



The Benefits and Challenges of Modular Higher Education Curricula

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Over the past twenty years, universities have increasingly employed credit-based modular curriculum structures in an attempt to cater to the needs of more diverse student groups and to allow students greater flexibility and choice in managing their studies. Scholars generally agree that modular degrees have many advantages for students in terms of their capacity to offer flexibility, choice, access and mobility. It is also widely argued that modular structures may be beneficial to universities in that they potentially allow institutions to better respond to the needs of employers, expand student markets, develop more efficient uses of resources and increase opportunities for curricula breadth. However, it is also argued that modularisation creates the possibility of fragmentation and incoherence of the educational experience, potentially weakens learning outcomes and comes with epistemological, structural and pedagogical challenges.

The topic of modularisation has featured prominently in scholarly literature in the field of higher education in the UK since the early 1990s but to date has received little attention in Australia. With the increasing pressures placed on Australian universities to better support teaching and learning while also creating greater efficiency, the possibility of adopting modularised course structures is likely to emerge as an issue facing higher education institutions in this country. It is therefore timely and relevant to examine the possibilities and challenges that modularisation presents. This paper outlines the background and rationale behind modularisation of university curricula and discusses both the potential benefits and possible disadvantages of modular course structures. It does not aim to make a case either for or against modularisation, but rather to provide a summary of the key arguments and an examination of some of the main issues, considerations and tensions that emerge in debates on the topic.

Definition and background

Modularisation is based on the general principle of dividing the curriculum into small discrete modules or units that are independent, non-sequential and typically short in duration. Students accumulate credit for modules which can lead to a qualification for which a specified number of credit points is required. While there are vastly different types of modular academic programs designed for different purposes, as well as different uses of terminology, modular systems share an underlying philosophy that learning can be broken down into measurable, quantifiable units of knowledge. In contrast to a traditional linear degree program

comprised of a sequence of subjects, modularised degrees tend to be made up of stand-alone, independent units that can be undertaken in different orders and accumulated at different speeds. Modularisation of the curriculum primarily refers to the disaggregation of the content of the curriculum rather than to a temporal metric. It constitutes a shift from a time-based to a credit-based structure. However, modularisation is also associated with the notion of delivering knowledge in 'bite-sized' pieces, and therefore lends itself to time-shortened and intensive modes of delivery. The capacity for modularisation to provide learning and certification on demand in small packages is part of the reason for the popularity of online modular courses such as MOOCs, however, the notion of obtaining 'micro-credits' for stand-alone modules is not limited to online study.

Modularisation is sometimes conflated or confused with semesterisation yet the terms refer to different systems for dividing the curriculum. While modularisation is a content-based division, semesterisation is a time-based division that separates the academic year into two teaching periods. Modularisation and semesterisation can either operate concurrently or independently. In the UK, some universities employing modularisation in the 1990s were less enthusiastic about semesterisation, preferring to teach short modules of approximately five weeks within ten-week trimesters (Rich & Scott, 1997). In contrast, Australian universities have predominantly adopted semesterisation but don't necessarily employ modularised curriculum structures.

The modular course generally stands in contrast to the notion of the traditional university 'subject.' For example, David Bridges argues that modularisation represents the 'deconstruction of the subject' and suggests that the practice signals a 'radical change to the identity of the subjects of the traditional education curriculum' (2000:42). Many view modular structures as the antithesis to the traditional university curriculum since degrees are constructed from a series of discrete units rather than developed sequentially. An Issues Paper produced by the Australian Learning and Teaching Council suggests that the 'focus on isolated learning in single subjects' through modularisation 'contrasts sharply with the integrative learning possible with a whole-of-program approach' (the National GAP website). This paper is critical of modularisation, which it argues 'carries the need to teach and assess discrete components of learning, often to the exclusion of more integrative learning outcomes.' However, others contest the argument that modularisation necessarily results in isolated learning, suggesting that modular structures can be used to design developmental courses that encourage a gradual and staged approach to learning (Hodgson & Spours, 1997; Rich & Scott, 2011).

Modularisation is an established feature of the education system in the US where modular course structures emerged over a century ago and credit-based systems have long been employed. Modular structures are also a feature of smaller education systems in countries such as Scotland, Sweden and New Zealand (Hodgson & Spours, 1997: 107). In the UK modularisation developed in the late 1980s and early 1990s as an institutionally-driven initiative that took place in most universities. For this reason, the vast majority of literature on modularisation emerged from the UK from the mid-1990s by which time the structuring of university degrees into credit-based modular systems had become common practice. The implementation of modular degrees dramatically altered the UK education system and provoked a great deal of scholarly debate. In their book *The Effective Academic*, Fry, Ketteridge and Marshal observe that 'the widespread modularisation of the undergraduate (and increasingly, of the postgraduate) curriculum is perhaps the most remarkable change in the UK higher education and course design in the 20th century' (2002: 86). They suggest that modularisation emerged as an 'organic response' to 'the national pressures of increasing access and massification, reduced funding levels, and changing modes of national regulation and control' (2002:

87). Similarly, Roger King argues that the development of modularity in the UK was linked to 'the rise of the corporate curriculum,' associated 'with attracting more first-choice student applicants and extending market share' (1995: 18).

Debates on modularisation in the UK intensified following the release of the Report of the National Committee of Inquiry into Higher Education in 1997 (better known as the Dearing Report). Comparable to the Dawkins reforms that took place in Australia in the late 1980s, the Dearing Report recommended that undergraduate students contribute to the payment of their degrees that had previously been funded by taxes. The report followed a crisis in higher education in the UK that resulted from a very fast growth in student numbers, which was largely financed by reductions in university resources. In addition to introducing student fees, the Dearing Report argued that 'learning should be increasingly responsive to employment needs and include the development of general skills, widely valued in employment' (quoted in Bridges, 2000: 44). The report initiated what Bridges calls the 'key skills agenda' and raised the question as to 'whether the traditional subject department offers the best context for the 'delivery' of these skills in the curriculum' (2000: 46). Modular degrees were thought to provide a better mechanism for the delivery of key skills, or 'transferable skills,' and to assist in the development of vocationally oriented courses. Alice Tomic also argues that the Dearing Report effectively 'built bridges between the US and UK higher education systems by focussing on skills perceived by both systems as significant' (2006). However, as discussed later in this paper, the 'key skills agenda' raised concerns that knowledge was being subordinated to the acquisition of transferrable skills. Many academics argued that the increased emphasis on learning facilitation and outcomes came at the expense of a high quality education.

Rationale

The rationale for modularisation centres around five broad interrelated needs and desires that will each be expanded upon below: the need to cater to more diverse student groups by creating greater flexibility and student mobility, the desire to allow students greater choice in developing and managing their own studies, the desire to respond to the needs of employers and improve student employability, the desire to introduce interdisciplinarity and breadth into the curriculum, and the need to reduce costs and maximise resources and efficiency.

1. Student diversity, flexibility and mobility

One of the key motivations behind modular course designs relates to the changing nature of the student population. Universities no longer cater solely to school leavers and curriculum development now needs to take into account a range of relatively new student stakeholders with differing educational needs. These include an increasing number of students who are mature professionals (mostly undertaking study on a part-time basis), who require flexibility to balance study with employment and family life, and an increasing number of international students who seek mobility between their home countries and educational institutions.

These shifts in student demographics, along with the increased costs of education, have produced a more 'customer/client' centred approach in which institutions have become more cognisant of the present and future needs of their students. Bell and Wade explain that the move from a provider-centred to a client-centred education system resulted in increased uses of modular course design (1993:5). For working professionals, modular degrees potentially better cater to mixed education and work experience, especially when combined with flexible delivery modes such as online learning. Modular degrees tend to offer more

flexible study periods as well as flexible entry and exit points to degrees, allowing students to study at their own pace to suit their personal circumstances and to exit at the desired point (such as with a graduate diploma or a masters). They also tend to offer students the flexibility to move between part-time and full-time study and to alternate between on-campus and online learning.

Modularisation potentially opens up and expands student markets through flexible and open curricula that allows for greater student mobility. Modular degrees are linked to credit transfers, which permit students to transfer between courses and between universities with credit for academic achievement. Course transfers within an institution enable students to take modules from different disciplines or to change courses while retaining credit, which may be particularly valuable to students who don't have a clear idea of what course they want to undertake when commencing university study. Credit transfers between institutions allow students to move nationally and internationally throughout their studies, potentially undertaking their degree at two or three different universities. This is a central feature of the US higher education system that allows students to move easily between institutions by transferring accumulated credit points. The typical four year bachelor's degree (known as a college degree) is comprised of 120-128 credit hours which are accumulated by the completion of modules that carry 3 credit hours.

Credit-point systems are also employed in the UK and throughout Europe. In the early 1990s, concurrent with the move towards modularisation, the UK developed the CATS system (Credit Accumulation and Transfer Scheme), with the aim of allowing students to move credits accumulated from one institution to another both within and outside the UK. Similarly the ECTS system (European Community Course Credit Transfer Scheme) was introduced in 1989 by the European Union to support and facilitate the mobility of students within Europe. In 1999 the Bologna model (also known as the Bologna process) called for all institutes to adopt the ECTS system to further support student movement. The credit-based systems in the US, UK and Europe are designed to facilitate mobility both nationally and internationally and allow for credit transfers to be easily translated (1 U.S credit = 2 ECTS credits = 4 UK CATS credits). One of the most significant differences between Australian universities and institutions in the US, UK and Europe is that Australia does not have a standardised system for credit points.

2. Student choice and self-management

Modular degrees provide a more open model than traditional sequential course structures, encouraging students to arrange and develop their own degrees. According to van Meel 'empirical data based on the observation of students has led to the assumption that students can achieve better learning results if they can individually determine their learning objectives, learning pace and educational materials' (1993: 8). Such thinking has been extended by the increased focus on student-centred learning in the field of higher education in recent years. The emphasis upon choice promotes self-management and potentially increases student motivation by granting them the freedom to choose modules and structure their degrees according to personal interests and career goals. However, it also requires students to develop the skills to interpret and connect the different aspects of their learning and to make informed choices on how to construct a meaningful degree that will enhance their employment prospects. While these skills may be important graduate attributes in themselves, there is also a risk that uninformed or ill-considered student choices could lead to incoherent and fragmented degrees. This is the most frequent criticism of modular degrees. The challenges and possible solutions to the issues surrounding student choice will be discussed in more detail shortly.

3. Vocational learning

Modularisation is often viewed as a way of improving graduate employability, especially as it is thought to provide an appropriate curriculum structure for the teaching of 'transferable skills' (Bridges, 2000:46). Hodgson and Spours argue that modularisation 'has provided a limited way of aligning units of both academic and vocational qualifications to create 'linkages' between the different qualification tracks, allowing students to combine the two for greater employability' (Hodgson & Spours, 1997: 108). Modular structures are also a key feature of vocational courses run by open universities and online courses. In such courses modularisation is employed to provide flexible programs that enable graduate workers and mature-aged students to balance their studies with work and family commitments.

Modularisation potentially offers a practical way for universities to respond to the needs of a changing marketplace and improve the relevance of degrees to employers. As a curriculum planning mechanism, modularisation can provide institutions with the flexibility to more easily make changes to the curriculum or to design new qualifications. Modules from different departments and/or faculties can potentially be assembled together to tailor a degree to the requirements of employers. Bridges provides the example of a degree program at the University of East Anglia that was designed at the request of a computer and information systems company that wanted graduates to be prepared for management roles in a European-based organisation. The University tailored a degree that crossed the boundaries of three faculties to provide modules in information systems, management and European languages (2000: 43).

4. Interdisciplinarity and curricula breadth

Modularisation can potentially be used to expand opportunities for interdisciplinary learning by permitting students to combine modules from different disciplines, or to promote curricula breadth by including units from other disciplines alongside a student's core degree. However, these aspects of modular degrees have also attracted criticisms of incoherence. As Bell and Wade observe, if modularisation is to assist with maximising resources and reducing costs, it is imperative that modules are multi-purpose built. Yet if modules are to be designed for more than one course or use, challenges arise in articulating the aims of a module (which may differ for different students), and maintaining a coherent experience. However, some scholars argue that coherence can be achieved through the recommendation of modular combinations and pathways (Hodgson & Spours, 1997; Bell and Wade 1993).

Interdisciplinarity is often viewed as a positive feature of modular programs, yet for some it is also a source of concern. Billing suggests that cohort cohesion is fragmented when modules are taught to students from different disciplines (1996: 19). Hennessy et al argue that students completing modules outside their discipline 'confront a number of challenges such as differences in learning environment and assessment methods' (2010: 678). They suggest that students are forced to rapidly adjust their expectations and skills to new disciplines. This is not just a matter of learning new skills but of learning unfamiliar academic discourses that come with different methodologies, values and identities. The interdisciplinary nature of modular programs may also make them more time-consuming and demanding for academics who must teach a diverse group of students from different disciplinary backgrounds, while ensuring that all students can achieve the intended learning outcomes.

5. Reducing costs and maximising resources and efficiency

One of the primary drivers behind modularisation is the objective to lower the costs of teaching and administration in the face of a decline in funding and resources, as well as to gain funds through the expansion of student numbers. Jenkins and Walker suggest that the educational arguments for modular courses 'are often subordinated to institutional requirements and arguments for efficiency' (1994: 31). It is argued that modularised course structures reduce costs through a more planned provision of resources (King, 1995; van Meel, 1993). Administrative functions can potentially be centralised (such as timetabling, admissions, enrolments and graduations), allowing staff to focus on core academic activity (King, 1995: 19). A modularised curriculum might also enable institutions to better take advantage of the calendar year and thereby maximise the use of resources, infrastructure and space.

As discussed above a key advantage of modularisation is the capacity to share modules across faculties. In addition to creating opportunities for interdisciplinarity and breadth, this feature of modular programs is significant from an efficiency perspective. Modules designed to be shared within and across faculties could potentially reduce staff workloads and increase efficiencies in curriculum delivery. In this way, modularisation could assist teaching in large scale programs and facilitate streamlining by creating multi-purpose modules that can be offered to different cohorts. However modules would need to be carefully designed for multiple uses as there is a risk that duplication could occur if a given faculty felt that a module was insufficient for the needs of their discipline.

Roger King argues that modular programs offer important managerial benefits including 'resource management strategies which are more effective, with courses reflecting student demand, the time spent redesigning courses reduced (replacing and combining modules), and academic staff more efficiently deployed by reductions in duplicate teaching' (1995: 18-19). However, some of the aims of modular degrees may conflict with the desire for efficiency. For example, Val Meel argues that 'objectives relating to flexibility are very likely to conflict with objectives aiming at improving efficiency' (1993: 11). Similarly, modularised courses often aim to create more opportunities for student assessment and feedback which can be costly. For this reason, John Gold concludes that 'while there may be savings in the costs of general course administration, these are invariably offset by the additional costs of the assessment system' (1991: 180).

Challenges for academic staff

Literature on modularisation consistently points to the potential benefits to students, employers and institutions. However, few articles identify advantages for academic staff and many note that the effects of modularisation on staff 'are not always so positive' (Bridges 2000: 43). In their analysis of the implementation of modularisation at the University of East Anglia in the early 1990s, Rich and Scott describe how 'one of the general features of the modularization/semesterization process is a feeling of alienation or dispossession' experienced by academic staff (1997: 76). Similarly, Hennessy et al suggest that 'modularisation can have a significant impact on staff morale and that staff responses to modularisation can influence how modules are made available to students' (2010: 679). The authors note that modularisation can lead to an increased workload, especially as a result of the heterogeneity of students, and that one method employed by staff is to limit the number of students eligible to enrol with pre-requisites.

Roger King observes that modular course designs 'alarm many staff, especially those that hold to a rigid definition of coherence and progression, and who take the three-year single subject degree course as their paradigm.' For such staff, he continues, 'credit arrangements are an anathema and viewed as a threat to

academic standards' (1995:19). He further suggests that modularisation will impact upon the content of subjects and is likely to redefine the range of subjects that will be offered. For example, he suggests that certain subjects that may be important to academic staff are likely to be excluded on the basis that they have insufficient market demand or do not match corporate objectives (1995: 19).

Ideological and epistemological debates

One of the central tensions underlying the modular debate is between the vocationally driven concerns of the marketplace and the value of quality teaching and education. Thus the notion of modular degrees offering 'key skills' is pitted against the acquisition of 'knowledge,' often viewed as being inherent to more traditional curricular structures (Bridges, 2000: 46; Poynter, 2002: 65). Similarly, Fry et al argue that modularisation implies a shift from 'craft' methods of teaching and learning to 'mass production' (2002: 87). These dichotomies are perhaps questionable, but Bridges suggests that such polarities do 'reflect at least a shift in emphasis,' a shift that disturbs 'the very epistemological foundations of higher education' (2000:46). He argues that form impacts upon content and suggests therefore that changes to the organisational structures of the curriculum will reshape the curriculum itself.

While critics of modularisation view it as a mechanism that substitutes learning for vocational training (Brecher, 2005: 73), others have argued that there is nothing to indicate that modularised course structures are inherently antithetical to learning and that when designed well they can be effective in developing student capability (Rich and Scott, 2011: 74; Jenkins & Walker, 1994: 34). Similarly, in his review of intensive teaching formats, W. Martin Davies states that 'shortening a course *may* curtail positive learning outcomes if done badly. It may result in cramming, loss of opportunities for active discussion and superficial treatment of content. However, equally, it may not' (2006: 16). Ultimately, he concludes, intensive teaching formats 'may result in considerable advantages for students when used by effective teachers in appropriate subjects' (2006: 16). As Davies infers, time-shortened formats may work better in particular disciplines and the same observation might be applied to modularisation. While modular structures are common in disciplines such as engineering, economics and commerce, and are widely employed in Australian business schools (Burton & Nesbit, 2002), they are less well tested in the humanities. Davies points out that 'a considerable amount of the literature on IMD [intensive modes of delivery] appears to exist in academic areas where *skill acquisition* is paramount, rather than discursive, conceptual learning,' and suggests that 'this point may be critical in assessing the value of intensive teaching in various subjects' (2006: 7). Similarly, for modularisation to be effective in terms of both efficiency and pedagogy, it is imperative that it is possible for the subject matter to be disaggregated intellectually which may be more achievable in some disciplines than in others.

The strongest critics of modularisation argue that it is a postmodern, neoliberal development that supports the commodification of higher education in which students are viewed as clients and knowledge is sacrificed for 'transferable skills.' This is the perspective adopted by Bob Brecher in his article 'Complicity and modularisation: how universities were made safe for the market' (2005), which by far the most critical article published on the subject of modularisation to date. Brecher is hostile towards what he views as the 'disastrous' effect of modularisation, in which 'learning has been fragmented and commodified,' academics have been 'de-professionalised' and students 'have been transformed into clients or customers' (2005: 72). Brecher argues that the modularisation of the university curriculum is an ideological enterprise motivated by the neoliberal fetishisation of choice. He proposes that giving students 'freedom of choice' is not necessarily beneficial and suggests that it is the responsibility of universities to make choices that will enable students to achieve their academic goals. He concludes that 'most of us will readily agree [that modularisation] has been

an educational, and political, disaster' (2008:81); 'modularity is a sham and we should say so and argue for the obvious alternative: properly constructed, carefully structured developmental degree courses' (2005: 80). Similarly, Robin Wynyard associates modularisation with the 'McDonaldization' of higher education.' The 'McUniversity,' he suggests, makes it easy for students to obtain 'packets' of knowledge at the loss of an emphasis on the unity of subject knowledge' (2001:208).

In their article in favour of modularisation, Ann Hodgson and Ken Spours argue that the 'debates have been beset by ideological concerns rather than focussing on practical implementation issues' (1997:118). In contrast to Brecher and Wynyard, they argue that modularisation when handled effectively does not prohibit courses from being structured and developmental. Similarly, Tony Rich and Clive Scott observe that 'It is a commonly-held view that modular structures mean 'pick and mix,' that is, fragmented courses and educational opportunism, non-progressive courses and non-cumulative outcomes: but they do not, of themselves, promote the educational consequences just outlined' (2011: 74). Indeed, some scholars argue that modular courses actually emphasise progression more than traditional courses as they foster a step by step learning approach allowing students to gradually develop skills and to be assessed as they go (Hodgson & Spours, 1997: 115).

Pedagogical arguments

Those in favour of modularisation argue that modular courses better motivate students and potentially improve learning outcomes through shorter learning goals, clearer curriculum objectives, earlier formative assessment and more frequent feedback (Hodgson & Spours, 1997). Those who oppose modularisation suggest that student capability is best developed through more traditional subjects and sequential course structures. Critics argue that modular course structures lead to intellectual fragmentation and incoherence and 'emphasize packaging knowledge into discrete units that can too often be soon forgotten' (Jenkins & Walker, 1994: 32). The pedagogical arguments, both for and against modularisation, predominantly focus on two key issues: the first relates to student choice and the second to quality and academic standards. Other key pedagogical issues to be considered here relate to concerns with how to best assess modular courses and whether learning outcomes are improved or worsened in modules delivered in intensive or time shortened formats.

Student choice

Studies widely suggest that students prefer modularised and/or intensive course structures as they are perceived to provide greater flexibility and freedom of choice. However, these same studies also highlight that one of the potential problems is that poor choices on the part of students will lead to incoherent and fragmented degrees. Recent studies that examine student motivations for choosing modules suggest that their choices are determined by a broad range of extrinsic and intrinsic factors (Hennessy, et al. 2010; Hedges et al, 2014). While some of these factors may be relevant to learning and career aspirations, some more problematic factors may include choosing modules that are perceived to be easier, choosing modules with classes that are held at a convenient day and time and exercising choices that avoid particular modes of assessment. Scholars therefore emphasise that for the potential benefits of modularisation to be realised, students need to receive formal guidance during the decision making process (Hedges, 2014: 40; Bell & Wade, 1993: 9). While choice is a key feature of modular course design, it is argued that measures also need to be in place to restrict choices such as setting prerequisites, designating core or compulsory modules, determining sequences of modules, defining levels of progression and designating some modules as incompatible with others (Hennessy et al, 2010: 677; Bell & Wade 1993: 5). Bell and Wade conclude that 'the

development of self-managing students requires the providing institution to offer a framework of support and guidance which meets the varying needs of the individuals involved' (1993:9).

Quality, learning outcomes and academic standards

Hodgson and Spours suggest that political objections to modularisation stem from the conservative government's view that modular courses are 'easier' than linear courses since students are assessed on smaller units of learning. Thus modularisation is sometimes perceived to be linked to a 'lowering of standards.' This argument is challenged by some educational professionals who argue that modular courses require students to demonstrate their ability early on in a course and must work hard over a sustained period rather than in a concentrated burst before examinations at the end of a subject or course (Hodgson & Spours : 111). However, others note that when implementing shorter courses, measures need to be employed to maintain quality, such as ensuring there is not a loss of opportunity for reflection, discussion and analysis of material. Lecturers also need to ensure that the shortened timeframe doesn't lead to superficial treatment of content (Davies, 2006).

For some scholars, modularisation comes with the risk of reduced learning outcomes. For example, Jenkins and Walker argue that 'modular structures can weaken, even imperil the development of student capability,' and suggest that 'capability/skill development may best be developed through a coherent systematic curriculum that some might see is best achieved through the subject-based linear degree' (1994: 32). There is also a lack of consensus as to whether modular or traditional programs offer a stronger capacity to report on learning outcomes and graduate attributes. While the provision of more detailed student transcripts is often cited as an advantage of modular programs, John Gold suggests that these 'can just as easily be introduced into linear-based courses' (2007: 180). Alex Usher argues that in fact graduate attributes are more coherent in a program with a larger core curricula than one made up of a series of discrete modules, suggesting that the logic of the recent 'learning outcomes agenda' 'necessarily leads program design away from the frequently smorgasbord-buffet approach to course selection' (2012). Other scholars suggest that a high quality education is reduced by the standardisation of units that may occur with modular courses. For example, Gavin Poynter argues that while the division of the degree into credit-rated modules may increase flexibility and mobility for students, it has also 'served to homogenise the modes and methods of teaching, learning and assessment' (2002: 65).

David Bridges points to a disjunction between the practice of modularisation in UK institutions and the simultaneous reaffirmation of the traditional subject as a form of academic and organisational identity (2000: 37). He suggests that while many institutions and employers push for modular structures, central UK higher education bodies including the Research Assessment Exercise (REA) and the Quality Assurance Agency (QAA), 'very largely reinforce the traditional subjects' (2000: 50). Given that these bodies directly affect universities' abilities to attract research investment, Bridges explains that academics have found the need to organise themselves according to traditional disciplinary programs. He suggests that flexibility in respect of modularised programs may be perceived to be incompatible with 'quality' in QAA terms (2000: 53).

Assessment

The question as to whether modular degrees improve or impede methods of student assessment emerges throughout the literature on the topic. Hodgson and Spours argue that modular designs are particularly beneficial for their step by step approach to learning, which enables students to be assessed as they go rather than at the end of a 12 week semester (1997: 115). One of the potential problems with the traditional

university semester is that there is a very long period between the commencement of the subject and the examination period. This temporal distance may cause students to lose interest before they are assessed or to cram the majority of their learning into a two week period before the final exam. Shorter modular courses might be employed to emphasise skill building and progression, allowing students to receive more regular feedback and to build on their achievements from one module to the next.

On the other hand, modular courses often strike logistical problems over the extent and timing of assessment. Billing suggests that at the University of Westminster modularisation lead to students being over-assessed (1996: 16). He also observes that problems emerge when the feedback from the first assignment in a module comes close to the end of the module, allowing little time for students to benefit from advice before the final assessment (1996:16). For Bridges, further problems emerge from the 'key skills' emphasis of many modular programs, since the focus shifts from the acquisition of knowledge to the 'application of knowledge in a social context' (2000: 46). Methods employed for the assessment of key skills are likely to be vastly different to the methods employed to assess more traditional learning outcomes.

Learning outcomes in time shortened and intensive courses

While modular courses are not always time shortened, in most cases they do take place over shorter periods than semester-long subjects. It is therefore relevant to consider the implications for learning outcomes over shorter time periods.

A number of studies have been conducted comparing the learning outcomes in semester length courses with intensive courses, all of which conclude that student outcomes are either the same or better in the intensive format (Welsh, 2012; Davies, 2006; Lee & Gleason, 1993: 15). For example, Van Scyoc and Gleason's study compares student learning of microeconomics in a 3 week module and a 14 week semester. The results of the study suggest that students in the short term course performed better but showed no significant difference between the two formats when knowledge retention was measured. They conclude that teaching and learning in three week blocks may be more efficient, since 'student outcomes are the same or better given the same resources and a smaller time commitment' (1993: 21). However, they note that 'policy questions also arise with regard to the type of student who may learn or retain more knowledge in one format or another.' (1993: 22).

It is this issue that W. Martin Davies raises in his review of intensive teaching formats, noting that students who choose to undertake IMD (Intensive Modes of Delivery) formats are generally older, more motivated, and better prepared and therefore likely to succeed regardless of the format. Thus, Davies argues that it is necessary to be wary of forming definitive conclusions on the basis of comparative studies since 'in most studies supporting IMD formats, there are just too many unconstrained variables to yield reliable results' (2006: 11). Much literature on intensive modes of delivery argues that the factors determining effective student learning are varied and don't depend exclusively on the time taken in teaching a course (Davies, 2006: 14). The time-based factor is one among many, which makes it difficult to draw conclusions as to the success of specific programs.

Conclusion

As discussed at the outset of this paper, the development of modularity in countries such as the UK is associated with a series of pressures on the higher education system including increased internationalisation, increased access and massification of higher education and reduced funding levels.

These are some of the key challenges currently facing higher education in Australia. In a shifting policy environment, such challenges are likely to intensify compelling institutions to consider how curriculum design can more effectively and efficiently support and improve teaching and learning while also responding to the needs of students. In this context, the possibility of adopting modularisation in some form is likely to emerge as a more serious option for Australian higher education institutions. This paper has aimed to provide a starting point for further discussion, to expose some of the tensions underlying debates on the topic, and to highlight both the potential benefits of modularised curriculum structures as well as the possible challenges that modularisation presents to academics and institutions.

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