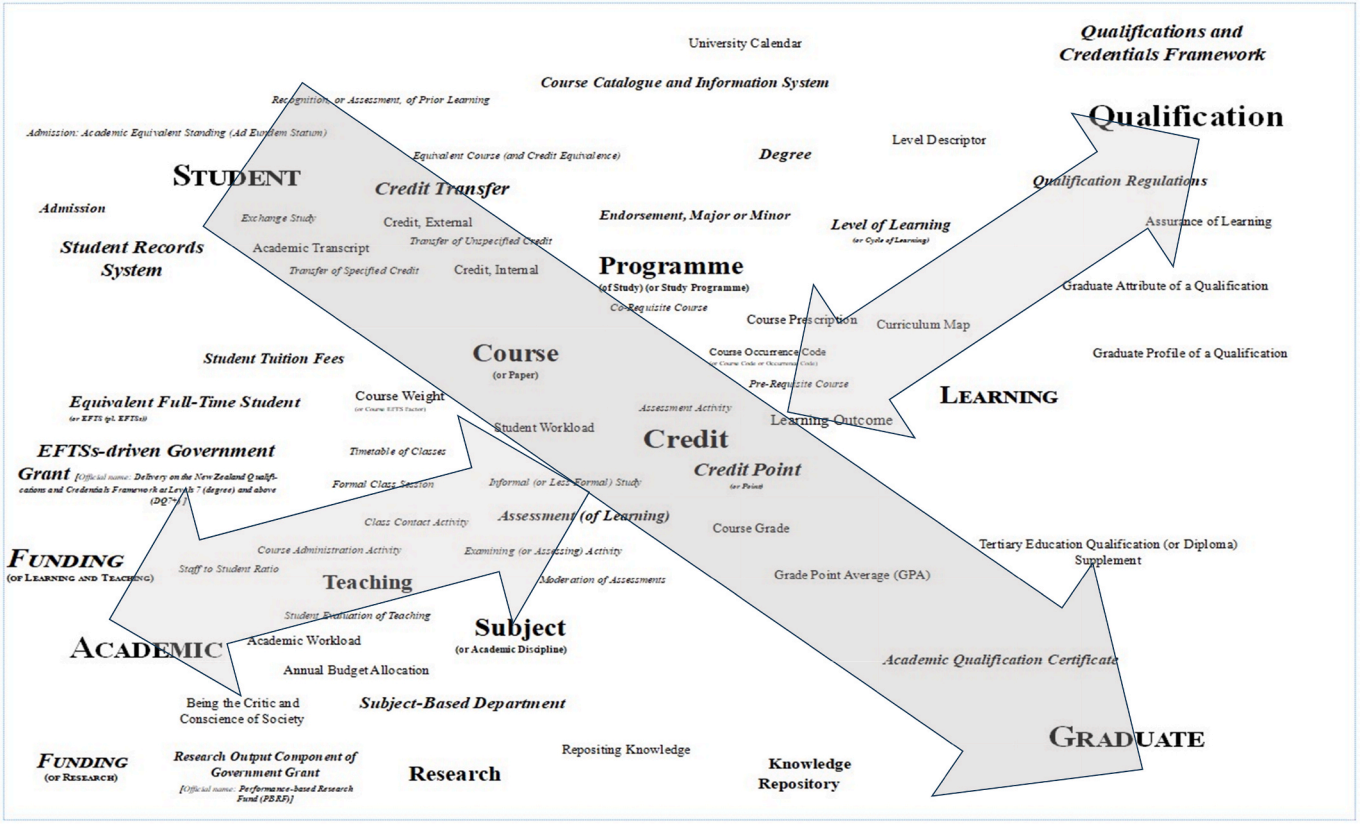


**Fig. 2.** Configuration of objects as the curricular accounting infrastructure at the University of Canterbury in Aotearoa New Zealand. NB To distinguish objects by, in my assessment, their relative significance, I use several font sizes (i.e., large–small) and styles (bold-regular-italics). I do not see this assessment as flawless. Besides, what is important to some people may be minor to others.

### 3.2. Accounting for student learning journeys

I represent the journey of a person along a study pathway from the object (being a) student to the object (becoming a) graduate with the unidirectional arrow running diagonally from top-left to bottom-right of Fig. 2. As well as it passing through the previously discussed credit, points and courses, I show other objects in proximity to this arrow, including programme (of courses), and teaching and subject, learning and learning outcome, and credit transfer, all with further related objects around them. Configuring the objects in this way portrays how curricular accounting captures and interprets the process of knowledge being acquired, assessed, graded and certified. Students, with qualifications in mind, pay to enrol on courses which form their personal full- or part-time study pathways. On being admitted to UC, a unique, individual record is opened at the institution level about each student by name and identification number. The record includes an academic transcript on which names and codes (and so discipline and intellectual level) of courses, and their points value, are entered for each academic year the student is enrolled. Their annual enrolments are linked with their invoices for tuition fees,[8] their student allowances, loan agreements,[9] scholarships or personal accounts, and their timetables of classes (e.g., lectures, tutorials, seminars, laboratories) and of examinations.

In what may be likened to a charge-and-discharge method, each course entry on a transcript is added to, and closed off, when the student completes the course and is awarded a letter grade, pass (i.e., A+ to C−) or fail (i.e., D or E). Points acquired through achieving pass grades are added together to quantify the student's progress towards their intended qualification(s). Further evaluation of the student's performance is enabled through converting all letter grades to numbers used to calculate annual and overall grade point averages. Eventually, most students accumulate enough points to be eligible to graduate with the qualification to which they aspire, and so they apply to graduate, have their points checked and applications approved and receive their qualification certificates and supplements, on which their courses, points and grades are listed. Subsequent to qualification, aside from purposes of gaining employment or the like, students may use the courses, grades and points make-up of their qualifications to enrol for higher qualifications, whether in the same institution or elsewhere (NZQA, 2024; UC, 2024b; UK Credit Forum, 2010). However, some students do not graduate, giving rise to points from incomplete or interrupted study. Students with such points can apply for them to be counted instead towards other qualifications, including in another discipline or at another university, sometimes across borders. Gradually, inter-institutional curricular accounting processes have been devised under which credit can be transferred (NZQA & European Commission, 2016; UC, 2023b).

UC keeps each student record in perpetuity (the earliest were created at Canterbury College in the 1870s), some covering more than one active period of study and a few qualifications. Correspondingly, a UC student or graduate can have equivalent records at other institutions, and viewed together these might be seen as a student's *lifelong learning account* (Adam, 2001, p. 302); they equate to a personal intangible asset, or proofs of their intellectual capital (cf. Bekhradnia, 2004; Havnes & Prøitz, 2016; Mason, Arnove, & Sutton, 2001; UK Credit Forum, 2010).

### 3.3. Accounting in specifying qualifications which accord with qualifications frameworks

All 224 qualifications offered at UC (see UC, 2024b) are registered in the pan-discipline ANZ Framework and accord with its provisions. This circumstance is represented in Fig. 2 by the bi-directional arrow in its top-right quadrant, with one end directed at the objects qualifications and qualifications and credentials framework, and the other end directed at the objects credit and points. Elaborating the matter raised above about the quantities and distributions of credit points comprising three-year bachelor degrees, prominent among these provisions are that the minimum ANZ_CATS points required for bachelor's, master's and doctoral degrees must be, respectively, 360, 240 and 360, coinciding with a general pattern of three, two and three academic years of full-time study (i.e., 120 points constitute an annual full-time load for a student, or 120 points ≡ 1 EFTS). However, there are intermediate intellectual levels in the bachelor's and master's degrees; for example, 360-point bachelor's degrees at UC require not more than 135 points at 100-level and at least 90 points at 300-level.[10] There are also some variations in the degree durations and points requirements by discipline (e.g., engineering, medicine, business administration).

Correspondingly, the ANZ Framework relies on the validity of points as the currency of curricular accounting. It also relies on being able to differentiate levels of learning within and across disciplines, and in turn on level descriptors (NZQA, 2023) and learning outcomes, hence the proximity of these objects in Fig. 2 to the arrow under discussion. Level descriptors indicate the increasing intellectual intensity which academics should demand of students as they rise through credit-bearing courses from 100-level to 300-level of a bachelor's degree, and then to the level(s) in master's degree and doctoral study. The level descriptors materialise in programme and course specifications (e.g., UC, 2024d) as increasingly demanding learning outcomes which students must attain in progressing from level to level.

[8] Fees for domestic students take account of the EFTS-driven grant and are at a lower rate than fees for cross-border students. Like grants, domestic fees are subject to limits according to Government regulations. Conversely, fewer regulatory limits apply to cross-border student fees, wherein therefore lies the greatest scope for ANZ universities to increase teaching revenue, through recruiting students from countries in Asia and elsewhere (cf. Stein et al., 2016; Yap et al., 2014).

[9] Most domestic fees are paid on behalf of students by the Government, some as part of a (low-family-income) student's allowance but most as a drawdown on their entitlement to a student loan.

[10] The ANZ Framework comprises 10 levels in all, four at pre-bachelor's degree level and the top six ranging from bachelor's 100-level (known as Level 5 in the framework) to doctoral level (or Level 10) (NZQA, 2024).

In conjunction with the ANZ Framework, the ANZ_CATS facilitates networks within and across UC and other institutions comprising ANZ higher education. Noteworthy is that the framework is superintended by the Qualifications Authority at the central authorities level and applied from UC's institution level, thus being part of the relations between the two, with a flow on effect into the latter's relations with basic divisions. Concomitantly, ANZ's eight universities assign an intellectual level to all their courses which bear credit (i.e., count towards a qualification) and a credit-point value (e.g., 15 points, 20 points), all regardless of a course's subject matter and the basic division into which it falls (e.g., anthropology, physics). This is consistent with and in addition to what is inferred above about universities specifying all their qualifications such that they accord with the ANZ Framework.

Although curricular accounting infrastructures elsewhere are comparable with ANZ, and qualifications frameworks like ANZ's have become increasingly prominent in these infrastructures (see list in European Centre for Development of Vocational Training et al., 2017), circumstances of credit schemes, qualifications and associated things vary between countries (Broucker et al., 2019; Pettersen, 2015; Tahar & Boutellier, 2013; Watson, 2009). However, consistent with education institutions individually and collectively in ANZ and other countries aspiring to international harmony, not least in order to facilitate business activities based on cross-border students paying market-based fees, compatibility has been sought between these national frameworks. This includes the creation of the European Qualifications Framework (EQF), to which the ANZ Framework has been formally compared, resulting in ANZ degree requirements being evaluated as matching Bologna Process expectations (see NZQA & European Commission, 2016). In turn, this aids mutual recognition and other facilitation with many countries, this despite the contrast between the 180–120–180 credits designations of degrees used in the ECTS under the EQF and the 360–240–360 points designations in the ANZ_CATS under the ANZ Framework.[11]

On the face of it, this contrast may seem easily surmountable by calculating conversions using the rate of 1:2 between ECTS credits and ANZ_CATS points. Besides, it is consistent with the more frequent conversions between ECTS credits and UK CATS points (Philips, 2003; UK Credit Forum, 2010). However, controversies arise because the notional hours which each ECTS credit signifies varies across Europe, mostly between 25 h and 30 h, with Britain being the exception at 20 h (Adam, 2001; ECTS, 2024), the same as ANZ. The strength of this controversy is indicated by UK CATS points being under challenge from ECTS credits as the currency in use in Scotland, (EHEA et al., 2015, 2018; Pollard et al., 2017), although no such challenge has materialised in ANZ.

A second contentious difference between ANZ and (continental) Europe is how level descriptors are used to distinguish intellectual levels in a pan-discipline way between sub-degree levels and to differentiate postgraduate study from undergraduate study. Although in both places, these descriptors are expressed accommodatingly (Hall, 1997), in contrast to the use of learning outcomes in ANZ (NZQA, 2024), as well as in Britain (Open University, 2005), descriptors in Europe (EHEA et al., 2015), while still alluding to so called competence levels (Blackmur, 2015), do so in freer ways than learning outcomes might. In Europe, descriptors are premised on "a programme of learning which must be feasible (for students) within the given time frame" (Pollard et al., 2017, p. 40; cf. Broucker et al., 2019). This freeness in Europe reflects, and enables, the broader range of practice exhibited there from one country to another (cf. Huisman & van Vught, 2009). It also avoids criticisms levelled at learning outcomes as being illusory, narrow in their conception of learning, rigid, stifling, antisocial, corrosive and dehumanising (Furedi, 2012; Hussey & Smith, 2008; Murtonen, Gruber, & Lehtinen, 2017; Scott, 2016; cf. Souto-Otero, 2012).

### *3.4. Accounting in framing academic–student–administrator relations*

The bi-directional arrow in the bottom-left quadrant of Fig. 2 has one end directed at the objects, credit and points, and the other end directed at the objects, academic and funding (of learning and teaching). I represent two ideas using this arrow. First, through conducting courses of learning, individual-level academics impart their credit-bearing knowledge (quantified in points) to students, while stimulating the latter's ability to question. The knowledge, the academics, the courses and some teaching and learning resources are mostly organised in subject-based departments. The rest of the teaching and learning resources (e.g., campus buildings, libraries, central academic services) are "central", and so are administered from the institution level.

Second, all these activities and resources are funded from most of the EFTS-driven annual grants and student tuition fees. Though diminishing from a time in the 1980s when over 90 % of higher education funding was provided by the Government (Abbott, 2006; Roper, 2018), these grants still comprise the largest portion (41 %) of UC's revenue, whereas in the same period tuition fees have risen from virtually nothing to be 32 % of its revenue now (see UC, 1992, 2024c). These monies are allocated at the discretion of the senior administrators at the institution level, and some are applied otherwise (e.g., for research, general facilities, marketing the university and its programmes (e.g., with logos, slogans, promotional web pages), corporate matters). This discretion must take account of activities at the basic division level and the opinions of the academics and others comprising the faculties, schools, departments and other divisions at this level; invariably, they take a keen interest in their internal resourcing and the effects which operational change proposals (e.g., changes to programmes, courses and disciplines, to building allocations or to the curricular accounting system) might have on their student and staffing numbers and such like.

Curricular accounting is given meaning by activities, systems and other things forming UC's modus operandi, as depicted in this quadrant of Fig. 2, in conjunction with the three levels to the left of Fig. 1. Concomitantly, the practice of this accounting has implications for power relations among the people and organisational divisions at these levels, not to mention the equivalent external relations with central authority bodies and publics, including that the latter relations extend to the international higher education field,

[11] On the system designers' choices of 180 and 360, these numbers have interesting properties. The number 180 has 18 divisors, and the number 360 is distinct for 24 divisors. All can serve as whole-number credit point values of individual courses or modules and, from there, qualification levels and period workloads (e.g., 360 divides into six 60-point semesters and three 120-point academic years).

through participation of over 1,300 cross-border students and an unspecified number of internationally mobile academics. The accounting is capable of (re-)constructing all these relations; for example, in turning what I indicated in Section 3.2 using the top-left, bottom right diagonal on Fig. 2 as a student freely choosing their learning journey in company with academics through UC to graduate with a qualification into something more akin to a student being regulated and controlled along a production line which is as much economic as educational (cf. Miller & Power, 2013).

I raised these matters about accountings and power relations in justifying my application of Fig. 1, and so it should be unsurprising that the same would apply to curricular accounting. This accounting does not merely provide system-generated information to record, analyse and report on curricular matters. Its potential is greater than to inform curricular administrative situations (e.g., students and their studies, academics and their courses, buildings and rooms, revenues and expenditures) and functions (e.g., planning, coordinating, monitoring, evaluating). It is used to interpret situations wholly or partially through numbers and to facilitate educational and broader socio-economic relations. It cannot be isolated technically from the uses to which it is put, either by those wielding it or among those entangled with it more generally (cf. Hodder, 2014). It fosters a rationality founded on administration which is tolerated by many UC participants for providing educational as well as economic order in institutions and society, but which is nevertheless potentially incumbering and degenerative.

#### *3.4.1. Need for ANZ_CATS*

To appreciate UC's current need for a sophisticated curricular accounting system which facilitates academic–student–administrator relations, some quantitative information may help, much of it generated by the system itself. This covers student numbers and activities, and qualification numbers and variations in their specification, the latter reflecting an expansion of knowledge and increase in disciplines worldwide. As an adjunct to administration, some of this information is published annually in aggregated form in calendars, catalogues, web pages and annual reports. I have selected some of it for 2024 and 2025, added some calculations of my own and incorporated all these into Table 1. Incidentally, in terms of size of the eight ANZ universities using the ANZ_CATS, these numbers place UC as one of three universities in joint fourth largest.

An aim of the ANZ_CATS is to permit student elective choices as much as possible within qualification specifications. This aim was inherited from the system preceding it ('Credit points', 1974) and discussed in adopting it in 2006 (UC personal communication). The resulting variety which this achieves is evidenced by only small numbers annually of UC graduates having followed any identical study pathway. These small numbers, ranging between 1 and 50, compare with the number of qualifications which UC is conferring (i.e., to 3,500 graduates). The extent of elective choices has implications for systems by which to organise semester timetables of classes and invigilated final examinations in ways to minimise scheduling clashes.

In the (increasingly) complex circumstances which the data in Table 1 demonstrate, curricular accounting suits accounting and administration, hence one reason for the onus for the ANZ_CATS form of curricular accounting to have come from the central authorities and institution levels of the ANZ tertiary education system. The accounting, embracing points, compatible credit transfer arrangements and the Qualifications Framework at different stages (cf. Philips, 2003), was applied first in polytechnics (from the 1990s) and then adopted by the universities (from the 2000s), including UC (since 2006). Curricular accounting, including the Qualifications Framework and EFTS-driven funding system, is administered by and wielded from or through these levels, conveying attitudes of techno-rationality, productivity, performativity and economizing throughout ANZ higher and other tertiary education. But issues arise because of doubts over whether the system reflects reality, including its application across disciplines, ultimately creating misleading information; and because potentially how it is applied may subjugate, exploit and harass academics and others in the other levels (Roberts, 2022; Shore & Wright, 2015; cf. Newfield et al., 2022; Walker, 2008).

Conversely, as with other accountings (cf. Dillard et al., 2005), curricular accounting can foster emancipating processes, including, for example, for students; compared with the previous generation, each has much greater choice of courses in their personalised degree pathway and those with incomplete past study can more easily turn this failure into the success of resumed and completed study. Indeed, despite curricular accounting's economizing influence, many participants continue to conduct daily interactions in socio-political ways of longstanding, using knowledge structures, negotiation processes, rituals and etiquette typical elsewhere. Concomitantly, the incongruity among several mechanisms of mediation or control have made for increasing complexity in contemporary universities and higher education, but with the overall trend being away from collegial environments towards neoliberal ones (e.g., see Amsler & Shore, 2017; Roberts, 2022; cf. Newfield, 2016; Parker, 2011; Watts, 2017). While curricular accounting is more allied or consistent with mechanisms (e.g., machine bureaucracy, managerialism, corpocracy, competitive markets, collegial entrepreneurialism) for which the moniker New Higher Education has been coined (Marginson, 2007; Trowler, 1998a) than with others (e.g., adhocracy, discipline-based clans or tribes, professional bureaucracy) (e.g., see Becher & Trowler, 2001; Bleiklie et al., 2015; Coy & Pratt, 1998; Kallio, Kallio, & Blomberg, 2020; Parker et al., 2023), it is practised among all these.

A further observation is that, as curricular accounting is dynamic, some neoliberal or even collegial things are still being tightened or added on. This is consistent with Roberts's more general observation of small daily concessions becoming a normal mode of academic practice, as part of a "gradual, almost invisible 'wearing down' of academics via managerialist structures and practices" (2022, p. 87). Relevant examples among these are a definition of points embracing the 10 notional hours measure materialising in regulations in the UC Calendar in 2018 and recent adaptions to assessment involving formal internal and external moderation (UC, 2023a, 2024b). Curiously, the latter are reminiscent of controls over academics in the days of UNZ and the fledgling UC of the 1960s when student and academic discretion was constrained (Gardner et al., 1973; Gordon, 1946).

#### *3.4.2. Resourcing*

Reviewing Fig. 2, I position funding- and fees-related objects adjacent to the academics and their departments performing teaching,

**Table 1**
Annual information indicative of size of UC in 2024/25.

| Data (number of …) | Quantity |
|---|---|
| Subjects (disciplines, subdisciplines) | 170 |
| Courses offered | 3,300 |
| Qualifications* | 224 |
| Number of academics | 1,500 |
| Students enrolled | 25,000 |
| Course enrolments for which a grade is awarded** | 135,000 |
| Equivalent full-time students*** | 17,500 |
| EFTS-driven grant ($) | 175,000,000 |
| (Notional) Hours students spend studying and being assessed**** | 23,000,000 |
| Weekly hours of timetabled sessions (e.g., lectures, tutorials, labs, supervisions) | 3,300 |
| Annual hours of timetabled sessions, mostly during 24–30 weeks of "term time" | 80,000 |
| Assessments undertaken (e.g., examination scripts, essays, projects, presentations) | 330,000 |
| Credit transfer applications | 5,200 |
| Qualifications conferred on graduates (60 % bachelor's, 25 % postgraduate degrees) | 3,500 |

Notes to Table 1.
* The number of qualifications includes degrees, certificates and diplomas, including those tied to subjects as named qualifications and *meta*-qualifications (e.g., degrees in science, arts, commerce, engineering, philosophy). The number does not take account of endorsements, major subjects and minor subjects of meta qualifications.
** Enrolments which result in withdrawal a few weeks into a course are not included.
*** Following adoption in 2011 of the *common course size principle* (UC, 2010), most courses are sized at 15 points, with the rest being multiples of 15 points. With 120 points constituting an annual full-time student study-load, each enrolment on a 15-point course counts as $15 \div 120 = 0.1250$ EFTS, the latter being called the Course Weight. Accordingly, the 135,000 enrolments calculate to 17,500 EFTSs. In calculating the EFTS-driven grant which each course enrolment generates, the course weight acts as the multiplier, and so the number of ANZ_CATS points a student is accumulating directly determines the funding they are generating.
**** These hours have been calculated on the basis of one point of study requiring 10 notional hours of study. Sources: UC (2024a, 2024b, 2024c), Author's calculations, rounded.

research and other activities. In among these is that vital object, the Annual Budget Allocation. This positioning signifies the transparent interdependencies in ANZ between course enrolments for credit and revenues, particularly the overt connection between ANZ_CATS points and funding, which has implications for the relations between the four levels depicted in Fig. 1.

Adding to earlier references to grants, it is noteworthy that since 2023, the Funding Commission has paid the EFTS-driven grants from a fund called *The Delivery on the New Zealand Qualifications and Credentials Framework at Levels 7 (degree) and above (DQ7+) Fund*. This name formalises the connexion which has existed for some two decades between the grants and credit-bearing courses leading to qualifications at the bachelor degree and higher levels of the ANZ Framework. The grants are calculated by converting the ANZ_CATS points which students are enrolled for during the academic-funding year into EFTSs and then dollars. The conversion is based on each course being categorised by a mixture of their discipline (e.g., dentistry compared with engineering compared with accounting), intellectual level (e.g., bachelor's degree level compared with master's degree level), whether taught or research-based, and delivery mode (e.g., on-campus compared with distance). Each resulting category (18 in all) has a funding rate per EFTS, and so per ANZ_CATS point (TEC, 2025). These funding rates are also taken into consideration in universities setting tuition fees for domestic and cross-border students on each course.

The funding system and its grant calculation methods are designed to make everything more transparent than up to 1990 (Coy et al., 1991). Administrators, academics and even students can calculate the amount of grant each course generates. Indeed, the relative monetary worth of a specific course to its basic division and the university as a whole is clarified when this amount is combined with the student tuition fees which the course generates. At the institution level, a curricular–conventional accounting nexus is apparent around funding, and specifically the particulars and implications of the EFTS-driven funding system, and service performance. Regardless of who "owns" a university, the continuity of Government grants and student enrolments and graduations is vital to stability of the institution as a whole and of each discipline (e.g., see Ross, 2023). The nexus is reflected in institutional mission shifts in recent decades towards economizing, and consequent new academic behaviours, as alluded to above in mentioning New Higher Education.

For sake of funding and other administrative benefits, academics at basic division and individual levels seem comfortable still with the convenience of curricular accounting's various simulacra (cf. Baudrillard, 1981/1994; Hutner & Mohamed, 2016). By applying the rule of one point signifying 10 notional learning hours, academics and their administrators can, on the face of it, gauge, individually and collectively, the volumes of hours of work they should demand of students. This is alongside demanding quality of work commensurate with the standard or intellectual intensity of their courses. Formally, the latter is expressed in their courses' learning outcomes, which should accord with the level descriptors laid down in the ANZ Framework, and in turn contribute to the specific graduate attributes accorded to particular qualifications (NZQA, 2024). Correspondingly, students can, again on the face of it, interpret the number of points for which they are enrolled per semester as an expression of their study workload.

However, academics and students actually doing these things in practice appear half-hearted, for such reasons as academics doubting whether points have any bearing academically, much less as meaningful measurements of learning, and doubting the veracity

and motives of the learning outcomes technology underpinning the ANZ_CATS. I allude to the latter above in comparing ANZ and Europe in matters of distinguishing learning levels. Of particular concern at UC is the appropriateness of learning outcomes technology in universities and higher education (personal UC communication) (see also e.g., Hall, 1997; Havnes & Prøitz, 2016; Laitinen, 2012; Winter, 1993, 1994), especially in view of ANZ_CATS having originated in the polytechnic sectors in ANZ and England (e.g., see Currell & Randall, 1989). For their part, to gauge requirements of their individual courses, students individually and as course cohorts do better to rely on other, more to hand indicators (e.g., course lecture contents, assessment guidance from academics, past examination papers) than points, learning outcomes and similar formalities.

Accountings, including curricular accounting, have become pervasive in higher education through the mission shifts just mentioned, so significantly influencing curricular matters from the institution and central authorities level, via controls exerted over academics with administrative accountabilities for basic divisions, with consequences for academics and others with fewer administrative responsibilities. Related matters are that the EFTS bases of UC's main revenue streams (i.e., EFTS-driven grants and domestic and cross-border student tuition fees) are considered in the allocation among departments of academic positions and budgets for other expenditures (e.g., hiring tutors and markers, travel and subsistence), but so too are staff–student ratios, research activities, university strategic priorities, political sagacity, and historical and other factors (cf. UC, 2020). All these also figure in controlling the activities of academics and support workers, as do ideas of class contact, other workload measurements and student evaluations of teaching. These all exemplify such functions of conventional accounting as effecting order, specification, control, stability and economizing (cf. Miller & Power, 2013).

As for the politics behind resource allocations and measurements (Coy & Pratt, 1998), the transparency of student numbers, EFTSs, funding rates and fees, as well as of research outputs and impacts (Chatterjee, Cordery, De Loo, & Letiche, 2020; cf. Power, 2015), has provided ammunition for the constant political engagement among individual and basic division level academics and institution level administrators. All use the numbers in question during strategic planning and management control activities, and in operational deliberations (e.g., over student recruitment and retention). They can refer to revenues and compare them with how resources are allocated, or ignore them, depending on what suits. The same applies in the processes for allocating resources among universities, and in institution level relations with, and oversight by, the Qualifications Authority and the Funding Commission.

## 4. Findings: understanding curricular accounting through its history

The aim here is to bring out "the social and organisational significances which [accounting] has had and is capable of having" (Burchell et al., 1980, p. 23) and otherwise further increase and disseminate knowledge of curricular accounting. My intention is to give students, academics, administrators and others the accounting affects, or for whom it has consequences, agency to overcome inadequacies which the accounting holds for them. Following Power (2015), I focus on object formation and the accretion of the infrastructure that is curricular accounting. These matters arise from taking a historicising perspective to clarify that the curricular accounting explained in Section 3 has been constructed through application, adaptation, mutation and revision of objects and sets of objects which previously functioned more independently.

My analysis revealed that the system in its present form was developed by successive generations of Canterbury College, UNZ, UC and other ANZ university participants. They trod a rugged path of dependency (cf. David, 2007), as chronicled in the likes of Gardner et al. (1973), Gordon (1946), Gould (1988), Grimshaw (2022), Hunter, Laby, and von Zediltz (1911), Murdoch (1943), Parton (1979), Tearney (2016) and Wilson (2023), and the present generation is still tramping. These participants have come to be controlled by the very practices they have created (Gallhofer & Haslam, 2020; Macdonald, 2017), these practices embracing other things, including other types of people, objects, spaces, languages, identities, and cultures (Hodder, 2014). However, I refrain from reporting the cut and thrust of the sort of drama to which Power alludes in introducing research impact accounting to the literature, although I gave one example of this in opening Section 2: that is, UC's revisiting, in 2008, the version of the ANZ_CATS it adopted in 2006, but which was proving troublesome.

Four distinct sets of arrangements or systems covering matters falling within the ambit of curricular accounting have operated at UC or its predecessors, with ANZ_CATS being the most recent. I present their main aspects in Table 2. The names used to refer to them hereafter are indicated in Row 1. I also found that over half the present objects (37/70) displayed in Fig. 2 existed in the early history of UNZ, as founded by Scottish and English lay and academic settlers, who drew on their experiences of some of the then nine universities "back home". This high proportion indicates that the ANZ_CATS continues to serve longstanding curricular matters within university structures and processes beyond ANZ. Moreover, it bears out Power's observation that an "accounting never simply begins" (2015, p. 43).

Comparable with other accountings, the four systems in Table 2 are traceable to conditions and sources in ANZ and its higher education field (cf. Power, 2015). Following on from the founding of university education in Canterbury and Otago as part of the plans of the early settlers, and UNZ expanding to include colleges in Auckland and Wellington, I was able to identify four conditions and sources (C&S), as follows:

Vocal groups of academics (e.g., the University Reform Association) raised concerns about several matters affecting their colleges (Hunter et al., 1911). Aligning themselves with universities elsewhere, primarily in Britain and its dominion empire (Phillips, 1937), these academics aspired to lift standards in the dominion to those being achieved elsewhere. They also sought to increase academic involvement (and reduce lay ascendance) in governing UNZ, particularly its curriculum (Currie & Kedgley, 1960; Gordon, 1946; Grimshaw, 2022; Royal Commission, 1925; Wall, 1916).

School participation rates increased, particularly from the 1890s at secondary level, including because the Government guaranteed free places in secondary schools. By the 1940s, state secondary schools were established, and participation was made compulsory on

**Table 2**
Main Aspects of the Four Curricular Administrative/Accounting Systems used at Canterbury College | University of Canterbury 1870s–2020s.

| 1 | Aspects | | 1873–1925 Arrangements | Unit System | 1975–2005 System | ANZ_CATS |
|---|---|---|---|---|---|---|
| 2 | Academic year implemented to replace earlier system | | Instituted gradually from 1873, when College and UNZ established, (NB no official name) | 1926 (introduced as the "Unit System") | 1975 (introduced as the "New Degree System") | 2006 (introduced as the "360 Points Degree System") |
| 3 | Extent of quantification | | Only in number of papers | Only in number of units, hence the name | Yes (courses and qualifications in points) | Yes (courses and qualifications in credit points defined in study hours) |
| 4 | Qualifications covered by subject and degree level | | All | Undergraduate, excluding Engineering | Undergraduate, including Engineering from 2000***** | Undergraduate from 2006, Postgraduate since 2012 |
| 5 | Qualifications conferred by | | UNZ | UNZ (–1960), UC (1961–) | UC | UC |
| 6 | Qualifications part of a pan-ANZ scheme | | UNZ | UNZ, Academic Programmes Committee | Academic Programmes Committee | Academic Programmes Committee, Qualifications Authority's Qualifications Framework |
| 7 | Institutional coverage of system | | UNZ (incl. its Canterbury (1873), Otago (1869), Auckland (1883) and Victoria (1893) Colleges) | All UNZ (until 1960), ANZ universities (from 1961) | Only UC (incl. Lincoln College) initially, then Otago | Gradually adopted by polytechnics from 1991; by universities from late 1990s |
| 8 | Qualifications classified by intellectual level | | Yes (undergraduate, postgraduate) | Yes (undergraduate, postgraduate) | Yes (undergraduate, postgraduate) | Yes (undergraduate, postgraduate) |
| 9 | Way in which courses (also known as papers or (from 1926 to 1974) as units) classified by intellectual level | | Undergraduate pass and advanced, Honours, Master's | Undergrad 1st, 2nd and 3rd Years (from 1940s, Stage I, II and III), Honours, Master's, Doctoral | Undergrad Stage I (100-level) Stage II (200-level) and Stage III (300-level), Honours, Master's, Doctoral | Undergrad 100-, 200- and 300-levels, Honours, Master's, Doctoral |
| 10 | Courses coded by intellectual level | | No | No | Yes | Yes |
| 11 | Final credit-bearing examinations | | Common UNZ examinations until 1960 (using British-based examiners until 1940, except for ANZ examiners at Stage 1 from 1922; ANZ examiners at all stages from 1941), except internal College examinations at Stage I from 1950. Internal UC examinations from 1961. | | UC examinations | UC examinations |
| 12 | Form of student academic records \| transcripts | | Ledgers* (until 1910), Handwritten cards** | Cards, first handwritten, later typed | Typed cards (until 1985), Computer-based | Computer-based |
| 13 | Credit points used to denote course size | | No | No | Yes (relative) | Yes (student study hours) |
| 14 | Size of courses tied explicitly to student learning time | | No | Only that a *unit* was defined as one year's work in an approved subject | Yes, in that points at higher levels required more hours of study than points at lower levels | Yes (10 notional learning hours per point) |
| 15 | Descriptors distinguish intellectual difficulty of courses | | No | No | No | Yes |
| 16 | Compatibility of system with other countries | | Reflective of England and Scotland | No | No | Europe (incl. Britain) |
| 17 | Credit transfer*** | | Qualifications (overseas only) | By unit (overseas only until 1960) | By (part of a) unit | Using credit points |
| 18 | Credit point size of course tied to grant and fee revenue**** | | No | No | No, then loosely (from 1991) | Yes |
| 19 | Requirements for three-year | No. of discrete units or courses | 6 | 8–9 | 17 | 17; then 24 (since 2011) |
| 20 | bachelor's degrees | No. of final examination papers | 8–12 | 18 | 17 | 17; then 24 |
| 21 | | Smallest, most common, credit bearing unit (estimated in ANZ_CATS points) | 60 | 40–45 | 20 (some 10, 13.3) | 11–28; then 15 (since 2011) |
| 22 | | Percentage 300-level study and assessment | 0–10 %, at student's discretion | 12 % compulsory | 18 % compulsory | 23 %, then 25 % compulsory |

Notes to Table 2.
* These heavy bound 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.
** These cards resembled those used by local banks for individual customer accounts.

[***] To clarify change along Row 17, these transfers arise for UC when students completing courses elsewhere in ANZ or overseas want them to accumulate towards a UC qualification, or vice versa. Each university has built-up policies, structures and processes for dealing with all credit transfer applications (e.g., UC, 2023b), as informed by guidance from NZQA (2023). Before 1960, ANZ students all studied for UNZ qualifications and took its common examinations, and so credit transfer was largely unnecessary between UNZ's colleges, although it did apply when a student wanted to transfer credit between disciplines (cf. Parkyn, 1967). For overseas people, credit transfer started out as being about equivalence of British and a few other foreign university qualifications and numbers were quite small. The present practice of transferring credit for study elsewhere started to arise in the 1920s (see UNZ, 1871–1925), but until the 1960s numbers continued as small. Numbers then grew steadily, as have issues pertaining to them, including need for a system to process the sheer volume of applications (cf. Toyne, 1979). Many of these issues have arisen because of the considerable growth in cross-border students since the 1990s. Indeed, the present volume of credit transfers (i.e., over 5,000) has increased five-fold since 2000, compared to student numbers only doubling.

[****] To clarify the move from "No" to "Yes" along Row 18, although EFTSs have featured in grant calculations since 1948 (before then the Government funded each UNZ college's estimated deficits of expenditure over fees, endowment and other revenues, and their approved capital programmes), up to 1990 they were only one factor used to determine grants to fund operational expenditures, with grants to meet capital expenditures being more on a project-by-project basis. From 1991 to 2005, the (initial version of the) EFTS-driven funding system ran side by side with UC's 1975–2005 System. Although objects in the 1975–2005 System featured in how student enrolments on courses were calculated into the numbers of EFTSs, the connexion between the two systems was looser than the present connexion between the ANZ_CATS and the 2023 version of EFTS-driven grants as described in Section 3.4.

[*****] The "separateness" of engineering dated back to having been the (National) School of Engineering, as established on the College campus in 1887. Engineering courses and qualifications were incorporated into the 1975–2005 System from 2000 to allow students to include computer engineering courses into a BEngineering (personal UC communication).

grounds of welfare and the developing economy (Murdoch, 1943; Tearney, 2016).

Across the Empire (and Commonwealth) and beyond, knowledge grew and discipline diversification (i.e., new disciplines and sub-disciplines) occurred. Demand grew for educated workers. Access to secondary education widened, matriculation increased, and demand grew for university places across the full range of disciplines (e.g., see Watts, 2017). The Organisation for Economic Co-operation and Development (OECD) exhorted governments to advance their countries technologically, and develop them economically through education (Theodossin, 1986). Occurrences between the 1930s and 1980s also reflected desires for increased economic and social equity (cf. Miller & Rose, 2008). In ANZ, these conditions were felt in higher education teaching, research, administration and public funding, including creating eight universities out of UNZ and increasing rates of participation (Abbott, 2006; 'Credit points', 1974; Gardner et al., 1973; Grimshaw, 2022; Parton, 1979; Roper, 2018; Wilson, 2023; cf. Newfield, 2016).

From 1984, the Government embarked on reforming the economy. This was neoliberalistic, developing new ways to govern compared with government overreach and the highly interventionist state, and involving alterations in calculations, an extension of

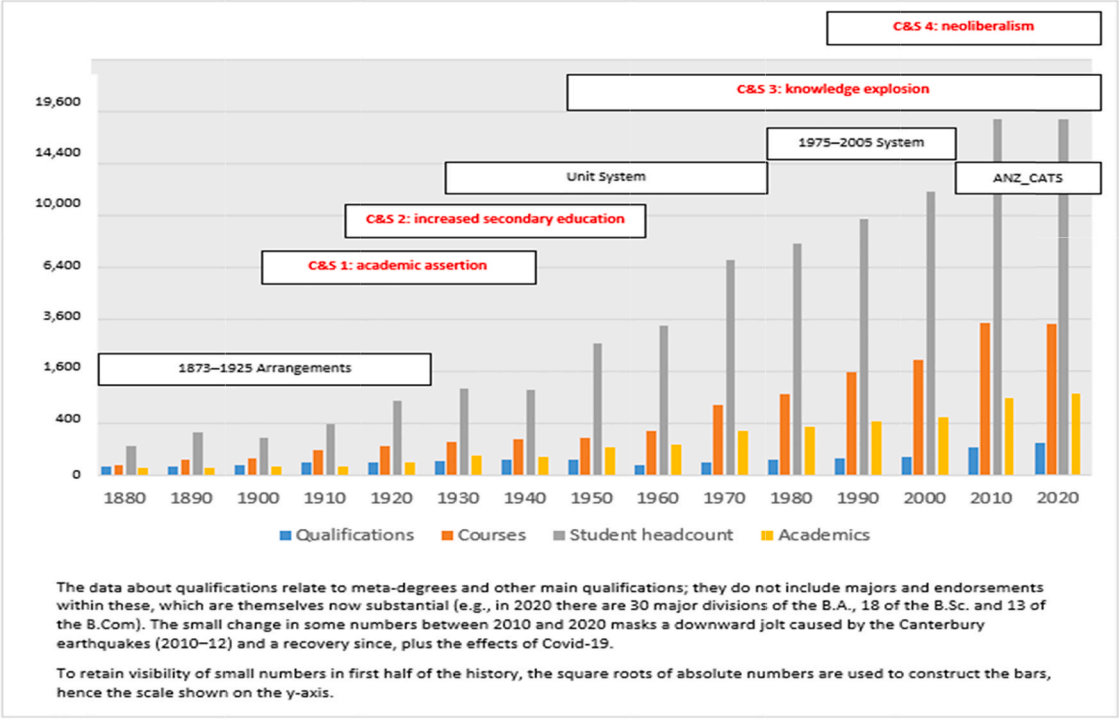


**Fig. 3.** Growth of qualifications, courses, students and academics at 10-year intervals since 1880 (and calendars and annual reports). Source: compiled from data in annual reports, clendars and Gardner et al. (1973)

calculative regimes, and wider adaptation and application of accountings. This is ongoing, just as elsewhere in higher education (see Parker, 2011; Parker et al., 2024) and in other endeavours (e.g. health, human development, infrastructure) which formerly incorporated a high degree of welfarism (Miller & Rose, 2008). Much social, economic and political change ensued at UC (Wilson, 2023) and across higher education and society in ANZ (e.g., see Abbott, 2006; Boston, 1996; Chong, Geare, & Willett, 2018; Larner & Le Heron, 2005; Olssen, 2000; Roper, 2018; Shore, 2010).

A continuing issue since the founding of the ANZ university system has been the balance between educational standards commensurate with selected other jurisdictions (e.g., Scotland, England, Australia, North America, Europe) and aims that the students emerging from study programmes would serve the contemporary needs of ANZ (e.g., at the turn of the 20th century, there were labour shortages in areas (e.g., schools, the learned professions) vital to the emerging, sparsely-populated settler economy – Phillips, 1937). The conditions and sources listed above reflect ANZ having maintained its success as a settler colony and then a sovereign nation, enjoying economic prosperity consistent with membership of the OECD. That success includes having established an internationally recognised jurisdiction of higher education, one which, except in the world war periods, has experienced continuous growth in all respects (Abbott, 2006; Currie & Kedgley, 1960; Gardner et al., 1973; Gordon, 1946; Healey & Gunby, 2012; Royal Commission, 1925; Tully & Whitehead, 2009). Accordingly, curricular accounting now facilitates external relations between universities within ANZ and between them and universities in other higher education jurisdictions.

Data typifying UC's size is charted in Fig. 3. Also shown are the periods over which the successive systems listed in Table 2 were in use and when the four conditions and sources listed above applied. The numbers of full- and part-time students[12] have driven the other numbers, but other factors also mattered. Modularisation (cf. Morris, 2000; Theodossin, 1986) drove the number of courses, with the standard size of courses reducing from the equivalent of 40–60 ANZ_CATS points between, say, 1880 and 1970 to 15 points now (see Row 21 of Table 2). Discipline diversification, growth of postgraduate study, including by cross-border students, preferences for so called named degrees and the proliferation of marketing stimulated the number of qualifications, and the numbers of subject majors and endorsements within these.

Comparing the four systems in Table 2, as Row 2 indicates, quantification, embodied in credit points, but of different sorts, is common to the 1975–2005 System and the ANZ_CATS, distinguishing them from the two earlier systems. Indeed, while the 1975–2005 System and the ANZ_CATS differed in many respects, they exhibit other similarities which distinguish them from the earlier systems. Like each of the latter (1873–1925 and 1926–1974), taken together they have to date occupied a 50-year period (1975–2025). This most recent 50 years coincides with a marked expansion of accountings, and the modes of rationality, order and legitimation they entail. Analogous with Burchell et al. (1980) discussing this expansion in the functioning of modern industrial (now global – cf. Stein, Andreotti, Bruce, & Suša, 2016) societies, and with Miller and Power (2013) regarding other public services, this quantification has extended recurrently to qualification specification, study pathway construction and other fundamental aspects of higher education, just as it has to university accrual accounting and service performance (Coy et al., 1991; Narayan, 2020; Pettersen, 2015), and probably with greater influence (cf. Pettersen & Solstad, 2007).

The quantification also coincides with two recurring themes in the progressions from system to system. First, continuing with the motto of "Keep[ing] up the Standard" inherited from UNZ (Gordon, 1946, p. 271), academics and administrators used the changes of curricular accounting systems, and some modifications to them, to raise bachelor degree requirements, and so the intellectual standards demanded of students (cf. Parton, 1979). These raises in standards are evident in curricular accounting arithmetic (see Rows 19–22 of Table 2), which I have supplemented with data for the three-year Bachelor of Arts (BA) in Table 3.

The raises in standards are despite contrary concerns academics expressed about first, the 1975–2005 System, and then, the ANZ_CATS, prejudicing standards through enabling disciplines and sub-disciplines to "spring up" and modularisation to increase, in turn enabling students to engage in "a kind of 'supermarket' shopping for imagined 'soft options'" ('Credit points', 1974, p. 25) or otherwise make ill-informed choices (cf. Bekhradnia, 2004; Hussey & Smith, 2010; Morris, 2000; Restrepo-Abondano, 2008; Trowler, 1998a; Turnbull, 2020). However, the raises were surely inevitable. Knowledge has exploded over the last century. Reinforcing this, the drive for discovery has been spurred on recently by obligations on academics to compete in the PBRF assessment and perform according to the accounting and management control measures which universities have instituted around it (cf. Martin-Sardesai et al., 2020; Power, 2015). Moreover, learning productivity of students has increased through increased efficiency and effectiveness deriving from information technology and other developments in most aspects of studying and assessment.

The second recurring theme is that, under the 1975–2005 System and then the ANZ_CATS, it has been easier for students to extend their study pathways to include courses from a wider range of disciplines than before 1975. Academically, increased effective demand (at basic division level) from revenue generating students made it easier to expand disciplines and sub-disciplines. Which brings me to the main difference between the 19752005 System and the ANZ_CATS and the explanation for UC replacing the former with the latter. With some very minor exceptions, the 1975–2005 System was peculiar to UC and represented UC breaking ranks from the other former UNZ colleges and discontinuing the Unit System. Almost 30 years after adopting it, UC faced the problem of being estranged from not only those others but also with the rest of the higher education world, with which it was increasingly dealing. It was also out of step with Government practices around the ANZ Framework and EFTS-driven funding. Thus, in adopting the ANZ_CATS in 2006, there was an acceptance among its proponents and opponents alike that failing to adopt it would prejudice UC's ability to compete with its rivals

[12] The proportion of part-time students has ranged from over 50 % until the 1930s to still over 30 % in 2024. Reasons for part-time study vary, but they have always included students needing to earn a living while studying, including nowadays to avoid graduating overburdened with student debt. The present proportion also reflects a sizeable proportion of former full-time students needing only a course or two to complete their qualification, having withdrawn from or failed courses previously.

**Table 3**
Distribution of Study for a BA* among Levels under each System since 1930s.**

| Level of Course | Unit System (1930s–1960s) | | 1975–2005 System (1970s–1980s) | | 1975–2005 System (1990s) | | ANZ_CATS(2000s) | | ANZ_CATS (2010s–2020s) | |
|---|---|---|---|---|---|---|---|---|---|---|
| (a) | Unit Courses (b) | ANZ_CATS Points Value (c) | 6-Point Courses (d)*** | ANZ_CATS Points Value (e) | 6-Point Courses (f)*** | ANZ_CATS Points Value (g) | 2006 Courses (h) | ANZ_CATS Points Value (i) | 15-Point Courses (j) | ANZ_CATS Points Value (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 | 132 | 9 | 135 |
| (Advanced) Stage III, 300- | 1 | 40 | 2 | 62 | 2 | 62 | 3 | 84 | 6 | 90 |
| Total**** | 9 | 360 | 17 | 360 | 17 | 360 | 17 | 360 | 24 | 360 |

Notes to Table 3.
* The BA was the first and, for decades, by far the largest UNZ, and now UC, degree. As with the majority of bachelor degrees, it has consistently had a duration of three academic years.
** It was not possible to apply the method used to compile this table before this period, but other evidence indicates the further one goes back then there was more pass-level study and less advanced-level study (e.g., see Gardner et al., 1973; Hunter et al., 1911).
*** The points used in the 1975–2005 System, as included in columns (d) and (f), differed in what was expected at the three levels in terms of student effort expressed in hours per point. This has been considered in converting these points into the ANZ_CATS points shown in columns e and g.
**** The generous assumption (towards the past) is made that, throughout the period which the table covers, the degree has been the equivalent of 360 ANZ_CATS points.

for domestic and cross-border students and to attract resources.

Attracting resources in competitive markets applying to courses, qualifications, students and research (Abbott, 2006; Leach, 2016; cf. Parker et al., 2023) is just one facet of the many neoliberal effects and consequences I have alluded to already. Other similar facets in which, and for which, curricular accounting is important include the following. First, education is regarded now as much more of a mixed good, with the private element still growing at the expense of the public element, even though it is necessary to national economic maturity as much as to personal development (Leach, 2016; Olssen, 2000; cf. Marginson, 2007). Second, potential school-leaver and mature-age students now perceive university education as more of a consumer right than either a human right or limited by social privilege, so exemplifying emancipation within a broadly neoliberal order (Healey & Gunby, 2012; Leach, 2016; cf. Swyngedouw, 2022). Third, growth continues of internationalism in disciplines, world university rankings, and cross-border student movements for philanthropy, international relations and, latterly, reasons of business (Stein et al., 2016). Fourth, universities, and academic–student–administrator relations within them, continue to be redescribed and reconstructed, with a notable shift away from flat, more emancipated structures associated with collegiality (as depicted in Fig. 1) towards hierarchical structures associated with managerialism (Amsler & Shore, 2017; Chong et al., 2018; Martin-Sardesai et al., 2020; Narayan, 2020). Fifth, graduates are an economic product, a commodity even, in which employers and others deal, including universities seeking postgraduate enrolments (New Zealand Productivity Commission, 2017; Roper, 2018; cf. Parker et al., 2024). And sixth, the form and level of funding of higher education by the Government (notably the EFTS-driven funding system and PBRF system) continue to mutate, since their regulation through a new suite of bodies at the central authorities level (see Notes to Fig. 1) and revision of the ownership and governance model of each university (Boston, 1996; Chong et al., 2018; Coy et al., 1991; Shore & Taitz, 2012).

Indeed, since being incepted in 1991 as a unitary grant depending directly on student enrolments by discipline (Coy et al., 1991; Ministry of Education, 1991), subtle but telling modifications mean that the now two Government funding vehicles (i.e., based on EFTSs and the ANZ Framework, and on research performance) have increasingly instilled joint and several, and occasionally diverging, conditionalities on universities. These are consistent with the idiom, "he who pays the piper calls the tune", but have the potential to compromise institutional academic freedom, not to mention the freedom of individual academics. While conventional accounting on its own may be weak in this regard (cf. Pettersen & Solstad, 2007), when combined with curricular accounting and the credit point as a unit of account (and indeed with the research impact accounting mentioned above, or any equivalents around research assessment exercises), the overall influence of accounting(s) within universities is strong, and is reinforcing the direction of travel mentioned above, namely, the structure and modus operandi of the higher education field becoming more hierarchical and economizing. This arises from, and has compounded, academics having less autonomy in thoughts and actions, individually and in their disciplines. This applies in dealings with people at the institution and central authorities levels and even with colleagues who are more conventionally-minded (cf. Becher and Kogan, 1980; Kallio et al., 2020; Stein et al., 2016).

## 5. Critical discussions of curricular accounting

This discussion is predicated on the interest of critical scholars in questions associated with whether the policies, practices and actions enabled by curricular accounting are emancipatory for students, empowering of academics exercising autonomy and freedom altruistically, and good for society. Or, paradoxically, whether it is exploitative and subjugal for these and other higher education

participants, with adverse consequences for society. The conditions for these possibilities are touched on in previous sections. There, I relate that curricular accounting was developed by academics, institutions and central authority bodies alongside increases in higher education participation rates and changes to the nature of that participation, as well as an increasingly diverse selection of people as students (Bekhradnia, 2004; Hussey & Smith, 2010; Raban, 1990). But the policies, practices and actions enabled, and sometimes masked, by curricular accounting have had implications of increased economic obligations for people to study for degrees and has led to increases in debt among new graduates (Nissen, Hayward, & McManus, 2019).[13] The same may hold for greater and better participation rates of people as academics, but with the accounting opportuning greater academic performativity and fostering business, audit or associated obligations which entail compromising their values and prejudicing their altruism, particularly towards students. Successive recent Government administrations have induced ANZ higher education to fulfil the functional purposes of producing work-ready graduates and published research outputs, not to mention attracting overseas earnings through cross-border students. This inducement is further to issues I advanced about conditionalities in Section 4 (i.e., grants being cut and depending on more teaching, research or other outputs being achieved), with potential to compromise individual and institutional academic freedom (Chong et al., 2018; Larner & Le Heron, 2005; Parker et al., 2023; Restrepo-Abondano, 2008).

In the next two subsections, I elaborate these opening observations in respect of concerns, first, for students and, second, for academics. In the third subsection, I revisit why it matters that curricular accounting should be recognised as a form of accounting. In all three subsections, I note benefits this accounting has to offer, but am critical of its overtones of repressive administration, disempowerment, audit culture, accountingisation and economization (Marcuse, 1964; Martin-Sardesai et al., 2020; Miller & Power, 2013; Roberts, 2022; Shore & Wright, 2015), depending on how it is wielded, by whom and where. In regard to the latter (and with reference to Fig. 1), like conventional accounting applications, variations in curricular accounting arise at the individual and basic unit levels within the same university and, when universities are compared, at the institutional level. They also arise incrementally because of, for example, changes in personnel, and associated ignorance, misknowings and knowledge, or some parties choosing to take unfair advantages which the accounting accords them. Variations are also possible because of, for example, changes in government policies and administrations.

### 5.1. *Students and curricular accounting*

I associate student emancipation with, among other things, increasing rates of participation in higher education; diversifying the composition of students, including in socioeconomic status, gender and race, as well as discipline and aptitude; and reducing non-completions of qualifications, including opportuning conversion of partial, interrupted study into full completion, regardless of institution. Likewise, it would be inadequate if students were denied or exploited in ways which place undue study-work demands on them or if their wellbeing were compromised in other ways, or if the result were for them to have to over-study, become excessively qualified or be conferred with dubious qualifications or overburdened with debt (Bekhradnia, 2004; Hussey & Smith, 2010; Leach, 2016; Nissen et al., 2019; Raban, 1990).

Curricular accounting was devised and has developed out of ambition for, and necessity to instil order in and facilitate control of pro-student aspirations. It has developed and grown in sophistication alongside a series of developments of an emancipatory nature. It has incentivised some of these developments, or at least enabled them administratively or even academically. For example, boundless diversification has occurred in the disciplines, subjects and topics available to students. Degree and other qualifications have broadened and become more accommodating of student choices, albeit through modularisation. Customisation in knowledge and skills coverage has increased because of the vast number of pathway possibilities students can follow in the numerous degrees available. It has been something of a further enabling mechanism, ranging from students understanding more about the market in which they participate to contributing to increased student mobility, intellectually and geographically, as exemplified at UC and in ANZ.

With massive increases in students (e.g., see Fig. 3), there has been corresponding growth in the numbers of graduates, some of whom have advanced higher education by becoming academics, examiners, administrators, manager-academics, and academic and lay governors. In most subjects, the background of participants has broadened, including participation rates among marginal, formerly excluded groups rising several-fold. Possibilities have increased to study at more than one institution in more than one country. There are far more institutions either calling themselves universities, or otherwise having degree-conferring powers, or they are accredited to teach and examine students for degrees conferred by other institutions or bodies authorised to make awards. At least in ANZ, universities as institutions, in going from small to large, traditional to multidisciplinary, and simple to complex, have become less élitist, if not unerringly egalitarian. National and international integration of qualifications has occurred involving far more jurisdictions.

Conversely, I have alluded to students as enduring study at university which has been tainted with economization, in particular fabricating them as graduates mass-produced as an economic resource for someone else's production. That is to say, there is every possibility that curricular accounting has created conditions such that students participating in much larger numbers than, and in different ways from, a few decades ago have primarily served the vested interests of economic and political élites, through (over) supplying work-ready, employable graduates able to fulfil pragmatic roles in maintaining the present social system, with any improvements in social justice being only incidental (Amsler & Shore, 2017; Boston, 1996; Chong et al., 2018; cf. Miller & Rose, 2008; Rose, O'Malley, & Valverde, 2006). Likewise, curricular accounting has in places enabled corporate entities to fabricate products

[13] Nissen et al. (2019) indicate that the total student loan debt to the Government is rising in real terms (see also Rose et al., 2018), and this is also occurring in many other countries with similar student-loan schemes (e.g., see Newfield et al., 2016). One can only imagine how much private debt there is, particularly among cross-border students and graduates.

which consumers find compelling, for example, due to credential or qualification creep; it has reinforced the transformation of higher education into a manufacturer of knowledge and graduates, and universities into corporate business entities whose academic standards are being subordinated, even compromised (e.g., see Gebreiter, 2021; Manathunga, 2017; Newfield, 2016; Parker et al., 2023; Roberts, 2022; Shore & Taitz, 2012; Singh, 2002).

Again, as exemplified at UC and in ANZ, curricular accounting has had consequences consistent with these inadequacies. Elements of student exploitation and repression arise through choosing or being obliged to participate in market mechanisms associated with New Higher Education. These portray higher education qualifications as needed vocationally, to secure "good jobs" (cf. Leach, 2016), as well as essential to being upwardly mobile socially. Indeed, according to the economizing metaphor, students and graduates amass an investment portfolio, with the credit on their transcripts adding up to their lifelong learning. These connotations put (young) people (and their parents) in the potentially anxious position of believing that first or even higher degrees are essential to secure a living in a desirable career and will guarantee this. Such beliefs accord with the interests of not only universities as business entities but also with the abovementioned élites.

Students being assessed with increasing frequency (see Tables 1 and 2) is often a consequence of modularisation (cf. Morris, 2000; Tomas & Jessop, 2019). This has resulted in students now being more assessment focused than their predecessors, and expecting more tangible, immediate rewards for every study effort (cf. Scott, 2015). Indeed, by courses being specified in points, studying may have become just a points scoring exercise for some of them. This focus is impelled also by other considerations of how students allocate time. For example, to avoid the concerns which Nissen et al. (2019) have for them, many students avoid drawing down on their loan facilities (see Note 9) by spending a considerable part of their week in paid employment, sometimes when they have timetabled classes. Even so, as Nissen et al. show, the growing indebtedness to the Government and private lenders among students, dropouts and graduates is an immediate, practical example of exploitation and repression. It compromises the economic, physical, mental and social wellbeing of those affected well after study is finished. Adding to their oppressed state is that, with greater numbers of people possessing bachelor's degree, these first degrees have become less of a guarantee of being able to earn enough to discharge their debts.

### 5.2. *Academics and curricular accounting*

I associate academics with two interrelated curricular ambitions which as well as being empowering for them are, if applied altruistically, emancipatory for students and good for society. The first is to maintain or raise (intellectual) standards, as expressed in such mottos as, 'Keep up the Standard', and not to compromise standards. The second is for academics to be free and empowered to do so, despite consequences of some defaulting on or even abusing their positions (see note 3). While relating to teaching and related curricular matters especially, these ambitions extend to discretion over other activities and associated work demands (e.g., research, pastoral care, administration, external relations), including their resourcing. Likewise, it would be inadequate if academics were constrained, disempowered or subjugated such that they could not fulfil pedagogical–pastoral partnerships with the students to whom they impart their accumulated and verified disciplinary knowledge, or with their publics; they should not be working in something akin to a factory oppressed by curricular accounting and similar mechanisms of control (James, 2008; Parker et al., 2023; Parker, 2011; Roberts, 2022; Singh, 2002; Watts, 2017)

On the first ambition, as curricular accounting has evolved at UC and in ANZ, so intellectual standards appear to have trended upwards at bachelor degree level (see Table 3) and postgraduate study has expanded: academics (and administrators) engineered this in changing curricular accounting systems and making modifications to each. These increases in standards were inevitable because of the way knowledge exploded but have also been possible because of improvements to school education and then to bachelor degree participation. The recent pressures imposed on academics worldwide of research assessment exercises (e.g., the PBRF in ANZ) has meant an increase in their research activities, at the possible expense of doing less teaching, not that that seems to be the case for most. Or the teaching in some subjects (e.g., accounting – see Gebreiter, 2021) has been turned over to "teaching-only" academics and become more techno-rational and textbook driven, and so, by implication, of a less exacting academic standard. Furthermore, the notion of improving, and not compromising, standards has been put into practice by having ways to regularise policy, scrutinise qualification proposals, assure quality and facilitate financial dealings. Under curricular accounting, these ways have increasingly extended to accreditation and audit, educational and financial.

On the second ambition, at UC, following its transformation into a degree-conferring university in its own right (c. 1957–1961) and from its internal development of the 1975–2005 System, much more discretion was conferred on its academics over their disciplines, courses and much else ('Credit points', 1974, p. 5; Turbott, 1974; cf. Gordon, 1946; Hunter et al., 1911; Restrepo-Abondano, 2008; Wall, 1916.) On balance, while this freedom has continued under the ANZ_CATS, or despite it, this is often only because many participants, whether scholars or administrators have been content to conduct their daily interactions more socio-politically than rationalistically, thus regarding the more controversial aspects (or objects) of the ANZ_CATS as administratively convenient simulacra. Although sometimes paying them lip service, most do not allow them to interfere with the substance and proper qualities of higher education. Thus, despite many academics having doubts about whether there are many subjects, if any, in which the connexions between points, study-hours, learning levels and learning outcomes are aligned, their courses continue to be assigned a value in points. There seems an unwritten understanding that the formal meaning of the numbers and associated outcome-based learning and assessment should only be applied loosely. Besides, so far at least, there has been little appetite for quantitative evaluation, and so few, if any, enforcement controls exist. Which may be just as well because data which exist about students' actual study hours (see Neeves & Hillman, 2018; Tippin, 2014) suggest that the 10 notional hours per point mostly exaggerates but sometimes understates the reality in many subjects in many universities.

Despite looseness opportuning such consequences as curricular accounting numbers concealing failings around standards, the risk

of this seems ameliorated by academics continuing to exert efforts to maintain standards (from the perspective of curriculum designers, teachers and examiners), including taking account of peer and student pressures to make courses innovative and no less demanding than other courses at the same level in the same discipline. Not least, this includes reference to contact hours and assessments as components of student studies, because they are more salient than expectations which arise from points being translated into notional learning hours, and any tighter coupling of the ANZ_CATS to teaching and learning. Meanwhile, the controls applied by administrators are mostly based on counting (and reducing) class contact hours and quantifying (and reducing) assessment marking activities. This enthusiasm has been about gauging academic workloads and putting other managerial pressures on academics to perform "better", but more in research than in teaching (Abbott, 2006). Moreover, these things have occasioned possibilities of curtailing some effective but discretionary professional practices, and so prejudicing standards (cf. Amsler & Shore, 2017), and wearing academics down. This includes increasing their "productivity", and ending the age of professors and of disciplines, (2016; Newfield, 2008; Parker et al., 2023; Roberts, 2022; Trowler, 2010; Watts, 2017).

Other constraining, disempowering or subjugating effects of curricular accounting on academics can arise because of connexions which curriculum accounting has to fabricating products out of knowledge and learning, not to mention to modularisation. UC academics, in likening the possibilities which the 1975–2005 System presented to students to supermarket shopping, have long been concerned about the consequences of a product logic for courses, qualifications and students. Likewise, modularisation has been suspected of perverting standards by encouraging atomistic and surface-level learning, and emphasising training for employment, in contrast to a university education built on idealism, meditation or philosophy and educating students to be intellectually accomplished and independent. As a corollary to student assessment increasing for reasons of modularisation and incentivisation (see Section 5.1), pressures on academics to assess students have increased, if only to keep their attention. Academics are, however, having to adjust their assessment demands to cope with the consequent marking burden (Trowler, 1998a), especially because of deteriorations in staff–-student ratios.

One further disquieting development is for academics to be increasingly steered by revenue concerns, which run to marketing and recruiting students competitively, including from overseas. This ties back to students being subjected to study which has been tainted with economization. New courses and qualifications, particularly of the taught (or coursework) professional master's degree variety, have been created to suit cross-border students. Such is their monetary worth that the staff involved in their design, staging, assessment and conferment may be incentivised to push rules in curricular accounting to breaking point, rather than apply this accounting primarily to 'Keep up the Standard'. This can be done by reducing points requirements either in total (e.g., from 240 to 180 points for a master's degree) or in composition, that is, according to their de facto levels of learning (cf. Yap, Ryan, & Yong, 2014).

More generally, EFTS-driven grants, along with tuition fees being charged course by course, fosters the perception that courses are products which departments and faculties manufacture and sell to generate revenues, just as students purchase them to build up their qualification portfolios as quasi-financial investments. Conjunctly, payments received at the institution level from students render the learning bundled into defined and bounded courses as something those at that level need to manage, just as conventional accounting applies to production costs and sales revenues. This is made easier under the ANZ_CATS, whether at UC or elsewhere, the more that points are tied, even on paper if not in practice, to hours of study and to learning levels and learning outcomes. But the more this happens, the more the status of academic activities is reduced, so turning learning into an economic activity, with an input–output production logic, reducing knowledge and understanding into an economic product (cf. Bennett & Brady, 2012; Furedi, 2012; Miller & Power, 2013; Naidoo, 2005; Trowler, 2010). However, it is unclear how comparable any use of curricular accounting to legitimise qualification creep (e.g., disguising undergraduate study as master's or doctoral degrees) or conceal inflated credit is to criticisms levelled at its close cousin in hospitals, namely casemix accounting (e.g., DRG-creep, or manipulating patient diagnoses to increase third-party reimbursement). Of equivalent concern, for revenue, teaching evaluation and other reasons, are grade inflation, pass rate manipulation and similar phenomena (Narayan, 2020; Richmond, 2018; Singh, 2002).

### 5.3. *Curricular accounting as a form of accounting*

The reason for this subsection is that, although I started this article with two references to curricular accounting (i.e., Theodossin, 1986; Trowler, 1998b), the term is uncommon, this being the first article about it in the accounting literature. Furthermore, given the mixed reaction from accounting academics to the subject matter—some have questioned whether the appellation *curricular accounting* is spurious and whether this study really is accounting research— I am not too surprised by its absence to date.

My claim that curricular accounting is accounting is despite the specialist actions its practices entail being outside the usual remit of university officials whose duties are identified as *accounting* and financial management (e.g., bursars, finance registrars, divisional accountants). Instead, other institutional officials (e.g., student and academic administrators, qualification managers, quality assurers) are responsible for these actions and perform these practices, alongside academics. This reflects the proximity of these specialist actions to the educational whiteboard. Indeed, to conceive curricular accounting as a form of accounting requires looking beyond phenomena (e.g., money measurements, annual financial statements, discounting cash flows) normally associated with bookkeeping and accounting. It means being disposed to examine practices, calculative and otherwise, which relate to such calculable or calculating subjects/objects as students and learning, graduates and qualifications, academics and pedagogy, teaching and research, and fees and volume-driven funding. Correspondingly, it might be appropriate to designate certain people, be they of central policy, funding and oversight authorities, or of universities, or in academic and other divisions within universities, as accountants of the curriculum.

Comparing curricular accounting to an already recognised form of accounting may help convince doubters of my claim. I referred above to casemix accounting and to inadequacies levelled at its use compared with criticisms of possible consequences of curricular accounting. The accounting literature has recognised casemix accounting and its consequences for some 30 years (Chua, 1995;

Covaleski et al., 1993; Lowe & Doolin, 1999; Miller & Power, 2013). Given their similarities, and those between hospital and university organisations (e.g., see the discussion in Becher and Kogan (1980) about the applicability of their synoptic model (Fig. 1) to public hospitals in Britain), it seems strange only one of them is recognised in the accounting discipline, this despite curricular accounting occurring daily under the noses of academics from the accounting discipline. Indeed, the influence of curricular accounting on education in universities is comparable to the influence of casemix accounting on clinical activities in hospitals. Here are examples: First, just as casemix accounting uses DRGs to fabricate health treatments as economic products, and cost and price them, so curricular accounting includes comparable applications with points, courses and programmes; educational activities also become economic products. Second, the linking of DRGs with clinical pathways is paralleled in curricular accounting with learning outcomes and graduate attributes featuring among the applications just mentioned. Third, just as hospitals in several countries are funded according to their DRG mix, ANZ universities receive EFTS-driven grants according to their mix of EFTSs by discipline, level and delivery mode. Grants like these seem common elsewhere too, but their details in many countries are opaquer and more difficult to articulate. The parallels between curricular accounting and casemix accounting extend to aspects for which they are criticised, such as the examples listed in Section 5.2 (i.e., creep and manipulation). Both of them exemplify the inadequacy of an excessive proliferation of accounting, or accountingisation, across public services (Martin-Sardesai et al., 2020) which is as great as other forms of accounting in the economy and in society (see Burchell et al., 1980).

Curricular accounting emerged and developed in conditions where a reciprocal association existed between the need, inclination, or choice to adopt accounting, organisational and economizing processes and practices, and the simplicity-complexity of organisational forms and networks (Burchell et al., 1980; Miller & Power, 2013). Insights from my historical analysis are that these conditions changed as regards the activities of university participants, so triggering responses in and around universities equivalent to those in hospitals. Over time, these responses synthesised, increased coherently and became more quantitative, to the extent that the name curricular accounting is appropriate. Indeed, this accounting now plays significant roles in contemporary universities which reflect their present circumstances, having been permeated with neoliberal ideas which extend to the philosophy of the curriculum (cf. Blackmur, 2015), managerialistic calculative practices and a culture of auditable compliance (cf. Larner & Le Heron, 2005; Shore & Wright, 2015).

This brings me back to the points I made in the previous subsections that, contrasting with the premise of educational–intellectual standards increasing alongside the progression of curricular accounting, those standards may be being compromised because of curricular accounting's association with modularisation and economization, with a few decades of economization in particular having taken a toll on academic and institutional morale, capability and motivation. Notwithstanding modularisation having been a force for good in some ways (e.g., opening up new disciplines and easing the discovery of knowledge in them), it and the fabrication of courses into economic products has tended to frame learning in instrumental ways, just as the DRGs of casemix accounting tend to signify medical treatment as atomistic and instrumental, rather than wholistic and human.

## 6. Conclusion

Having set out to espouse and increase knowledge and understanding about curricular accounting as a form of accounting in higher education, my paper shows this previously unrecognised form of accounting to be a coherent collection of practices. These practices have developed to administer the large, complex universities which comprise higher education fields. Academics and their students are the subjects of these practices, as exemplified by UC in ANZ, where curricular accounting objects are applied in an infrastructure serving the participants in the complex social network portrayed in Fig. 1.

From my analysis and interpretation of curricular accounting, there is much to admire about its ingenuity and pleasing simplicity as a practice, consistent with enabling the human use of things in controlled ways (cf. Hardy, 1991). Curricular accounting is part of recording, reporting, administration and marketing. It is a way to measure, monitor, service, supervise and evaluate students, academics and other participants, and the divisions into which they are organised. As far as educating is concerned, it has a rationality founded on learning and on teaching students, as well as being technical and productive. It therefore appeals to academics and administrators, that is, the "administered", and discourages any inclination or effort to break free of it, not by coercion but by persuasion and reward, notwithstanding clashes with academic values or harming academics as a profession (cf. Marcuse, 1964; Miller & Rose, 2008). Accordingly, people involved in interactions from which curricular accounting arises, or which it causes, derive meanings and signals from these interactions (cf. Dillard & Smith, 1999; Vollmer, 2003). Indeed, the accounting is a collection of human ideas and related things, these things often being asymmetrical, "leading to entrapments in particular pathways from which it is difficult to escape" (Hodder, 2014, p. 19), hence human entanglement with them.

If ANZ universities are representative, curricular accounting's scope, coherence, contiguity and fluidity mean it serves widespread curricular, administrative, managerial and policymaking purposes. It helps in higher education operational and control matters around qualification recognition, credit accumulation and transfer, standards of learning and certification, and accreditation. It has shaped how the activities behind these purposes and comprising these matters have grown in quality and sophistication, alongside growth of institutions, higher education fields and more besides. Further, it dovetails with funding and finances, resource allocation and control; it is socially cohesive. The accounting is observable in transactional, distributive and ideological roles played by people who wield or otherwise mobilise it, and in the political and administrative functions these people perform. Curricular accounting fosters political rationality founded on administration which is tolerated for providing order in institutions and society and fostering emancipating processes.

Nevertheless, curricular accounting is potentially repressive and constraining of social change (cf. Marcuse, 1964). Like anything else with which humans are entangled, the academics, administrators, students and others in universities, striving for all that is good in

education, may be constrained in their altruistic actions and stymied in their high-minded societal aspirations by this accounting, particularly if they do not make the effort to increase their awareness of its limitations, including the information to which it is blind as an information system and the inflexibility it causes among those under its control. Curricular accounting can be as mundane and docile as debits and credits and, besides, familiarity can breed apathy, even contempt, especially as some basic tenets around study hours and learning outcomes seem loosely coupled at best, and commonly decoupled (cf. Furedi, 2012).

Curricular accounting also facilitates a university's more instrumental external relations. The virtues of curricular accounting end and its vices are exposed in these relations. First are relations with graduates, and local, national and international employers and others interested in the qualifications universities confer. These relations support the mobility of graduates, taking up employment or postgraduate study. Second are relations within and between higher education fields. These relations, akin to UNZ's remit to 'Keep up the Standard', are built on regularising policy. They are built on scrutinising qualification proposals, assuring quality and facilitating financial dealings. They are built on accreditation and audit, educational and financial.

This second set of relations may be further distinguished into relations within ANZ and internationally, the latter being about international harmony. Such aspirations of harmony are consistent with other more conventional forms of accounting providing these national and international organisations with a systematic basis of potentially undue influence of universities from a distance (cf. Miller & Rose, 2008; Vollmer, 2003). Accordingly, alternative conceptions of ANZ universities, for example, those encompassing anything romantic, meditative, philosophical or self-improving are under threat (Roberts, 2022; Shore, 2010; Singh, 2002; cf. Kallio et al., 2020; Martin-Sardesai et al., 2020). This applies at least to universities which have believed in the unfettered sharing of knowledge about the world by catering for the now more emancipated ANZ masses and conducting international education and research. Curricular accounting operating alongside other accountings may promote a mentality of economizing contrary to the greater good.

### *6.1. Further research*

This study provides much scope for further research because it amounts to only one person conducting research dealing mostly with only one organisation in one jurisdiction. The study can function as a springboard for mapping of logics, activities, events, behaviours and values embodied in curricular accounting in other places to be analysed and interpreted by researchers with other experiences and perspectives. Similarly, it opens possibilities to recognise the deeper nature of these logics as the future becomes the present and the present becomes history. That is to say, further research should involve other researchers, accounting and otherwise, examining other institutions in other jurisdictions. They should approach situations and issues in more depth, using methods suited to the approaches, situations and issues.

Specifically, the configuration presented in Fig. 2 is deserving of critical scrutiny; otherwise, what are configurations for (Hinings, 2018)? This is particularly important if academics elsewhere regard the objects forming curricular accounting (particularly points and study hours, levels and level descriptors, and learning outcomes-based assessment) as sceptically as I have observed in my experience. Examples of related questions are, how valid is the notion that points earned in every jurisdiction are of similar, equivalent quality? Conversely, does the quest to define meaningful and commonly acceptable 'outcomes' for each course and module, never mind programme, risk undermining the whole enterprise of learning recognition among institutions (cf. Hussey & Smith, 2008)? Doesn't it also deter academics from using learning outcomes in their teaching processes for fear of interference from institutional managers (Havnes & Prøitz, 2016; cf. Scott, 2016)? And how far does the same apply to other boundary objects and associated bureaucratic structures (Bekhradnia, 2004)?

Comparable scrutiny is warranted for incentives and behaviours stemming from universities competing for student enrolments. The antithesis is for cooperation among these organisations, in pursuit of common purposes and societal, macroeconomic, cultural and environmental aims (Abbott, 2006; Shore, 2010; Tahar & Boutellier, 2013). Such matters were used to justify the introduction of the ANZ_CATS, and as explained above, they are central to curricular accounting in influential jurisdictions in Europe. Comparable scrutiny is also warranted for further areas where inadequacies may be lurking within and between various levels within universities, especially organisational areas where the ways in which curricular accounting is configured have some bearing. These include various aspects of resource attraction and allocation, such as class sizes, particularly at 100-level and 200-level. They include instances of exploitation, such as the use of junior academics and postgraduate students on casual or fixed term contracts, and using student recruitment methods and retention practices which reduce learning to economic products and students to customers. They also include quality impairment, such as might be associated with qualification regulations, modularisation, course assessment, and determining student grades and awarding qualifications. Given with whom authority now lies (Parker et al., 2023; Roberts, 2022; Trowler, 2010), these inadequacies are not going to be overcome unless those with that authority are challenged in principle, over their values.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cpa.2025.102805.

## Data availability

Data will be made available on request.

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