



Principles and practice of good curriculum design



THE CHEPSAA PROJECT

The development of sustained African health policy and systems research and teaching capacity requires the consolidation and strengthening of relevant research and educational programmes as well as the development of stronger engagement between the policy and research communities. The Consortium for Health Policy and Systems Analysis in Africa (CHEPSAA) will address both of these issues over the period 2011 - 2015. CHEPSAA's goal is to extend sustainable African capacity to produce and use high quality health policy and systems research by harnessing synergies among a Consortium of African and European universities with relevant expertise. This goal will be reached through CHEPSAA's five work packages:

- assessing the capacity development needs of the African members and national policy networks;
- supporting the development of African researchers and educators;
- strengthening courses of relevance to health policy and systems research and analysis;
- strengthening networking among the health policy and systems education, research and policy communities and strengthening the process of getting research into policy and practice;
- project management and knowledge management.

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Principles and practice of good curriculum design

Why these materials?

CHEPSAA was started with the aim of building the field of Health Policy and Systems Research and Analysis (HPSR+A) in Africa. A key aspect of this is the development of capacity and support for educators, through the development of quality courses and training materials, and the training of future practitioners. These practitioners are both researchers, engaged in supporting health systems change, and the managers and policy-makers responsible for initiating and sustaining such change.

To support the development of quality courses and training materials in this field, CHEPSAA held two one-week workshops in 2012 and 2013, in which partners worked on developing curricula for two post-graduate courses for managers and researchers in the field of Health Policy and Systems. These workshops were in themselves an opportunity for partners to develop their understanding of and skills in curriculum development. We purposely invited both experienced and novice teachers to these weeks.

During the process we discussed and gained skills and experience in curriculum development practice. The intention was that this experience would be shared with colleagues beyond CHEPSAA who are involved in education and training of managers and researchers in the HPS field. The aim of this document is therefore to present ideas about sound principles and practice in curriculum development in the field of Health Policy and Systems, which can stimulate wider thinking, ideas and debate in Africa. Given the relatively limited African-based training in this field, CHEPSAA is seeking to share its work and so stimulate other African organisations involved in HPSR+A training to review and re-develop their own educational activities. We start from the principle that training in Africa, by African organisations, is essential in building the HPSR+A field for Africa.

What is included in this document?

- A look at the theory and principles of curriculum design;
- Guidelines on the process of curriculum design, with explanations of each of the components;
- References to useful readings about curriculum design and development;
- Notes and comments on our experience of the curriculum design process in the CHEPSAA workshops.

The curriculum development workshops

The CHEPSAA workshop held in 2012 focused on understanding basic principles of curriculum development, with concepts such as 'graduate attributes', 'threshold concepts', 'learning outcomes' and 'authentic learning' emerging as significant for participants. Sharing ideas about different resources for teaching, including films and podcasts, was also judged useful, as well as thinking about how to encourage students/learners to use non-contact time for productive learning. In the course of the workshop a number of important skills for educators were identified – including how to manage group work effectively, how to motivate students/learners to read around a subject and how to develop and write up teaching cases. (We will from now on refer to 'students' as 'learners' in line with more current terminology.) Ultimately, the first workshop also produced the first outline of and materials for a course on *Introduction to Complex Health Systems (ICHS)*.

One of the key, unintended spin-offs from CHEPSAA's 2012 curriculum development workshop was some CHEPSAA partners then held similar workshops in their own organisations, using the same materials and ideas. On Day 1 of the 2013 workshop, CHEPSAA's Nigerian and Ghanaian partners had the opportunity to share these experiences with the wider group.

Their briefings noted challenges such as resistance from colleagues committed to more traditional teaching methods. They also highlighted clear impacts, including stimulating course development, the development of graduate attributes, the sharing of useful materials from the CHEPSAA website, and the use of CHEPSAA materials and ideas in revising existing courses.

Source: CHEPSAA 2013 Curriculum development workshop report; all workshop reports available at <http://www.hpsa-africa.org/index.php/resources/chepsaa-outputs2>

The second workshop, in 2013 aimed to consolidate the work done in the 2012 workshop on curriculum development skills, with an explicit focus on assessment, as well as finalising the ICHS course, and working towards designing another course – *Introduction to Health Policy and Systems Research*.

Why curriculum matters

The curriculum is the basis of any learning and teaching programme: the key statement of the way it holds together over a course or programme of learning and how should be effectively implemented. The fundamental purpose of curriculum development, according to Flinders University's Centre for University Teaching, is, '...to ensure that students receive integrated, coherent learning experiences that contribute to their personal, academic and professional learning and development.'

<http://www.flinders.edu.au/teaching/teaching-strategies/curriculum-development/curriculum-development.cfm>

Curriculum also matters because it is a vehicle which carries and articulates a set of values – those of the country, the institution and/or the curriculum designers. It represents the 'existing contract between society, the state and educational professionals with regard to the educational experiences that learners should undergo during a phase of their lives.' Curriculum is '... a field of ideological and political struggle that takes place in each society in order to give meaning to education. (Braslavsky, 2012)

Theory and principles

A workable definition of curriculum is that of McKimm (2007). She defines curriculum as:

...the learning expected to take place during a course of study, in terms of knowledge, skills and attitudes, specifying the main teaching and learning and assessment methods and resources to support effective delivery of the course.

There are a number of views of what a 'curriculum' is, which relate to different epistemologies and understandings of how learning and teaching are understood and valued, and what their purpose is seen to be. These influence the way curriculum design is approached. The four broad views or approaches and their implications are outlined in the table below:

Nature and purpose of learning and teaching	Implications for curriculum design
Transmission of a body of knowledge	Core of curriculum is a syllabus with the focus on content (information).
Achieving a set of learning objectives	Focus is on the 'product' of learning; heavy

	emphasis on assessment
The learning process is central; focus is on how learners learn, more than on knowledge content	Importance placed on engaging learners in activities and tasks which support their learning
Ethical and emancipatory dimension of learning seen as important; social good and reflective practice (praxis) are the purpose of learning.	Focus on activities and content which encourage critical thinking and social engagement.

(www.infed.org. *Curriculum theory and practice*)

The approach we take to curriculum design draws from all of these theories, although less from the first ‘transmission’ approach than the other three. We acknowledge a ‘body of knowledge’ in the field of HPSR+A which has a place in the curriculum, and we also see an important role for learning outcomes or objectives related to health needs and those of learners. At the same time we acknowledge the central significance of an active learning process as a means of achieving the learning outcomes, particularly as health policy and systems research and analysis (HPSR+A) is about actively engaging with change; therefore practitioners need to be taught using active learning processes. Finally the concept of health policies and systems as public goods constructed through social and political engagement, and the need for learners to develop skills and ideas for committed health action are also central to our approach to curriculum development.

Because approaches to curriculum are underpinned by different theories and ways of viewing learning, it is important to be transparent, explicit, reflective and consistent about our approach to learning and teaching in any course or programme. For example, if learning and teaching follow a participatory, process-focused approach based on authentic, relevant learning - but assessment is very formal, and based on product- focused examinations, the inconsistency is likely to undermine the course delivery and send learners mixed messages. Our approach to assessment is therefore to emphasise tasks that require problem-solving and application, rather than standard, formal examinations that require rote learning of theory.

Figure 1 below shows another range of views on curriculum, further illustrating the point made above.

What constitutes curriculum - a variety of views

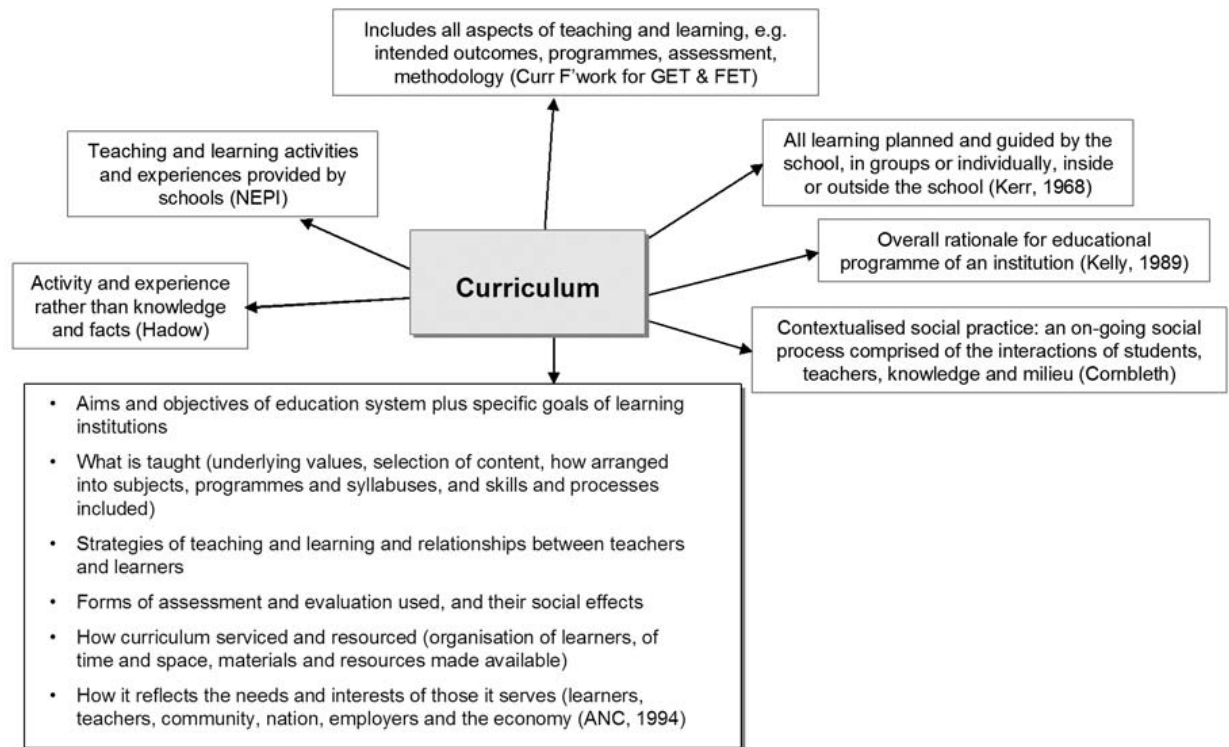


Figure 1: Views on 'What is curriculum?'

Source: Randell, C. (2006). Resources for new ways of learning: a manual for developers of learning resources: 68: SAIDE.

Key principles of Curriculum development

Some key principles to consider, which will be explained in more detail elsewhere in this document, are:

- **Alignment** of intended learning outcomes, teaching and learning activities and assessment: The methods and activities used to teach the course, as well as the assessment methods, need to be designed to match and achieve all the stated learning outcomes.
- **Relevance** to the needs of the field and the learners: Course content and methods used to teach it must fit the current requirements and focus of the field of learning; and also be appropriate for the learners' level and professional needs.
- **Coherence** of the whole programme of learning and teaching: All parts of the course must clearly be based on the same principles and approach, rather than sending the learners 'mixed messages'.
- **Reiterative process**: curriculum needs to be evaluated and reviewed continuously to remain relevant. The CHEPSAA workshops are the start of this process.

The curriculum development process

There are four crucial questions to be asked by curriculum developers embarking on the process:

1. What educational purposes do we want to achieve?
2. What educational experiences are likely to achieve these purposes?
3. How can these be organised effectively?
4. How can we determine whether these purposes are achieved?

In exploring the development of two HPSR+A courses in the CHEPSAA curriculum workshop in May 2013, the participants, who included health academics, practitioners and researchers, followed the process shown in figure 2 below with these four questions in mind. This process was a continuation and expansion of that followed in the previous CHEPSAA workshop in 2012. Each of the linked components is unpacked in this document and their inter-relatedness explored, to illustrate the 'constructive alignment' (Biggs, 1999) approach to curriculum development which we took. In this approach all the components of the curriculum – outcomes, teaching methods and assessment – are consistent with and support each other.

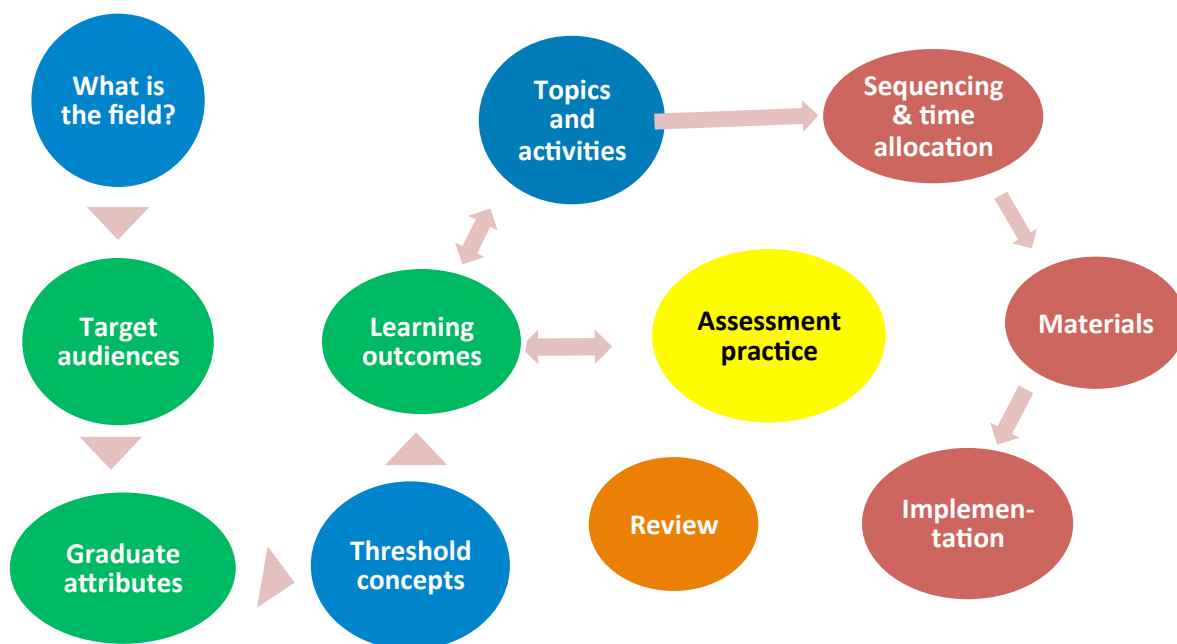


Figure 2: Curriculum development process

The field

We started by establishing a common understanding of the essential features of the field in which the courses belong, as the basis for developing the curricula. A curriculum should cover the key knowledge, skills and attitudes or values relevant and important to the specific aspect of the field addressed by the course. For HPSR+A some possible useful references include: Balabanova et al., 2013; Gilson, 2012; Gilson et al., 2011; Sheikh et al., 2011; Smith and Hanson 2012; Van Olmen et al., 2012; WHO, 2007; WHO, 2012.

Target audience and context

The learners expected to be the target audience of the course form a key part of the context in which the course will be taught. Any course curriculum should take careful account of its context, as this will influence the specific focus of the course, the choice of teaching and learning methods, the resources used and the level and volume of content. The target audiences for CHEPSAA courses would be mixed, and would probably include managers, policy makers, mid-level managers in the public sector or in NGOs, future health policy and systems analysts and researchers, senior policy makers and academics from other fields of Public Health and beyond.

However, in the workshops we noted that the target audience of the courses we were planning would often consist of people who are already experts in their own fields (e.g. health professionals, often clinicians, highly qualified and experienced), but are relatively new to HPSR+A. They are also likely to continue working while studying. These considerations had a profound impact on how we had to think about the structure and content of course curricula. For example, some concepts which relate more to social science than to medical science (and therefore would not be familiar to clinicians) needed to be scaffolded so that all learners could access them and move from lower to higher levels of understanding (see Bloom's taxonomy on page 9 below). Similarly, people with medical backgrounds are more likely to have difficulty with discursive texts, which are more familiar to those with social science backgrounds. We had to take this into account when choosing readings, and where necessary build in scaffolding questions or activities. When planning activities, we also needed to be aware that some participants would be more familiar than others with group tasks and discussions in a learning environment, and therefore we would need to prepare them for such tasks. These were reminders to us of the importance of taking the learners' profile into consideration in designing a curriculum.

Graduate attributes

One of the key concepts we discussed and adopted in our workshops is that of 'graduate attributes'. The following definition captures our understanding of the term:

'Graduate attributes are the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future.'

Bowden, Hart, King, Trigwell & Watts (2000)

'Graduate attributes', are the basis for the intended course learning outcomes, which in turn drive the planned learning and teaching activities and the course assessment. Some institutions, for example the University of Nigeria and the University of the Western Cape, have developed charters of graduate attributes which are intended to apply generically to all the programmes they offer at their institutions.

The graduate attributes should be overarching, but are also relevant to our particular field, e.g.:

- Critical and analytical thinker
- Cooperative team worker
- Skilled communicator

The CHEPSAA course outlines for *Introduction to Complex Health Systems*, and *Health Policy and Systems Research* available on the website both incorporate graduate attributes. You could refer to these for more examples of what graduate attributes are and how they can be integrated into a curriculum of a particular course or even a whole learning programme.

Threshold concepts

'Threshold concepts' was another term we engaged with and found very useful to anchor our ideas.

One of the most frequently cited articles on the topic defines threshold concepts as:

"... akin to a portal, opening up a new and previously inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress" (Meyer and Land, 2003)

Threshold concepts are transformative, in that they change a learner's way of thinking; they are irreversible, in that once internalised, they are permanently a part of the learners' frame of reference; they are also integrative in the sense that they connect and relate familiar knowledge, skills and attitudes in new ways. Threshold concepts involve not only cognitive shifts, but also identity and discourse shifts, which enable the learner to make the shift to talking and acting like a practitioner in the discipline.

A classic example of a threshold concept is the decimal system in basic numeracy: before a learner grasps that in some number systems things are counted in tens and multiplications of tens, he or she will have great difficulty to advance in their use of even basic multiplications, divisions etc. After this concept has been understood, it is almost unimaginable to function without it. It is a concept most of us cannot even remember living without. An example fundamental to the field of HPSR+A is the concept that 'People make sense of the system around them and act based on their understandings and mind sets.' This is not quite as fundamental as the decimal system concept, but the notion that people, their values, understandings, experiences and skills are at the core of all activity in a health system, gives access to new layers of understanding of health systems, including where and how to intervene in them.

A last illustration is the concept that 'Policy is practice', which conveys the idea that policy does not just consist of a written document, but that all acts of conceptualising, designing and implementing it are part of the policy itself. Once understood and internalised this has important implications; for instance, for how policy makers think about designing and managing a policy process, including who to involve, how to gather evidence, and how to think about the implementation.

For curriculum design it is important to build threshold concepts related to the field into the course, but also to consider ways of supporting learners to understand and internalise these concepts and then to apply them in relevant ways. This does not mean simplifying the concepts, but rather scaffolding learning in such a way that learners can understand and engage with them meaningfully. In other words, learners should be given many opportunities, iteratively, to grasp the concepts, and be supported in their efforts to grasp and use them in their practice by being offered repeated opportunities to test their understanding, reflect on their learning and be offered reassurance during their learning journey.

Learning outcomes

'If you are not certain of where you are going you may very well end up somewhere else (and not even know it).' Mager (1972), in WHO, (1981), *Educational Handbook for Health Personnel*.

The above quote is a reminder of the importance of learning outcomes from the outset of the curriculum design process.

For a course to be relevant and useful, its specific learning outcomes need to reflect these key features of the field:

- a. graduate attributes expected;
- b. threshold concepts to be introduced;
- c. knowledge, skills and attitudes required by the field, the community of practice, and the learners as potential practitioners in the field.

Based on these considerations, curriculum planners decide on the expected learning outcomes for the course, in order to go forward in designing the details of implementation (teaching, learning and assessment) of the course, in line with the expected outcomes. Curriculum planning is approached differently in different institutions. For example, at the University of Cape Town, the teachers and convenors responsible for a course or programme would make proposals about new or revised curricula and take these to other committees for approval. In other institutions, there might be special curriculum planning committees in each faculty who are responsible for initiating curricula.

The wording of learning outcomes is important: they must be unequivocal and clear, as they will link directly with assessment. Good learning outcomes should therefore:

- Be written in future tense, using active language (verbs);
- Identify important learning requirements, focusing on application and integration of knowledge;
- Be achievable and assessable (realistic);
- Be meaningful to learners, using language they can understand;
- Make expectations clear, with explicit statements of achievement.

(d'Andrea, cited in McKimm, 2007)

A few examples of learning outcomes which meet these criteria are:

On completion of the course, learners will be able to:

1. *Identify and describe the dynamic nature of a health system;*
2. *Apply your understanding of health systems to an assessment of your own health system;*
3. *Analyse a case study in terms of its applicability to your own health environment.*
4. *Work together effectively in problem-solving teams;*

The verbs chosen for the learning outcomes (e.g. Identify, describe, analyse, apply, work together, – in the examples above) are important, as they describe what the learners should **know or be able to do** by the end of the course. These action words should aim to cover the five levels of cognition described by Bloom in his taxonomy or ranking of thinking skills: knowledge, comprehension, application, analysis, synthesis and evaluation (see Figure 3 below) Also see Biggs, 1999 (appendix 1),

for a different model of the hierarchy of cognitive skills. In HPS courses we generally introduce a range of levels of thinking skills, but particularly aim to encourage higher level analytic and synthetic skills and outcomes that facilitate deep learning, enrich the learning experience and stimulate reflective and innovative practice.

BLOOM'S RANKING OF THINKING SKILLS					
Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
List Name	Summarize	Solve	Analyze	Design	Evaluate
Identify	Explain	Illustrate	Organize	Hypothesize	Choose
Show	Interpret	Calculate	Deduce	Support	Estimate
Define	Describe	Use	Contrast	Schematize	Judge
Recognize	Compare	Interpret	Compare	Write	Defend
Recall	Paraphrase	Relate	Distinguish	Report	Criticize
State	Differentiate	Manipulate	Discuss	Justify	
Visualize	Demonstrate	Apply	Plan		
	Classify	Modify	Devise		

Figure 3: Bloom's Taxonomy

In our second CHEPSAA curriculum development workshop, we spent time re-visiting the learning outcomes which had been set the previous year, knowing that in the light of changes to our thinking and experience, the outcomes needed to be re-worked. This was part of the important iterative nature of the process of curriculum development. For example, in developing the curricula, we realised that we placed importance on the skills of being able to work collaboratively, and communicate effectively, yet there were no stated outcomes relating to these skills. We had to add relevant outcomes to reflect this focus.

Topics and activities

The topics covered in the curriculum form the content or syllabus of the course. They include the knowledge, skills, attitudes and values which are considered important and relevant by stakeholders in the field. These are gathered from previous courses, discussion among colleagues and experts, professional associations, textbooks, studies, the internet, etc. In CHEPSAA, we started by reviewing our own existing courses, talking with other academic colleagues, and sharing ideas drawn from relevant reading material (see references at the end). Our course materials/curricula will also be reviewed and revised over time, in response to participants' reflections and course evaluations, and peer reviewed by academic colleagues.

Topics and content are selected and adjusted in terms of level, volume and time allocation relevant for the particular course context. In many countries, courses are allocated a certain number of

‘notional hours’ by the host institution and in line with educational regulatory requirements, and this total number of hours has to be divided up realistically, according to the time required for each topic and part of the course, taking into account time needed for self-study by learners and assessment (non-contact time). Topics also have to be organised into a logical sequence which builds concepts and skills into a coherent whole, also allowing the deepening of understanding and skills towards higher order levels of cognition. Ideally this involves cooperative planning and discussion by a team of curriculum planners who have expertise in the field. The CHEPSAA process provided such an opportunity for planning.

Learning and teaching activities are selected to achieve the learning outcomes related to the content in what seems to be the most effective and appropriate way for the context. They will naturally fall in line with the theory of learning held by the planners. For the CHEPSAA courses, we focused on activities which encourage participation by learners in problem-based teamwork, as a way of engaging them with the concepts and skills introduced. Lectures are kept to a minimum, with some providing input and some wrap-up of discussion topics, supported by multi-media and discussion wherever possible, in line with our belief that people learn best when they are actively engaged.

As curriculum designers, our approach included trying to ensure that the activities:

- Are relevant and appropriate for the learning context (including, for example, the size of the learning group) and the topic;
- Help learners achieve the intended outcomes and prepare them for the assessments;
- Provide opportunities and support for self-study and independent learning;
- Have (or will have) relevant and good resources to support the activities;
- Promote logical and critical thinking;
- Are authentic tasks for the field, in that they are tasks used in practice within the field (for example doing a stakeholder analysis around a case study of health system development, as a basis for thinking about how to manage the actors involved - an activity that could then be undertaken in the learners’ own context);
- Include a variety of learning and teaching methods, to suit the learning styles and needs of different learners, and the different topics covered.

As an example of how to apply these principles, we present below a session outline from the *Introduction to Complex Health Systems* course which is being developed by CHEPSAA.

Session 2: Frameworks for describing and analysing health systems and policy

This session fleshes out the discussion of what a health system is and why it is important in a society. Concepts, measures and frameworks for thinking about systems are introduced and the integrative nature of health systems is emphasised. Learners then apply these to their own country’s health system. The session also introduces reflection on teamwork skills.

Topics and activities :

1. Learners discuss own countries' health systems histories and make comparisons between them: *Group discussion and feedback;*
2. Understanding systems: *Flashmob Game*
3. Ideas and frameworks for thinking about health systems and policy: *Video and lecture; group discussion.*
4. Application of frameworks to specific country scenarios: *Thinking in pairs to prepare for homework task*
5. *Readings and discussion:* What makes for effective group work?

Self-study – Application of frameworks to own country health system

- a. Draw diagram of your own health system and reflect on its values base.
- b. **Portfolio task 1:** Apply health systems frameworks to analyse own countries' health system.
- c. Read Thai case study with guiding questions.

In the session above, you will see that learners are engaged in a variety of activities relevant to skills and knowledge needed in the field of HPSR+A, supported by resources such as video and reading texts, including a health system case study. They are given the opportunity to work with a range of concepts and in different modes, such as small group discussion, pair work, a game, and class discussion of a video and lecture. The activities involve learners in a range of thinking skills – for example, applying frameworks, comparing health systems, reflecting on values, describing a case study and group work skills. Learners have the opportunity to analyse their own health system in its environment, using relevant conceptual frameworks, to deepen their understanding of the health system and as a basis for thinking about how to strengthen it. They are also given self-study work to do after the session, in preparation for the following session and to submit as part of their assessment.

The activities and portfolio task are planned to enable learners to achieve the following learning outcomes, which are some of the intended outcomes stated at the start of the course:

- Show understanding of the dynamic and complex nature of health systems by reflecting on and describing their value bases and functioning;
- Apply these understandings to assessment of their own health system and comparison between health systems;
- Develop the personal communication, teamwork and leadership skills which are important for supporting health system change.

Learning materials

The resources to be used for supporting learning and teaching on any course need to be planned alongside the content and activities. The materials and resources we considered for the CHEPSAA courses included study guides and lecture notes (including power-point presentations), case studies and reading lists. Some of these already exist and have been used, others are being re-worked in line with the new course outline and expected outcomes.

In the session outline above for example, resources learners are given include:

- lecture notes from the power-point presentation with frameworks for thinking about health systems and policy,
- discussion questions to frame pair and group discussions
- readings on effective group work roles and processes
- the case study of the Thai health system experience

Learning and teaching resources will be made available to CHEPSAA partners and colleagues, who can adjust them as necessary for their environments. Learning materials need to be context relevant and so adapted appropriately. They can be counter-productive if they are not relevant to the needs of particular learners and health settings, for example if no African case studies were to be used in an African learning context.

We have tried to ensure that learning materials, like activities and methods, are varied to suit different learning styles, different abilities and interests, and different topics in the curriculum. One size does not fit all when it comes to learning! So, as explained above, in relation to target audience, a reading that is appropriate in one setting might not be suitable in another; in the same way, a loosely guided group task that would work well in a relatively small class might have to be adjusted to allow for more guidance and control in a large class.

In planning a curriculum, designers have to consider the mode of delivery of the course. For example, materials will be different for distance study and face-to-face delivery, so a power-point presentation as a teaching resource would need to be used differently in the two modes. Finally, curriculum designers need to take into account feasibility of the materials with which learners are asked to engage: for example, is the reading load realistic?

Assessment

As we have stated earlier in this document, our approach to curriculum is that it should **align** across all the components of the curriculum, in order for the course to come across as logically and coherently designed. If we understand that the purpose of assessment is to establish whether the learning outcomes have been met, it is obvious that assessment is a crucial component of this alignment process, depending on a clear and consistent relationship with the learning outcomes, and with the learning/ teaching activities and materials.

At the second CHEPSAA workshop we were reminded of the importance of **mapping** the assessment of the whole course to ensure that it covers the full spectrum of skills and concepts addressed in the course, and that the **weighting** of assessment tasks reflects the relative value of components of the course. Another consideration is the **level and the volume** of assessment in relation to the target audience: not to load learners unrealistically and unfairly with assessment tasks in this course, when they might be doing other courses at the same time, as well as carrying professional workloads and the other constraints on adult learners. Furthermore, we needed to consider whether a range of cognitive skills, including **higher order thinking skills**, were included in the assessment questions, in the same way as in the learning and teaching activities.

Tertiary institutions have different assessment requirements which have to be taken into account, but generally a course should be assessed by means of **formative (or continuous) assessment**, with

feedback to support students' learning, and **summative (or final) assessment**. Together, the assessment tasks should assess all the learning outcomes: related to knowledge, skills and attitudes. For most of the CHEPSAA workshop participants, examinations are a familiar and required form of assessment which they cannot bypass, but we agreed that they are not the best way of assessing learning in this field and at this level of study. They could however be adapted to include methods such as open-book exams, which better enable learners to demonstrate their competence and understanding, and do not rely so heavily on memorising.

The **types of assessment** possible are as wide as the types of learning activities, limited only by institutional and logistical constraints, and the imaginations of curriculum designers (see the reference list for further reading on methods of assessment). Some of the assessment methods we used in designing the CHEPSAA courses were:

- Portfolio – a selection of tasks taken from across the course, representing a range of skills and knowledge learned. Portfolio tasks included: developing a policy briefing; writing responses to academic papers; writing a reflection on group work and learning; application of frameworks to analyse another situation.
- Group presentations;
- Long essay based on case studies

All assessment tasks should however **suit the purpose and the topic**, be based on **real-life (authentic) tasks** as far as possible, and be **consistent with the learning/ teaching approach**. So, if group work is used and valued as a way of learning, it should also be included as a way of assessing learning, for example a group task could be marked as part of the assessment. Likewise, if problem-solving is valued as a learning/teaching approach; it should also be used to assess learning, with some assessments involving problem-solving tasks, either as part of an examination, or as part of a portfolio item or project. Rote-learning and memory-loading, as required for most examinations, is not a learning method we promote, which is why traditional examinations are not our preferred method of assessment.

There are a number of **principles of assessment** which need to be understood and applied by curriculum designers. This brief document does not allow space to explain these in detail, but see the reference section at the end of this document for further reading. We used these principles in the CHEPSAA workshop to evaluate and review existing assessments. Where we saw that the principles were not adhered to, we revised the assessments or other aspects of the course. For instance, we found that in one of the courses we reviewed some assessments required 'reading with understanding', but this did not match any of the learning outcomes (the principle of 'validity' was not met in this case -)We therefore had to revisit the learning outcomes and add this as an expected outcome of the course, to ensure that the outcomes and assessment were aligned.

The principles of assessment we looked at were:

- Validity (Does it assess what is intended, in line with expected learning outcomes?)
- Reliability (Can it be consistent and generalisable to other contexts?)
- Feasibility (Is it 'do-able' in terms of the resources and skills available?)
- Fairness (Does it allow all learners a fair chance?)
- Transparency (Are the expectations made clear to learners up-front?)

Below is a summary of some key points about learning which we have considered in relation to curriculum design:

- Learning can be seen to occur in four domains (eg. Bloom et al, 1956 and others): cognitive (knowledge and intellectual skills), affective (feelings and attitudes), interpersonal (behaviour and relationships with others) and psychomotor (physical skills)
- Individuals can be seen to have different learning styles and so courses should be designed with a variety of learning (and teaching) methods.
- Learners need to be treated as people who have values, experiences and skills, and there should be opportunities for them to make contributions which are valued by teachers
- Effective learning is active – people learn best when they are engaged in an active process
- Learning has to be relevant to learners' own experience and needs and to be set within a clear context or framework. Relevance applies at a variety of levels: to the overall structure of the course or subject (eg. medicine or physiotherapy) or to the use of particular terminology.
- Learning outcomes or objectives help learners to learn because they define what the learner has to do, the outcomes should be explicit and clearly linked to delivery and assessment
- Effective learning needs to be done in a safe environment. Learning is not always easy and learners must feel comfortable and able to make mistakes. Feedback should be constructive and timely.

Figure 4: Key points about learning

Source: McKimm, J. (2007) *Curriculum design and development*. London. School of Medicine, Imperial College Centre for Educational Development.

Feedback from CHEPSAA workshop participants

At the end of each CHEPSAA curriculum development workshop, and in order to gauge which aspects had been most useful, the participants were asked to consider the question:

What key threshold concepts are you taking away for curriculum development in health policy and systems work in your context?

Their responses are summarised below according to the key concepts engaged with in the two workshops :

- **Threshold concepts** - interesting new idea on how to think about ideas and learning.
- **Target audience** - a useful a concept for thinking about what you are going to teach and what students need to learn – there are different needs but some theory all need to know equally. Needs assessment a good idea, but question arose about how to tailor teaching to diverse learner needs.
- **Learning outcomes** - Bloom's taxonomy and Biggs' hierarchy of learning and skills were important for thinking about what and how students need to learn; interesting idea of a step-by-step approach to learning taking learners to higher levels, including both surface and deep learning. Also thinking about where we are ourselves on the scale. Useful to think about the need for different kinds of assessment tasks to match different levels and learning outcomes, and incorporating skills and values/attitudes as well as knowledge. The importance of critical thinking was highlighted.
- **Authentic learning** – the idea that tasks should relate to the learners' real experience and needs was useful.
- **Graduate attributes** – the notion that we're part of a bigger system with consistent values was a helpful new concept; realized the need to link and get buy-in across departments for

course curricula. Need to think more about teacher attributes as well as graduate attributes. Interesting idea that graduate attributes are 'political'.

- **Teaching activities** – Contact and non-contact hours, and what each can consist of was an important idea to work with. Needs teachers who 'go the extra mile'. Realised the importance of proper group work, and the need to develop more case studies.
- **Assessment** – the principles of assessment are important (fairness, transparency, validity, reliability), also the need for an assessment map in curriculum development, carefully thought out (e.g. around weighting) and innovative.
- **Curriculum development** – an important idea was 'constructive alignment' and the interconnectedness of the learning outcomes, activities and assessment; also that a curriculum is iterative. Realised the need for co-planning and team work in curriculum development; also the implications of offering an 'introductory' course for experts in other fields.

These concepts highlighted by participants are central concerns, and dovetail well with one of the main aims of the workshops – to build understanding and stimulate discussion about learning, teaching and curriculum development that participants can apply in their own settings.

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