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Towards a theoretical framework for curriculum development in health professional education

A. Lee¹, C. Steketee², G. Rogers³ & M. Moran⁴

Abstract

The aim of health professional education is to graduate safe, capable practitioners who are able to meet the healthcare needs of society. In meeting this aim, contemporary health curriculum tends to focus primarily on the articulation of competencies (often expressed as objectives, outcomes or attributes) and learning activities, resources and assessment tasks that are designed to produce these outcomes. This linear approach is typically informed by classical models of curriculum development that rarely recognise the dynamic, multi-dimensional and integrated nature of curriculum. Nor do they make visible the value judgements regarding present and future healthcare needs or workplace practices that actually shape curriculum.

This paper describes a conceptual framework for curriculum development in health professional education. Developed in the context of a major national project for the review and renewal of *interprofessional* education curriculum, the four-dimensional framework supports the conceptualisation and design of curriculum for health professions more broadly. It recognises the need to connect health curriculum directly to the larger political, social and economic issues surrounding the profession for which it aims to prepare graduates in addition to acknowledging the cultural and historical forces that often underpin these influences. The proposed framework does not offer a prescriptive set of steps for curriculum developers to follow. Rather, it is intended to assist educators who are developing, reviewing or reshaping health professional courses in the higher education sector so that graduates can receive the most comprehensive preparation for the complexities of the present and future health workplace.

Keywords: theoretical framework, curriculum, health professions.

Background

Last century, the Flexner Report catalysed a transformation in medical training, shifting it from an idiosyncratic

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apprenticeship model to a more rigorous, systematic biomedical and educational approach (Flexner, 1910). Since then, other health professional programs have undergone similar transformations. As these programs have been subject to periodic curriculum development and review, a series of reports has emerged describing competencies, content and projected graduate outcomes (e.g., Gatenby & Martin, 2009; Huang et al., 2009; Levine & Scott, 2010; Mulder, Ten Cate, Daalder, & Berkvens, 2010; O'Brien, Bone, Sinclair, & Solomon, 2010; Seale, Shellenberger, & Clark, 2010).

A thorough review of health professional education literature reveals that little recent attention has been given to the theoretical underpinnings associated with curriculum in the *broad* or *comprehensive* sense of the term. As a result, there is scant guidance available for health professional educators engaged in conceptualising curriculum as it pertains to the larger healthcare needs of society. Rather, the term 'curriculum' tends to be used in its limited sense, often referring to the development of written syllabi for courses where learning objectives, activities and assessments are identified for localised needs. In this regard, little systematic attention is paid in the curriculum development process to the impact of curriculum decisions on the health of citizens or the future development and sustainability of the health professions; that is, there is little *theoretical framing* of the curriculum development process. While the purpose of some training programs, such as *Tomorrow's Doctors* (General Medical Council, 2010), is to prepare students who can meet societal health needs,

it is nonetheless difficult to identify a theoretical framework that might be replicated and used to guide curriculum development in general.

This absence of explicit theoretical framing within health professional curriculum development is not surprising as it is only recently that curriculum has emerged as a significant field of enquiry in higher education (Barnett & Coate, 2005; Hicks, 2007). In contrast, within the broader field of educational research, debates about what curriculum is and what it is for have undergone successive iterations of development, reconceptualisation and critique, the outcomes from which have substantively contributed to educationalists' understandings about this construct (e.g., Pinar, 2008; Wraga & Hiebowitsh, 2003). Indeed, as Prideaux (2003) points out, the term 'curriculum' is used inconsistently, with a range of meanings from its original description of only the *content* of a course (from the Latin word for a running track—a course to be followed) to contemporary usage, which is often intended to include *how* content is to be learned, the pedagogical approaches to be adopted by the teacher, the resources and assessment methods to be used as well as the overall evaluation of its effectiveness. However, designers of health educational programs now require more rigorous and comprehensive conceptual frameworks through which curriculum development can be approached critically, systematically, yet flexibly, in order to accommodate the nuances of different educational contexts and organisations and to meet societal healthcare needs.

A brief critical survey of curriculum theory in the health professions to the present

Curriculum development in the health professions has been mostly underpinned, implicitly or explicitly, by two key conceptual models. The first is the 1940s behaviourist model of Ralph Tyler (1949). Tyler's 'objectives-driven' curriculum model is product focused and linear in its approach. Because learning objectives can be measured, this model appears to be readily able to satisfy the requirements for curriculum development in many performance-based health professional education courses.

There are important critiques of the Tylerian conceptual frame within curriculum studies as a broad field of inquiry. The works of Pinar (2008), Green (2003) and Yates (2009) suggest that the social and cultural purposes and outcomes of curriculum require a rigorous debate and focussed engagement, as there are often competing ideas about what the ideal graduate is and how to produce this individual. The 'big picture' of the future of healthcare is a case in point, where there are competing or contradictory imperatives between the future shape of healthcare delivery and the gate-keeping agendas of present-day disciplinary interests. Furthermore, as Stenhouse (1975), Bevis (1988) and Prideaux (2003) suggest, the Tylerian requirement for 'tight' behavioural definitions of learning objectives leads to an inability to capture elements of curriculum that are of great importance in the health professions. These elements include the development of appropriate norms and

professional values as well as complex clinical reasoning abilities.

The second main conceptual underpinning for health professional curriculum stems (with almost no acknowledgement in the literature) from the work of early industrial psychologist Arthur Kornhauser (1927, cited in Hodge 2007). His work on trade apprentice learning first emphasised the primacy of individual acquisition of capabilities over 'time-in-training' and thus formed the basis for what has become known as the 'competency-based' model for the development of curriculum and assessment. This approach has come to dominate the vocational education and training (VET) sector in the developed world and appears to have been first suggested to be applicable to health professional education by McGaghie and colleagues (1978). In recent years, a competency-based approach to health professional training has been encouraged by government agencies as a tool to address increasing health needs and shortages of qualified health professionals because of the possibilities it might afford to shorten training programs and allow professional substitution to contain costs (see Australian Medical Association, 2010; Health Workforce Australia 2011).

Interestingly, criticism of the competency-based approach closely parallels the concerns about reductionism and oversimplification levelled at Tyler's model as described above, particularly in relation to areas of professional judgment, enculturation to professional values and the acquisition of clinical reasoning capabilities. It is worth noting, however, that more sophisticated

models (e.g., Ten Cate & Scheele, 2007) differentiate higher level 'competencies' from observable 'entrustable professional activities'.

In parallel with, but distinct from, the development of the competency-based model, there has also been considerable writing about 'outcomes-based' health professional education. Originated in school education literature, the term appeared in health professional education literature towards the end of the last century (e.g., Harden, 1986; Myer, 1999). Advocates of the approach seem to focus more on the philosophy, politics and organisation of education than on curriculum per se, with an emphasis on the *outcomes from* versus the *inputs to* education. Nonetheless, the language of curriculum has been strongly influenced by this theoretical turn, with curricula now more likely to refer to 'learning outcomes' than 'learning objectives', in what appears to be a shift of focus from intent to expected result. However, as Prideaux (2003) points out, the semantic differences consequent upon these theoretical distinctions are of little real importance, suggesting that "it is not the statements of objectives or outcomes in themselves that are important but the questions that must be posed and answered in arriving at their definition" (p. 169).

Generally speaking, attempts to derive theory to guide curriculum development in health professional education remain based, explicitly or implicitly, on a Tylerian model; for example, Harden's influential 'ten questions to ask when planning a course or curriculum' (Harden, 1986) as well as Kern's (1998) 'six step approach'. Building on Tylerian principles (though this

was not always acknowledged), these initiatives emphasised the importance of a 'needs assessment' at both the broad and learner-specific levels to guide curriculum development. More recently, Wong (2005) proposed an approach to postgraduate anaesthetic curriculum development that recasts Tyler's approach for a contemporary context and applies it to the particular curriculum issues of that specialty. In pharmacy education, Ho and colleagues (2009) recently presented a model of outcomes-based curriculum development which bears a striking resemblance to Kern's six-step model, with the addition of explicit references to 'feedback', 'fundamental concepts' and a specific focus on 'actual learning outcomes' as the guide to evaluation.

In summary, other than Tyler's classical curriculum development model (and its subsequent variations), it is clear that there remains a lack of a coherent, contemporary theoretical framework to guide the development, review and renewal of curriculum in the health professions. Whilst the concept of 'curriculum' in and of itself is complex, the process of developing curriculum to prepare graduates for an equally complex health workforce environment is particularly tricky. Educators, therefore, require a tool that will enable them to acknowledge and address these complexities as they attempt to define curricula that will allow graduates to meet the rapidly changing nature of healthcare needs. Such a tool would encourage faculty to articulate and agree on a collective vision of their graduates' attributes, a concept that is often taken for granted yet divergent when discussed in detail.

In the next section, a theoretical framework for health professional curriculum is introduced, followed by a description of how it might be used as a tool that engages directly with the key questions for any curriculum, namely: What is it? What is it for? What does it do? and What will the outcomes be?

Principles underpinning contemporary curriculum development

Within the broader field of educational scholarship, the term curriculum refers to overall policies through which the content and assessment practices of education programs are structured (by the state, an accrediting body or a university). Curriculum inquiry and scholarship are concerned with conceptions of what *should* be encompassed within policies or frameworks as well as *how* the educational work is to be done (O'Connor & Yates, 2010, p. 127). Yates (2005) suggests that questions about curriculum 'involve both big picture thinking, and attention to everyday pragmatics'. Such questions look at the substance of what education does, going beyond just seeing education as a 'black box' that produces outcomes. Curriculum inquiry, therefore, attends to issues about what is being conveyed (or is intended to be conveyed) within a curriculum and, in particular, the choices that are made about values, emphases and directions that are not simply derivable from 'evidence' of what works:

Curriculum asks us to think about what is being set up to be taught and learned, what is actually being taught, what is actually being learned, why

agendas are taken up or not taken up, who benefits and loses, whose voice is heard and whose is silenced, what future is being formed for individuals and what future is being set in train for Australia as a whole. Curriculum is concerned with effectiveness, but also with expansiveness and voices, and who gets a say (Yates, 2009, p. 127).

This formulation uncovers the basis on which decisions are made about curriculum priorities, connecting content and activity with purpose and consequence. Furthermore, curriculum is best understood as a dynamic interplay among knowing, doing, being and becoming (Barnett & Coate, 2005). Far from its limited application as a set of course documents, this broader conceptualisation of curriculum requires attention to be paid to knowledge, action and identity when educating professionals. These three elements translate to questions about the design and capabilities of health services, the answers to which are influenced by the social, political and economic factors surrounding contemporary health professional practice. Such factors include various health reports on quality, safety and access to healthcare; changing health demographics; the push to specialisation and the demise of general medicine; the reassessment of the role of primary healthcare; the push for greater collaboration among health professions and the changing role of health consumers and communities; and the move to global healthcare and the internationalisation of curriculum—all have implications on what counts as curriculum in terms of priorities, funding structures and educational activity.

Yet these issues are rarely considered systematically as part of the curriculum *design* process, being treated by default as somehow sitting outside the educational questions of competencies and outcomes. Additionally, in the absence of systematic, informed, research-based inquiry into curriculum design, values are encoded into the selection and sequencing of curriculum activity with little or no accountability to policy and workforce imperatives.

Notwithstanding this criticism of current curriculum development practices in health professional education, the authors acknowledge that linking educational practice to the ‘bigger picture’ is often easier said than done, particularly when there are few theoretical tools available to facilitate this process. Accordingly, the following four-dimensional curriculum development framework is presented as a tool to help health professional educators to link educational practice to health policy, workforce and professional practices in a coherent and reflexive way. This framework has been developed by the interdisciplinary team conducting a national project on curriculum renewal in interprofessional health education in Australia (www.ipehealth.edu.au). The team consists of educational researchers and educators from a wide range of health professions.

Each of the four dimensions in the framework is necessarily linked to, and dependent on, each of the others. Furthermore, as each element within the dimensions moves from abstract to more concrete and practical considerations, it articulates the principles of the other elements. Drawing on the now-classic conceptual framing of Bernstein

(1971) and Ball (1990), these elements are identified as ‘message systems’ of curriculum. Each element conveys a message about issues that matter, for example, what will be known, done, why and how and by whom, how its effects will be measured and its impacts evaluated. Bernstein identified three message systems: knowledge, pedagogy and assessment, while Ball (1990) added a fourth, that of the organisational dimensions of curriculum.

Outline of a four-dimensional curriculum framework

Dimension 1: Big picture decisions – the why?

In the first dimension, curriculum is understood as a program of knowledge and learning, shaped by social, historical, political, economic, professional and educational forces, a purposeful selection from relevant aspects of a culture. At the same time, curriculum contributes directly to the shaping of professional, social, economic and personal futures through the production of graduates who enter the workforce with particular knowledge, skills and attitudes (Australian Curriculum Studies Association, 2009). Curricula in health professions respond to the requirements of registration and accreditation bodies, service public and private health systems and articulate the values of professional bodies. Additionally, each curriculum reflects a particular vision of a future, that is valued either implicitly or explicitly by those who are responsible for shaping it. Where health professional education is largely structured along disciplinary lines, assumptions of value and notions of future workforce needs are primarily made in the interests

of that discipline. Similarly, if health professional education is shaped through work-based, interprofessional or public health foci, a different set of interests and visions is encoded into curriculum design. Consequently, this dimension does not sit outside curriculum design but actively shapes and drives it.

Dimension 2: Defining capabilities of graduates – the what?

Dimension 2 is concerned with identifying sets of learning outcomes, expressed in relation to standards and sets of attributes: knowledge, skills and capabilities as well as dispositions: values and attitudes, articulated within the idea of professional practice (Barrie, 2006). However, rather than practice being merely the application of abstract knowledge gained during traditional modes of study, contemporary theoretical understandings of practice demonstrate how professional capabilities are complex and develop in situations where they are enacted (Green, 2009; Schatzki, 2001). That is, becoming and being a health professional is substantially learned on the job, through practising and systematic critical reflection on practice. This second dimension is the primary place where the dynamic interplay between ‘knowing, doing and being’ (Barnett & Coate, 2005) is articulated.

Health professional practice is multi-dimensional, contextually specific and relationally complex, and this must be reflected in the capabilities of graduates. Understanding professional practice in these terms requires a curriculum framework that is directly connected to the considerations in Dimension 1. That means that this practice-oriented

conception of the second dimension extends beyond an approach to capability development understood in purely ‘what works in the real world’ terms, to a need to encompass change.

Dimension 3: Teaching, learning and assessment – the how?

The third dimension involves the core educational activities of teaching, learning and assessment. As a message system, these three elements constitute the daily decision-making and dynamics of education. However, they also carry important elements of the previous two dimensions: assumptions about the big picture, what model of the future is articulated in the selection and sequencing of learning activities, how practice is best learned and so on. For example, traditional didactic modes of teaching (large lectures, memory learning, sequestration of disciplines from each other) encode values and hierarchies about the relationship between theory and practice between the various professional disciplines and between curative and primary or preventive health models. In contrast, collaborative, inquiry-based, team-based, work-based or simulation-based modes of teaching, learning and assessment carry a message about a different set of assumptions regarding these relationships. Further, the practicalities of addressing the hospital–community divide and the involvement of patients/consumers in curriculum development and delivery are also deeply underpinned by the assumptions embedded in Dimensions 1 and 2. In order to understand the workings of this message system, the underpinning theories and assumptions about learning

and knowledge in different curricula are examined.

Dimension 4: Organisation – the where?

The fourth dimension considers the organisational and administrative context in which curriculum is structured, implemented and experienced (Ball, 1990). This fourth dimension involves cultural norms, protocols and procedures responsive to specific universities and locations. It addresses the complex cultural challenges and accommodations of translating curriculum ideas into curriculum practices that are enacted and experienced by teachers, students, clinicians and organisers. As a message system, this element is often overlooked in accounts of curriculum renewal and considered to be ‘outside’ curriculum design.

Yet organisational life within educational settings is a powerful force, shaping what is considered possible and desirable. Each university carries its own historical, demographic and organisational culture. Practical matters such as the mix of professional programs, rural and regional locations, the mix of graduate and undergraduate entry and so on shape what can be achieved as well as how change is envisaged and approached. To elevate organisation to a dimension of curriculum, rather than to relegate it to the static conception of ‘context’, is to render it visible and systematically accountable.

A diagrammatic representation of the four-dimensional framework is presented below followed by a discussion of how this framework might be adopted by health professional education.

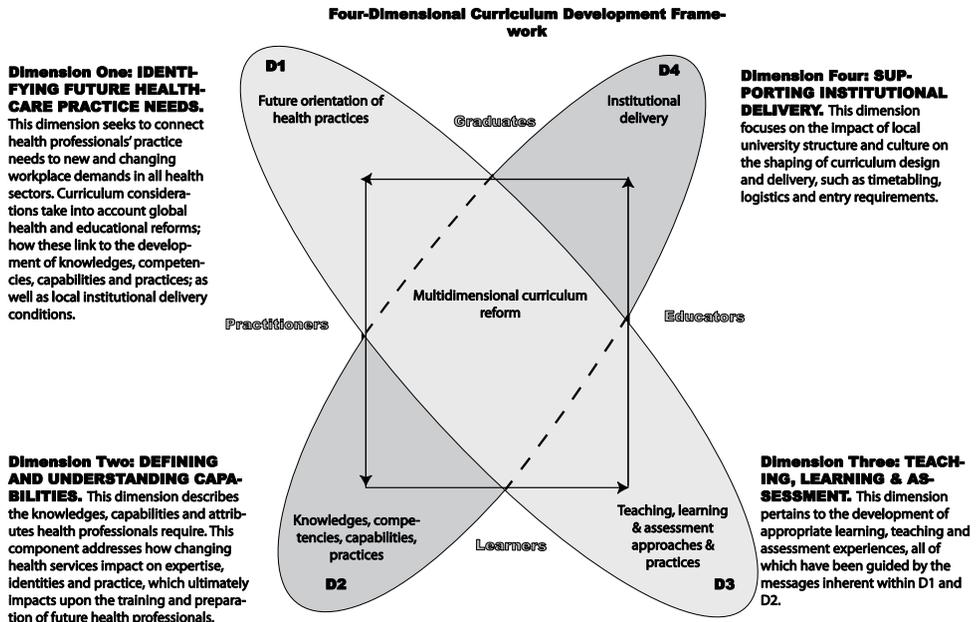


Figure 1: Four-dimensional framework for curriculum development

The four-dimensional curriculum in action in health professional education

As proposed, each specific element within the four dimensions of the framework is a message system within the curriculum. Each element is a realisation of a particular vision of the future. Consequently, the benefit of this framework is that it requires and enables educators to consider the message systems together and to think about their interrelatedness. In relation to education in any of the health professions, the dynamic interplay among the four dimensions allows educators to focus on a set of issues entailed in developing curriculum.

Dimensions 1 and 2, for example, are not simply concerned with effectiveness, or compliance in relation to standards, though these are key considerations. Dimension 1 focuses directly on the future-oriented aspects of health policy and its implications for educating a health workforce capable of practising in contemporary models of care. Dimension 2 allows educators to ask critical questions about the learning outcomes being encoded into various competency frameworks, joining technical considerations of particular knowledge, competencies, attitudes and learning experiences rigorously with a consideration of the vision of the healthcare practice world they imply. In this sense, every competency framework articulates a set of assumptions about what it means to be a particular kind of health professional, and this cannot be left unexamined.

Dimension 3, concerned with the actual design of learning and assessment activities, is also informed

by the implications of the previous two dimensions. This dimension encourages us to consider the particular vision of healthcare (its strengths and limitations) that is being encoded into the design of learning activities. This allows the practical activities of design to be directly accountable to the broader policy and philosophical questions concerning the kind of health system being produced through the education of future professionals.

Dimension 3 is also where questions about the underpinning theories of learning may be addressed. Where theories of learning are absent or implied, they often remain limited and problematic. For example, the persistence of implicit Tylerian principles limits the range of possible descriptions of learning objectives (e.g., Mager, 1962). In a rare recent theoretical paper in relation to nursing education, Brandon and All (2010) argue that the solution to these continuing concerns may lie in the application of constructivist theory. Furthermore, concepts such as ‘constructive alignment’ (Biggs, 1996) presuppose theorisations of learning that are constructivist in orientation, focusing on individual learners’ constructions of meaning from structured learning activities and assessment tasks.

Dimension 3 also allows us to ask questions about what theories of learning align with the development of contemporary and future-focused practice capabilities, such as situated learning (Barr, Koppel, Reeves, Hammick, & Freeth, 2005; Lave & Wenger, 1991), collective learning (Hager & Johnsson, 2009), reciprocal learning (Fowler, Dunston, Lee,

Rossiter, & McKenzie, 2011) and sustainable modes of assessment (Boud and Associates, 2010), all of which are attempting to come to terms with the relationship between the learning of abstract knowledge and the learning in, and of, practice itself. These theories support the complex organisational interface between higher education and the current and future world of professional practice across the health professions.

Finally, Dimension 4 is the dimension that allows systematic questioning about how and why curriculum is shaped and constrained by local institutional and sectoral circumstances. Examples include the mix of professions in any one university; the mix of entry levels; prior curriculum histories and precedents; local institutional politics; the effects of urban, regional and rural circumstances; the particular histories of relationships with the local health bureaucracies and so on. Far from being ancillary to the processes of curriculum design, these often become the structural sticking points that shape attachments and resistances to curriculum renewal initiatives. Dimension 4, reflexively and systematically, loops back to the 'big picture' of Dimension 1, inflecting it with local colour and flavour. It is in this dimension that local interests and power relations play out most obviously and where struggles find their most visible form. They must be configured into a conception of curriculum design and not seen as just 'noise' within the system.

Conclusion

In formulating the theoretical scaffolding for an interprofessional curriculum development project (www.ipehealth.edu.au), the research team has

synthesised a range of recent strands of educational thought into a fairly simple model that, nonetheless, accounts for the complex, dynamic and collaborative work required for conceptualising curriculum reform across multiple levels of activity. The framework provides a template through which curriculum development in the health professions can be approached comprehensively, in order to accommodate the nuances of different educational contexts. The proposed framework does not offer a prescriptive set of steps for curriculum developers. Rather, it is a four-dimensional theoretical tool for the identification and systematic interrelation of priorities and directions, possibilities and constraints, specific and generic capabilities, outcomes, academic standards and assessment practices in health professional education. There are many implications for the implementation of this framework: in curriculum design, in the development of teaching/learning resources and in the development of assessment tools as suggested, for example, by Hays et al. (2002) in relation to medical education.

Finally, this framework addresses factors that shape the design of health professional curriculum. It does not directly seek to account for the dynamics of the lived curriculum, as distinct from the written curriculum. Any design contains an imagining of its enactment, the experiences of what people bring to daily activities and dynamics of teaching and learning. This includes the effects of the so-called 'hidden curriculum' (Hafferty, 1998), a term referring to the socialisation that occurs through students being exposed

to social practices and role modelling in educational and workplace settings that contradict the espoused focus of the 'manifest curriculum' (Lemp & Seale, 2004). A recognition of the tension between the 'manifest' and 'hidden' curriculum, and its implications on professional socialisation and the development of practice cultures in fieldwork placements, becomes critical to the realisation of any curriculum design. While a topic for another paper, it is clear that the effects of the changing expectations of students and the hidden curriculum lend themselves to more extensive inquiry through this four-dimensional framework.

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