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**Development of a Curriculum Framework
for the Public Health Institute, Sudan**

By Sarah Salih

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Development of a Curriculum Framework for the Public Health Institute, Sudan

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Health Management Planning and Policy

August, 2011

Nuffield Centre for International Health
and Development

Leeds Institute of Health Sciences



UNIVERSITY OF LEEDS

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Dedication

I dedicate this work to my family for their everlasting love and support.

I would also like to dedicate this work to health professionals in Sudan who are working selflessly to alleviate the pain and suffering of Sudanese people at the midst of difficult working conditions

Sarah

Acknowledgement

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Key to the Abbreviations

ACAMS	Accreditation Committee for Accreditation of Medical Schools
AMEC	Afghanistan Medical Education Community
CCSPM	Curriculum Centred Strategic Planning Model
CPD	Continuous Professional Development
FM	Family Medicine
FMOH	Federal Ministry of Health
GMC	General Medical Council
HSM	Health System Management
IT	Information Technology
MA	Master of Arts
MCQs	Multiple Choice Questions
MDM	Master of Disaster Management
MOH	Ministry of Health
MPH	Master of Public Health
MSc	Master of Science
NCIHD	Nuffield Centre for International Health and Development
PBL	Problem Based Learning
PHI	Public Health Institute
SMC	Sudan Medical Council
SMSB	Sudan Medical Specialization Board
SWOT	Strengths, Weaknesses, Opportunities & Threats Analysis
VLE	Virtual Learning Environment
WFME	World Federation for Medical Education
WHO	World Health Organization

Executive Summary

Curriculum development is the overall process of curriculum design, including aim and objectives setting, learning and teaching methods and quality enhancement mechanisms. Realizing that the area of curriculum development is a wide area, this dissertation will analyse briefly the different elements of the process while trying to identify a possible framework appropriate for the public health institute in Sudan who is intending to introduce a postgraduate master's degree in health system management (MA HSM). The Public Health Institute (PHI) was established in 2009 under the management of the Federal Ministry of Health (FMOH) with the mandate to contribute to health staff and health system development in Sudan. The author is affiliated to the PHI and is expected to act as the programme coordinator for the MA HSM.

The area of health management training is relatively new and literature specifically relating to curriculum development in this area is scarce. In Sudan, most training institutions still lack health management curriculum, the PHI currently lacks staff with the needed capacity and skills to develop such a programme. There is also a great need to improve the health management capacity of health professionals in Sudan.

Therefore, the aim of this study is to develop an understanding and theoretical framework of curriculum development for a postgraduate level training in health management for the PHI, Sudan. The main objectives and expected outputs are an overall understanding on how to develop and implement a curriculum suitable for postgraduate level training, a framework of a health management curriculum suitable for the PHI context and contribute to improving the capacity of PHI staff including the author in delivering health management training.

The methodology used is an in-depth analysis of secondary data mainly from literature review and internal PHI records for the overall understanding of curriculum development and the context and to come up with a suitable framework for the PHI. Two conceptual frameworks are used. The first is to show the different components of the curriculum development process and influencing factors and the second framework is used to analyze the internal strength and weaknesses of the PHI and the environmental threats and opportunities (SWOT analysis). The main limitations of this paper are scarcity in relevant data especially from Sudan and the realization that the framework suggested is the author's own opinion and it's for discussion and consultation with the PHI staff.

Literature review has shown that models of curriculum development illustrate four common elements: Needs assessment; objectives; teaching and learning strategies; assessment and evaluation processes. The modern trend also shows a shift to a

student-centered, problem-based, integrated, and community oriented approach to curriculum development. The resources for curriculum implementation and quality enhancement are important considerations like staff and learning resources.

The key to a suitable curriculum framework for the PHI would be forging an educationally sound and logically linked objectives, course content, teaching and learning methods and assessment while taking into consideration the PHI factors, student characteristics and Sudan context. This includes a proper training needs assessment which is already conducted in January this year, a clear aim and SMART objectives, a flexible modular type curriculum with core and specific modules and a module based on independent study like a dissertation to complement a master level degree. Elective (optional) modules might not be possible at the current PHI capacity. Teaching methods should support deep learning approaches and critical thinking among students through the use of postgraduate teaching techniques like small group teaching, problem based learning (PBL) and tutorials. A quality enhancement culture needs to be fostered through the set up of a guiding policy and setting appropriate academic standards including student assessment, promoting teaching assessment and curriculum evaluation.

Key words: Curriculum development, higher education, postgraduate education, health management, quality enhancement, Learning and teaching methods.

CHAPTER ONE

1. INTRODUCTION

1.1. Introduction

This chapter provides a general idea about this dissertation including an overview on curriculum implementation, some background information and justifications for choosing the topic and its relation to the Public Health Institute (PHI) in Sudan. It also highlights the rationale, aim and objectives and expected outputs of this dissertation. It also offers an outline of the different chapters.

1.2. Overview of curriculum Development

In this paper, the term curriculum development is used in a broad aspect referring to the overall process of curriculum design including aim and objectives setting, learning and teaching methods and quality enhancement mechanisms and not just the subjects comprising a course of study. The paper also focuses on postgraduate level higher education in general and in health management training specifically when applicable/available.

Realizing that the area of curriculum development is a wide area and internally interlinked this dissertation will analyse briefly the different elements of the process. At the same time, the study will try to identify a possible framework appropriate for the public health institute, Sudan to introduce a postgraduate master's degree in health system management (MA HSM). The objective is that the framework chosen would help maximize the experience of delivering what was planned according to needs, what the students experience and what the institution and learners gain from the learning experience (Prideaux, 2003).

This would be achieved when taking into consideration the learning culture and mindset in Sudan, the available resources, capacity and local needs. This consideration should neither undermine the curriculum nor ignore aspiration for an improved situation; keeping up with the global advances in health management training.

The following paragraphs briefly describe the curriculum development terminology this paper will look at:

Aims and Objectives are the expression of intention of a curriculum and specific means to fulfil them when designing the curriculum. Using this outcome based approach is for the sake of making teaching and learning more explicit and transparent for both teachers and students (D'Andrea, 2003).

Teaching methods are the means of delivering the stated objectives. This can be in the form of lectures, assigned readings, problem solving, practical teaching and electronic methods like virtual learning environments (VLE) and many others. However, teaching methods within a module are usually a combination of some or all of these methods.

Learning methods are the different learning approaches Students adopt, which affect their level of knowledge gain and depth. Independently, students perform other learning activities like library readings, peer group discussions and Internet browsing.

Quality enhancement methods are important parts of the curriculum that should be set from the planning phase and continued to help the institution evaluate its performance and to make the curriculum flexible and adaptable to changes.

Assessment methods in curriculum development are means of ensuring quality in education. Assessment is concerned with three aspects; curriculum evaluation, student achievement and teaching effectiveness (Cannon and Newble, 2000).

1.3. The Public Health Institute- the setting

The Public Health Institute, Sudan was established in May, 2009 under the management of the Federal Ministry of Health, but is financially and administratively autonomous (PHI, 2011). Its mandate is to promote health staff and health system development in Sudan. It aims to contribute to public health reform through enriching the research culture, providing consultancy services to different MOH departments, and training of health professionals at postgraduate level to equip them with the needed knowledge and skills to act as leaders in public health (PHI, 2011) (See appendix 1 for the vision, mission and administrative structure of PHI).

The institute currently offers three programmes: Master of Public Health (MPH), Master of Disaster Management (MDM) and Master of Family Medicine (M Sc in FM). It is intending to introduce the degrees of MA in hospital management and MA Health system management soon.

The main purpose of the present study is to contribute to capacity building at the PHI in the design and delivery of a Health Management Curriculum for the degree of Master of Health System Management (MA HSM) that is fit for purpose and not just a replica of other international curricula. At the same time, making use of the rich international literature in the area of higher education; exploring, analysing and adopting, to come-up with a suitable framework for Sudan context.

The PHI's ability to deliver an effective health management curriculum is essential for training of health professionals as part of a comprehensive health human resource capacity building (FMoH, 2009). However, the findings of this dissertation are the views of the author and would be put forward for discussion and consultation with the PHI for their own adaptation and use.

1.4. Justifications for choosing the topic

A curriculum is the most important tool in the passage of knowledge from teachers to learners. It helps in delivering desired knowledge, skills and attitudes. The area of health management training is relatively new and research on curriculum development in this area is scarce. In Sudan, the scenario is even worse and no literature related to health management training could be retrieved.

Most of the training institutions in Sudan lacks health management curriculum. Most of the health managers and professionals have not received proper health management training, and the management positions are held mostly by clinicians.

There is a great need to improve the health management capacity of health professionals in Sudan, especially those working at the Federal or State Ministries of Health and managers in health facilities (FMoH, 2009). The current production of public health specialists does not meet the needs of the country and there is a dire need to build the management, analytical, governance, health planning and policymaking capacity of MOH recruits (PHI, 2011).

Curriculum design and implementation that suits the local needs and context are a great challenge. Most curricula are usually based on the experience of developed countries which is useful but has its limitations (Fahal, 2006). Currently, the PHI has the need for a proper health management curriculum appropriate to Sudan context but lacks among other things, the staff with the capacity and skills to develop such curriculum. The main challenges are defining a suitable aim and objectives, understanding how students learn, designing and implementing appropriate teaching methods suitable to potential learners and technical and administrative arrangements to support the process.

The author of this paper is a faculty at the PHI and is expected upon her return to coordinate the programme of MA HSM. Therefore, her understanding of the subject and the product of this dissertation would be paramount in building her abilities at the personal level and contribute to capacity building at the institutional level.

Therefore, providing proper health management training for public health professionals in Sudan is a necessity and hopefully this dissertation would

contribute to that by building the author's capacity and provide a helpful framework of curriculum development to PHI, Sudan.

1.5. Postgraduate Medical Education- the Sudan Experience

Post graduate (higher Education) in the health field started in Sudan in 1976 when the Post-Graduate Medical Board was established under the umbrella of the Faculty of Medicine, University of Khartoum with the aim of training postgraduate students to the level of clinical consultants in different medical specialties.

More than 2000 students in 13 different clinical specialties graduated from the Board since then (Fahal, 2006), none of them with a degree in health management. In 2004, a new body, the Sudan Medical Specialisation Board, was established to enhance postgraduate training in the different health specialties.

Only a few higher education institutions offer some sort of training in health management. The topic is slightly covered under the training of Community Health specialists at SMSB. Some private institutions are intending on introducing such degrees.

The accreditation of higher education programmes is based on The World Health Organization and the World Federation of Medical Education International Accreditation guidelines. It is under the responsibility of The Accreditation Committee for Accreditation of Medical Schools (ACAMS) formed jointly by the Ministry of Higher Education and the Sudan Medical Council (SMC) (Ahmed, 2010).

The requirement for teachers in higher education was having a PhD degree but was reduced to an MSc degree. This with other factors like static limited government financial support to institutions and the large intake of students have led to deterioration in the perceived quality of medical education and skills of physicians (Mahgoub, 2010).

1.6. Aim

The aim of this study is to develop an understanding and theoretical framework of curriculum design, implementation and quality enhancement for a postgraduate level training in health management for the PHI, Sudan.

1.7. Objectives of the study

The objectives of this study are to:

- Analyse theories on curriculum design, setting aim and learning objectives, teaching and learning methods in higher education;
- Define quality enhancement processes including curriculum evaluation, student assessment and teaching assessment in postgraduate higher education;

- Apply the analysis and understanding of curriculum development above in developing a framework for a master's training in health management suitable for the Public Health Institute and Sudan context.

1.8. Expected Outputs of the study

- An overall understanding on how to develop and implement a curriculum suitable for postgraduate level training.
- A framework of a health management curriculum suitable for the PHI, Sudan context.
- Improvement of the capacity of PHI staff including the author in delivering health management training.

1.9. Structure of the study

This study is composed of five chapters:

Chapter (1) Introduction: Provides a general perspective on the study.

Chapter (2) Methodology: This chapter defines the conceptual frameworks used, the data sources and literature selection process and limitations of the study.

Chapter (3) Overview of Curriculum Development: the chapter will analyse the different theories and models of curriculum development and contextualise them to the PHI institute.

Chapter (4) Quality Enhancement in Curriculum Development: the chapter analyses curriculum evaluation, student and teaching assessment as ways for quality enhancement and proposes practical steps the PHI can adopt.

Chapter (5) Conclusion and recommendations: The chapter presents a conclusive summary on the findings and recommendations stemming out of the study and a reflective note of the author.

1.10. Potential users of the study

The main beneficiaries from this study are the PHI in Sudan and the author who is a faculty member. The Federal Ministry of Health, Sudan Medical Specialization Board and Higher Education Academic institutions are other potential users.

1.11. Conclusion

Curriculum development suitable to the Public Health Institute and Sudan context is a necessity for the proper training of health professionals in health system management. It is the aim of this dissertation to come up with a theoretical framework of curriculum development and quality enhancement in higher education that can contribute to the needs of the PHI, public health professionals and Sudan. The methodology used to arrive at this desired output is highlighted in the next chapter.

Chapter Two

2. Methodology

2.1. Introduction

The previous chapter has provided an overview about curriculum development and the rationale for a health management curriculum for the PHI, Sudan. This chapter will demonstrate the methodology of this dissertation and the conceptual frameworks applied.

2.2. Conceptual Frameworks

Two conceptual frameworks are used in this study for the identification and application of the elements and factors related to curriculum development and its application to the chosen setting.

2.2.1. The first conceptual framework

The following framework was developed by the author for the purpose of this dissertation:

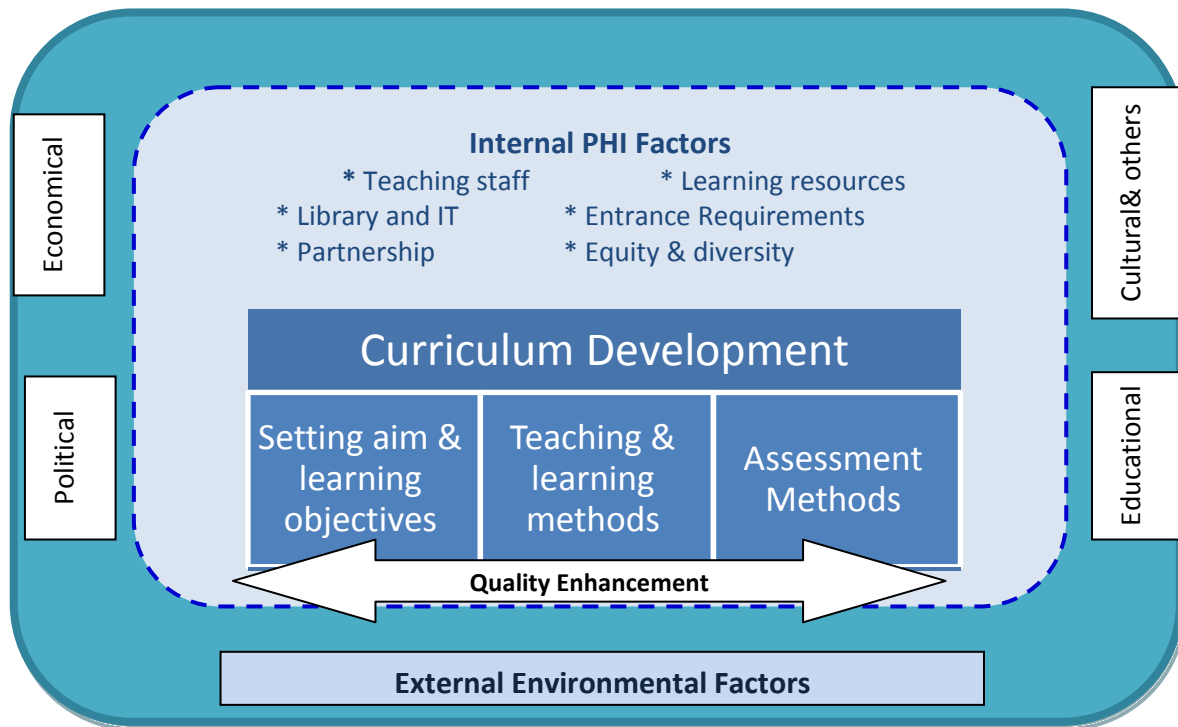


Figure 2: Conceptual Framework of Curriculum Development (Source: Author, 2011)

The author suggests the above framework as a tool to show the overall process of curriculum development while taking into consideration both the internal and external factors that influence the content and would be applied to the chosen context. This framework together with the results of the second framework (SWOT analysis) would provide a comprehensive base for development of the theoretical curriculum framework intended in this study.

2.2.1.1. The main elements of this conceptual framework are as follows:

- **Curriculum development:** This is the overall framework of curriculum development including the different models, theories and understandings of setting of aims and objectives, the teaching and learning methods and the assessment methods in higher education.
- **Setting aim and learning objectives:** This would explicitly look at how the aim and learning objectives for the curriculum are set in order to achieve the desired outcomes.
- **Teaching and learning methods:** This element considers the different teaching methods used to deliver content and students' approaches to learning that are suitable for postgraduate training.
- **Assessment methods:** This would consider both student and teaching assessment methods and evaluation of the curriculum itself.
- **Quality enhancement:** this is a continuous process in curriculum development that uses different mechanisms to ensure a quality learning experience.
- **The internal PHI factors:** The internal environment of the PHI is an important consideration for the contextualisation of this framework. These factors would be identified by the SWOT analysis.
- **The external environmental factors:** These are general country level factors that do affect the way the curriculum is set and delivered. They directly affect the mindset of the educational community.

2.2.2. The second framework

The Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the Public Health Institute showing the factors related to PHI strengths and weaknesses and environmental opportunities and threats for health management curriculum design and implementation in Sudan are shown in table 1 below. Balamkrishna and Dugger (1992) propose the application of the SWOT tool to enhance decision-making when initiating a new vocational program due to the profound impact of both the internal and external environment on the educational experience, hence the tool was used here.

Table (1): SWOT analysis of PHI (the author, 2011)

Internal Environment	Strengths	Weaknesses
	<ul style="list-style-type: none"> • PHI commitment to health system improvement in Sudan • Staff capacity building efforts that are currently ongoing • Pre-existing capacity to build upon • Members of the teaching staff are among the leading experts in public health in Sudan today • Federal Ministry of Health support • Sudan Medical Specialization Board Accreditation • Presence of staff development unit and CPD plans • Currently offered degrees (MPH, MDM, MSc FM) • Current educational programmes are community sensitive and competency based 	<ul style="list-style-type: none"> • Inadequate full time staff with needed skill and experience. • Shortage of lecturers with Health Management Training • Limited Infrastructure capabilities • Inadequate learning resources • Brain drain of staff • Resources (Human, financial,..) • A new area in Sudan • Lack of guidance for curriculum development in health management • Lack of clear regulations regarding student selection, equity and diversity measures.
External Environment	Opportunities	Threats
	<ul style="list-style-type: none"> • Ongoing collaboration with international higher education institutions like NCIHD and others. • Presence of rich literature from developed countries and some from developing ones. • Visiting lecturers • Advances in Information Technology worldwide with Information based culture • Funding agencies interest in capacity building in developing countries especially in health sector. • A good research culture and capacity at PHI 	<ul style="list-style-type: none"> • Acceptability of externally developed curriculum in local context when adopting a foreign one • Lack of interest among doctors to pursue health management positions • Absence of regulations for recruitment in Health Management posts • Lack of policies regarding Health Management career pathways • Migration of qualified staff to more developed countries. • Political instability? • Resistance to change!

2.3. Methodology

2.3.1. Type of study

This is an in-depth analysis using secondary data mainly from literature review and internal PHI records for the overall understanding of curriculum development and to come up with a suitable framework for the PHI context.

2.3.2. Data sources

Literature review was conducted both manually and electronically. The data was retrieved from three main sources: The University of Leeds Library Catalogue and manual review of references was done creating a preliminary list for background

reading and understanding on the subject. Another search was conducted through the different international journals and database search engines for literature, country experiences, trends and advances related to postgraduate training. Organisations' web sites were also consulted like the Public Health Institute, the Federal Ministry of Health, the Sudan Medical Specialisation Board, the British General Medical Council and the Quality Assurance Agency and other educational centres websites.

Appendix 2 provides details of the data sources and literature refining process.

2.3.3. Collection methods

For the purpose of understanding the topic and the theoretical background, books were borrowed from the University of Leeds Library. A book that is exclusively about curriculum design/development was chosen. Other books on specific parts like teaching and learning methods and quality enhancement were also chosen. A total of 30 books of highest relevance to the topic were chosen with different years of publication (1980- 2011) to account for time trends.

Literature yield from the different journals and databases was chosen using inclusion and exclusion criteria to limit the search. The following key words were used for search: curriculum design, curriculum development, health sciences, medical education, postgraduate, health management, module design, learning methods, teaching methods and quality enhancement.

References were further chosen according to the following inclusion criteria: English and Arabic language documents, publications in the last 20 years, relevant topics and authenticity of the document.

The list was further refined through abstract reading and trying to cover different aspects of the topic and diversity, until the final list of 97 references and bibliographies used in this dissertation were reached.

2.4. Limitation of the study

The limitations of this study are mainly related to lack of curriculum in health management training in Sudan and scarcity of similar curriculum in other low/ middle income countries to serve as a platform for this study.

Although the international literature is rich in terms of higher education and curriculum development, research in the area of medical education is much less, and that in health management training is limited.

Access to institutional data from Sudan was challenging and literature on the topic in general was scarce. For example, although postgraduate training in public health is offered by some institutions and three programmes are already running at the PHI (MPH, MDM, and MScFM), no account on how the curriculum was developed,

the programme features, objectives or the requirements for accreditation or evaluation were found.

Due to the delimitations imposed on this study in both number of words and length of time, a detailed account of curriculum development is not possible. However, the author hopes that the analysis provided would give an insight on the depth of the issue and her acquiring of an understanding of it. This is an important expected output of this dissertation.

Furthermore, the framework set in this study is valuable to the author in her future career with the PHI; however, it is a generalised one. A detailed programme cannot be set unless discussion and consultation with the PHI and stakeholders is conducted to agree on methodologies, specific modules and subjects. However, it can set the ground for future adaptation by the PHI to formulate a complete health system management curriculum and for further studies in the area.

2.5. Conclusion

Two conceptual frameworks are proposed in this chapter to capture all the elements of curriculum development and at the same time consider the PHI internal environment and the external environmental factors that can affect the process of teaching and learning in Sudan. Data was collected and refined from different sources and 97 references were chosen. Scarcity of health management curriculum was the main limitation. The next chapter will start to analyse the elements of curriculum development as described in the conceptual frameworks.

Chapter Three

3. Overview of Curriculum Development

3.1. Introduction

In the previous methodology chapter, the conceptual frameworks used for the development of the curriculum design were addressed. This chapter will start to look into the different components of this design, specifically; it will briefly analyse theories of curriculum development, and how these can be applied to setting the aim and objectives, and teaching and learning methods for postgraduate curricula. The theoretical background would then be applied to the context of the PHI, Sudan using factors as identified in the second conceptual framework (SWOT analysis). The assessment and quality enhancement mechanisms and their application to the framework would be discussed in chapter four.

3.2. Theories of Curriculum Development

3.2.1. Definition of a curriculum

Defining a curriculum is a difficult task because on one end of a continuum a course of study or even a topic is regarded as a curriculum; while at the other end some consider the curriculum as the whole educational experience. It is recognised that a curriculum can be very wide and would be influenced by many internal and external factors like social, professional, academic and political factors (Grant, 2006; Finch and Crunkilton, 1999).

According to the Oxford dictionary, a curriculum is the subjects comprising a course of study in a school or college. The definition of a curriculum set by the British General Medical Council (GMC) for postgraduate training is that:

A curriculum is a statement of the intended aims and objectives, content, experiences, outcomes and processes of a programme, including a description of the structure and expected methods of learning, teaching, feedback and supervision. The curriculum should set out what knowledge, skills and behaviours the trainee will achieve.

(GMC, 2010. p.2)

This definition is widely used in postgraduate medical education (Grant, 2006) and greatly influences this study. Other definitions similarly describe a curriculum as an expression of intent described in the form of an aim and objectives to deliver some specific content. This intent is an idea the institution has, and adopts, of what their curriculum is about and is usually a written statement (Pratt, 1980).

3.2.2. Curriculum Development Models

Due to the complexity of curriculum development, it is better explained than defined (Taylor, 2003), for example by the following description:

Curriculum development describes all the ways in which a training or teaching organisation plans and guides learning. This learning can take place in groups or with individual learners. It can take place inside or outside a classroom. It can take place in an institutional setting like a school, college or training centre, or in a village or a field. It is central to the teaching and learning process.

(Rogers and Taylor, 1998).

It is important for institutions to realise that the key to curriculum development is forging an educationally sound and logically linked objectives, course content, teaching and learning methods and assessment, while taking student characteristics into consideration. At the same time, the economic and political environments could also affect this development (Cannon and Newble, 2000).

Examples of different models for curriculum development and their main features are shown in table 2 below.

Table (2): Different examples of curriculum development models and their features(Sources: Kern et. al., 2009; McKimm, 2007; Dolence, 2004; Taylor, 2004)

Model	Author	Year	Features
1. Objectives model	Ralph Tyler	1949	Four basic questions to answer: <ol style="list-style-type: none"> 1. What educational purposes should the institution seek to attain? 2. What educational experiences are likely to attain the purposes? 3. How can these educational experiences be organised effectively? 4. How can we determine whether these purposes are being attained?
2. The process model	Stenhouse	1975	Similar to objectives model but specify content and principles of procedure rather than objectives
3. The situational Model	Skilbeck	1976	5 Basic components: <ol style="list-style-type: none"> 1. Situational analysis 2. Goal formulation 3. Programme building 4. Interpretation and implementation 5. Monitoring, feedback, assessment and reconstruction (Tyler and Richards).
4. SPICES model	Harden	1984	Student-centred Problem-based Integrated

Model	Author	Year	Features
			Community oriented Electives (+ core) Systematic
5. Outcomes based education (OBE)	No single authoritative model	1994-	<ul style="list-style-type: none"> • The curriculum should be defined by the outcomes to be obtained by students. • Curriculum design proceeds by working “backwards” from outcomes to the other elements (Prideaux, 2003) • Frameworks for OBE share an emphasis on systems-level change, observable, measurable outcomes, and the belief that given time all students can learn (Bousalama et al. 2003)
6. The curriculum centred strategic planning model (CCSPM)	Dolence	1995?	<ol style="list-style-type: none"> 1. The identification and definition of Key Performance Indicators; 2. the detailing of a Learner-Centred Curriculum Architecture; 3. conducting an External Environmental Scan; 4. Internal Environmental Scan; 5. Culminating in an Action Planning Process.
7. The Systematic Curriculum and Instructional Development (SCID) model	Norton	1996	ADDIE: Analysis, Design, Development, Implementation and Evaluation
8. The six step model	Kern et al	2009	<ol style="list-style-type: none"> 1. Problem identification and general needs assessment 2. Targeted needs assessment 3. Goals and objectives 4. Educational Strategies 5. Implementation 6. Evaluation and Feedback

These models of curriculum development illustrate four common elements: Needs assessment; teaching and learning strategies; assessment processes; and evaluation processes (Prideaux, 2003). In practice, many institutions opt for a mix from these different models, although maintaining these four common elements (Fahal, 2006; Bousalama et al., 2003; Fry et al., 2003). A more detailed account of these elements is described in the coming sections (3.4- 3.7 and Chapter 4).

From the table above, we can see that the focus and themes of curriculum development models has mainly shifted from Tyler's (1948) subject focus to a more student focus, putting the learner in the centre of the planning and evaluation of curriculum (Prideaux, 2003). Authors have different views on how to achieve this learner centred approach. Evans and Abott (1998) emphasises that the curriculum should meet student's needs, while Cannon and Newble (2000) suggest that teachers should be more concerned with how students learn and to understand the different student approaches to learning. Cowan (1998) describes how students can become better learners through stimulating reflective learning among them. Dolence's (2004) curriculum centred strategic planning model (CCSPM) was based on a business planning model but developed specifically for learner centred higher education.

This shift has also affected the style of medical education curriculum, McKimm (2007) compared Flexner's (1911) approach to Harden's (1984) SPICES model, showing the shift from a teacher centred, knowledge giving and discipline led curriculum to a student-centred, problem-based, integrated, community oriented approach to curriculum development. The programme is also more flexible with core and elective courses, systematic and outcome based instead of the previous standard programme.

3.3. Curriculum Development- The Public Health Institute Context

The PHI in Sudan is planning to offer the degree of MA in Health System Management next year. As an affiliation of the Federal Ministry of Health, the PHI recognises the Country's need for Health Management and Policy training for postgraduate doctors (FMOH, 2009).

The FMOH/Government support to the initiative is great. Support of the Sudan Medical Specialization Board, the accreditation body of postgraduate medical education in Sudan is also present. A joint body for consultation, review and accreditation process exists (ACAMS) (Badr, 2011). These external factors provide an enabling environment for the programme to be realised.

On the other hand, doctors are not keen to pursue health management degrees. This might be due to the lack of clear pathways in health management (Kallicharan and Dessoify, 2011) and only a few institutions offering the training.

Although choosing a particular model may seem challenging, it is not an objective by itself (Grant, 2006). The PHI needs to agree on what would be the most suitable method for it to meet the demands of students, teachers and the Institution. Therefore, the curriculum needs to be flexible and adaptable and evidence driven (Wittert and Nelson, 2009; Kasser et al., 2005; Shapiro, 2003). The PHI can achieve this through a proper needs assessment and environmental analysis.

A curriculum must also be consistent; internally this would be achieved through clear objectives and effective management (Sefton, 2004). External consistency would be achieved by taking account of the surrounding political, social and economical environments (Grant, 2006).

The PHI has the advantage of having three ongoing programmes (MPH, MDM and Ms FM); therefore, legal frameworks and administrative structures for developing and running the programme are present.

The change in the postgraduate environment is usually rapid; therefore, values that underlie the curriculum and its purpose must remain responsive to changing values and expectations in education for it to remain useful (Prideoux, 2003). The PHI needs to focus on its internal strength and weaknesses and make use of the opportunities to cope with the changing environment and to design a curriculum that is responsive to these changes.

Pedagogical differences between undergraduate and postgraduate curriculum in health management is not different from any other medical education curriculum. However, many academic schools still struggle where to include health policy issues at undergraduate level (Patel et al, 2011; Keating, 2006). The PHI would need to consider this possible lack of proper knowledge of health management issue among learners; however, currently the programme enrolls only medical doctors most of whom are already training as public health specialists with the Medical Specialisation Board. Therefore, most students would have some background knowledge on health management and some might be currently working on management positions. This means that they have a good insight of the context and challenges in the health sector but without the proper skills to address them.

The British General Medical Council (2010) suggests a spiral curriculum style to address the discontinuity between undergraduate and postgraduate curricula. A spiral curriculum is one that considers learning as an ongoing developing process, with active reinforcement and assessment at key stages coupled with the acquisition of new knowledge and skills (McKimm, 2007). The practicality of implementing such a curriculum that advances through the different stages of medical education might not be possible without clear regulations and strong governance systems. It would also be difficult for PHI to implement due to lack of coordination with undergraduate institutions and the current capacity and resources.

Regardless of the type of model the PHI chooses, the resources for curriculum implementation are important; even a perfectly designed curriculum can fail if an institution doesn't put in place the resources needed for its implementation (Sanyal, 1998). This includes teaching facilities, laboratories & equipment, teaching staff and other supportive staff, libraries, educational materials and student support mechanisms. Time considerations and administrative arrangements should not be neglected also.

The next sections would analyse the four essential elements of curriculum development models and other factors related to their application to PHI context.

3.4. Needs Assessment

A common first step as identified in the curriculum models is to conduct some type of needs assessment or appraisal that would help in deciding what the aim and objectives of the new or modified curriculum would be. The needs assessment can result in a wish list with a large sum of needs that would need prioritisation.

A training needs assessment for the PHI was conducted in January, 2011. The needs assessment provided a clear outline of needed skills and knowledge both at the PHI level and also at the health sector level. It also provided an insight on the PHI capacity to conduct such training (See appendix 3).

The target learners (doctors working in management positions and in hospital administration) were actively involved in the training needs assessment done. This inclusion of the customers is essential to reflect their needs and current understanding on the issue and to motivate their enrolment for such a programme.

A curriculum to be successful cannot occur in a vacuum (Keating, 2006). The decision on what the curriculum ought to look like should be a consultative process. It needs to incorporate all the people affected by it, their needs and expectations and the community it serves.

This would ultimately lead to a large sum of information most of which is subjective (Pratt, 1980); however, the inclusion of all stakeholders would help in their acceptance of the final compromised product.

The PHI will need to initiate a consultation process with all stakeholders like the FMOH, Ministry of Higher Education, Health related institutions Accredited for Postgraduate Education and Training, Sudan Medical Council, Sudan Doctors Union, Sudan Medical Specialization Board, the Medical Research Council and other actors in the health sector like Military and Police Medical Services.

Other stakeholders could include educational experts, the teachers themselves, the students (former or current), employers, other institutions and regulatory bodies and relevant politically influential people. The private sector and Civic Societies should also be represented (Pratt, 1980). The consultative process can occur in the form of a committee, technical working group, advisory board or others.

The main features and the programme would need to be identified and agreed. For example an option of modular type courses with core compulsory modules to provide the main principles of health management and policy could be considered due to flexibility and suitability to postgraduate training. Elective (optional) modules in postgraduate education promote individual development in an area of student choice according to their need and interest. However, due to the current limited capacity of the PHI especially in term of staff availability and other resources, optional modules would not be feasible. The institute might choose a selection of focused subjects as identified by the needs assessment according to priority.

A module based on independent study and which enhances reflective learning is essential to complement a master's level degree like a dissertation, learning portfolio or literature review for example. The PHI has a good research culture, and due to the demands of the health sector, it favours primary biomedical research. The importance of interventional and experimental research is not negotiable; however, an option of secondary data type should not be neglected because it strengthens analytical and personal development of students.

Following the identification of the needs and outlines of the curriculum, an internal assessment should follow to identify the institution's current ability to fulfil them before embarking on the suggested curriculum. Factors related to the political and social context should also be considered at this point.

3.5.Setting Aim and Learning Objectives

Based on the results of the needs assessment, an institution would initiate the curriculum development with setting an aim for it and learning objectives.

An aim is the clear expression of what is expected of the curriculum and what change to be brought on the learner (Pratt, 1980); it helps define what is going to be delivered and how it's going to be delivered (Cantillon and Wood, 2000).

Adapted from the vision and mission of the PHI (Appendix 1), the aim would need to explicitly express what is expected of the curriculum and the MA HSM, for example:

To develop doctors (Physicians) at postgraduate level, working or intending to work in a health sector management position, by building their knowledge and skills in health system management; conduct health systems and biomedical research; and to provide evidence based analytical decisions on issues facing the health system

(The Author, 2011)

The learning objectives are important in setting targets that teachers would work to deliver. Objectives also guide students on what they are expected to be able to do in terms of knowledge, skills and attitudes after completing the programme or

parts of it (McKimm, 2007). Therefore, they set the expectations for institutions and learners and provide a benchmark for assessment.

Learning objectives are usually a breakdown of the aim into more specific, achievable and measurable outcomes. Therefore, they are usually written in the future tense and contain an action verb, they are usually unambiguous and influenced by learning styles (Fry et al., 2003).

The acronym SMART is used to describe good objectives (Specific, Measurable, Achievable, Relevant and Time bound). In the context of postgraduate education and PHI, this translates to:

- Specific in addressing the skills needed for postgraduate health management training like leadership, being analytical, systematic, and problem solving.
- Changes brought due to knowledge gain and skills acquired are measurable, this is important when developing the assessment methods.
- The learning environment and teaching resources are appropriate to achieve them; postgraduate learning requires facilities that promote deep learning approaches like small working groups as well as skill labs and appropriate library facilities.
- The educational aims should be relevant to health management training and should include for example understanding of policy and planning, human resource management, financial management, conflict management and other competencies identified by the needs assessment.
- The time allocated for achieving the training and gaining the master's degree should be well planned, realistic and adequate. Number of credit hours for example and private reading hours should be set in the curriculum plan.

3.6.Learning Methods

Understanding how people learn is important to curriculum planning (McKimm, 2002). When we understand how learning occur and the way students learn, the curriculum would be structured in a way to strengthen learning, teachers would deliver content in a way to foster occurrence of learning and students themselves would be able to learn better. Many theories and research about how learning takes place exist but research concludes that individuals do not have a constant learning style; therefore different teaching methods are needed.

The most common ways students adopt for learning are three: surface, deep and strategic approaches (Biggs, 1987 cited in Cannon and Newble, 2000). Surface approach describes students who acquire information and memorise it with a focus on the task and not the meaning or purpose of the information. In contrast, deep learners interpret knowledge and try to make sense of it and memorise for understanding. Students adopting a strategic approach use a mix of the two

previous methods with the intention to achieve high marks and compete with others.

Most contemporary theories of learning are also built on the notion of constructivism; it considers continuous building and amendment of knowledge with experience. Another influential model of learning is the learning cycle described by Kolb (1984)(Cited in Fry et al., 2003), built on the experiential learning theory (learning by doing).

A summary of learning styles is provided in Appendix (4).

Fry et al. (2003) cited Marton and Saljo (1984) who describe that the learning process is also affected by student characteristics; like their motivation, intent, background and learning style. Teacher's approach; like content provided, teaching material, balance between theory and practice and engagement of students also affect learning. Context characteristics; referring to the environment and the institution's ethos are the third influencing factor.

The skills needed by health managers have grown and advanced over the years. It started with diagnosing organizational ineffectiveness, defining mission and objectives, and identifying and evaluating department resources. Later on, policy analysis, strategic planning, program planning and administration, and human resources management were also included as essential skills. More areas of development included financial management, inter-organizational relations and alliance development, organizational performance assessment, and continuous quality improvement (Porter et. al, 2002).

Postgraduates are also expected to use critical thinking and appraisal. Students work more independently and are also expected to contribute to knowledge towards the attainment of their degrees through research, critical analysis assignments and deep learning reflections that are not expected from undergraduate students (Watson and Reissner, 2010).

The PHI potential students are coming from the medical field and working mainly in the health sector; providing a rich mixture of students' background and experience with the local context. The learning processes should take advantage of this through using group work, student presentation and sharing of experiences through tutorials.

Student motivation and support are essential in providing a positive learning environment. Since potential students are probably working in the health sector, they might be affected by working in resource limited settings, brain drain and low motivation. According to a study among Sudanese medical doctors working at different specialities including public health and management positions at Khartoum, 40% of them were showing signs of mild depression and 28% were dissatisfied with their jobs (Salih, 2010).

Non- formal learning methods are significant in postgraduate level. The rich mixture of students' background facilitates sharing of experience and helps students' orientation to studying (Richardson, 1998). Examples of informal curriculum are workshops organised by the students themselves out-of-hours and sessions on social issues (Herbert, 2003). Teacher- students' interpersonal relationships, study groups and peer activities are all non-formal part of the educational environment and should also be encouraged at the PHI (Keating,2006; Grant, 2006).

3.7.Teaching Methods

The way teachers deliver curriculum content varies in many different aspects; the choice of method, style, teaching aid and personal characteristics all play a role. The main types of teaching in higher education include but not exclusively; lecturing, small group teaching, practical teaching, field work, peer teaching and technology based techniques (Cannon and Newble, 2000). Teaching styles seem to follow curriculum styles; teachers can be seen as 'teacher-centred/content-oriented' or 'student-centred/learning-oriented' (Ho et al., 2001).

Although a common form of teaching in higher education is lectures (Horgan, 2003; Evans and Abbott, 1998), research suggests that they are ineffective in stimulating critical thinking and understanding of a topic (deep approaches to learning). Students are usually content with lectures because they are effective in transmitting information (surface approach to learning) (Smits et al., 2003; Cannon and Newble, 2000; Evans and Abbott, 1998). If the PHI- like the culture in Sudan- relies on lectures, it can still make it an interactive process where the students are engaged and motivated to participate, ask and negotiate and not passive learners.

However, small group teaching is thought to be more suitable for postgraduate level (Wood, 2003). This is due to its three distinctive features: active participation, face to face contact and purposeful activity (Cannon and Newble, 2000). These features help achieve the development of postgraduates because they foster critical thinking, engagement and skills development (Watson and Reissner, 2010). The aims of teaching in general are to disseminate knowledge, develop skills, develop student's capability to use and generate ideas and evidence, and facilitate the personal development of students (Bourner and Flowers, 1997).

Teachers can enhance student learning through regular check of student's understanding of key concepts, attention to group work, collecting formative feedback, and account for different learning styles and provide support and feedback. Teachers should also encourage peer support especially from constructive students (Gosling, 2003).

For postgraduate students to keep up with the constant development of knowledge in medical education and health sciences, they need to be able to identify principles in knowledge and learn to apply them to solve problems in

contemporary medical practice (Wittert and Nelson, 2009). This critical thinking approach would be achieved through curricula that provide contextual student centred learning like problem based learning (PBL). Wood (2003) recommends an integrated curriculum development process using systems based approach in which PBL is a part of. There is also a need for evidence based practice training in postgraduate teaching and the use of information technology (Feather and Fry, 2003).

Unlike undergraduate students who need to gain knowledge base of the subject, postgraduates need to gain the skills to apply knowledge in a practical way. Previous research indicates that PBL students are more likely to study for meaning and less likely to study for reproduction of information (Smits et al., 2003; Lonka, 2000). However, PBL requires trained staff and students in its use and use of appropriate rooms and facilities (Feather and Fry, 2003).

The use of information technology (IT) is common as a teaching method in postgraduate education (Cannon and Newble, 2000). For example, virtual learning environments (VLEs) and electronic libraries are used to enhance learning. The current capacity of PHI to adopt advanced IT resources is doubtful, however, some postgraduates don't have the basic IT skills like internet browsing, literature search and office applications; therefore, PHI should consider training on these issues to support learning (Kallicharan and Dessoffy, 2011; Gosling, 2003).

The use of power point presentations and multi-media in delivery of content as well as making use of the internet in sharing knowledge, and availing information enhances student learning. The positive effects and wide range of potential of IT in enhancing learning are quite evident, although research on the effects of technology on education is difficult to draw from (Cannon and Newble, 2000).

Learning to teach is usually a practice base skill and not a formal process, therefore, staff development as a mean for quality enhancement is concerned with developing an encouraging environment for teaching that favours professional formation (Knight, 2006 cited in Harvey and Williams, 2010). Evans & Abbott (1998) has emphasised the role of staff development units as an integral part to support teaching methods in higher education.

The balance between expertise in a subject and skills as a teacher is two different things. Most lecturers at the PHI are part time faculty who are usually working at the Ministry of Health or other institutions and might not have teaching skills. Therefore, the PHI and through its existing CPD unit should provide training of trainers in teaching methods in postgraduate education for untrained lecturers. It can also provide other professional development opportunities for staff like research opportunities, e-learning resources and workshops in postgraduate education.

3.8.Conclusion

This chapter has highlighted different models of curriculum design, factors influencing an institution's choice of a model and the shift to a student centred curricula. The initial needs assessment should be used to set aim and objectives and consult with stakeholders to set a program outline. The means of delivery of the curriculum including teaching and learning methods need to be appropriate to postgraduate education and promote deep learning. The relevance and application of these factors to PHI context are essential to create a suitable curriculum. The next chapter will look into curriculum evaluation, assessment of teaching and learning as quality enhancement mechanisms.

Chapter Four

4. Quality Enhancement in Curriculum Development

4.1. Introduction

In the previous chapter, the three first elements of curriculum design; the needs assessment, learning methods and teaching methods were analysed with a focus on postgraduate education and their application to the PHI context. This chapter will look into the fourth component, the quality enhancement mechanisms including curriculum evaluation, student assessment, and teacher assessment.

4.2. Quality Enhancement of a Curriculum

The Quality Assurance Agency (QAA) of the United Kingdom defines quality enhancement as *“the process of taking deliberate steps at institutional level to improve the quality of learning opportunities”*(QAA, 2009, p.12). The significance of this definition is that quality enhancement is a continuous process and that it needs a preset plan at the institutional level.

The understanding of the relatively new concept of quality enhancement varies. It is considered as excellence; fitness for purpose; as enhancement; as transformation and as meeting a set of standards (quality assurance) (Saarinen, 2010; Watty, 2006; McKimm, 2003). Due to the increase demands by students and funders for institutions to show accountability and efficiency, quality enhancement is becoming a culture and a core function of educational institutions (Pratasavitskaya and Stensaker, 2010). Institutions use it to ensure quality in their learning and teaching and to illustrate their professionalism.

The term in general encompasses policies, concepts, approaches, ideas, systems and processes designed for ensuring the systematic maintenance and enhancement of quality within an institution (Pratasavitskaya and Stensaker, 2010).

Quality enhancement for the PHI has two folds, the accreditation process and the learning experience provided to students. The accreditation committee in Sudan sets criteria in relation to the school’s Mission and Objectives; Educational Programme; Assessment of Students; Students; Academic Staff/Faculty; Educational Resources; Programme Evaluation; Governance and Administration and Continuous Renewal (ACAMS, 2011).

This can be achieved through a set of systems and regulations to maintain and enhance education quality that is recommended here for PHI to review:

- Develop a guiding policy for quality assurance that sets appropriate academic standards.
- Assigning a focal person for quality assurance if setting a department is not feasible.

- Set up a monitoring and evaluation plan for the programme.
- External review of the programme.
- Conduct regular self review mechanisms
- Ensuring quality of students' assessments
- Regular feedback mechanisms and two- way communication with students and staff.

The next sections will look at the three targets of quality enhancement interventions: the curriculum, the students and the teachers.

4.3. Curriculum evaluation

Curriculum evaluation is the process of gathering information about the educational programme in order to judge its performance and to make decisions about teaching and learning (Cannon and Newble, 2000). Curriculum enhancement or evaluation models in education are not unique and the use of business's total quality management (TQM) concept is wide spread (Pratasavitskaya and Stensaker, 2010). Research in the area is mainly focused on effectiveness in establishing quality systems instead of the effect of a programme or model on the learning environment (Veiga et. al., 2011).

Significant models in curriculum evaluation include Scriven's (1970s) model who introduced the terms summative and formative assessments; these would be described in section 4.4 below. The Stenhouse (1970s) model was the first to introduce evaluation as part of the curriculum development process. In Tyler's objective model for curriculum development described in section 3.2.2, Tyler introduced the principle of evaluating a curriculum in relation to its pre-specified set of objectives (Saiful, 2009?). Appendix (5) provides a description of some evaluation models.

The pre-requisites for a good curriculum as identified earlier, like being dynamic, flexible and meet the needs of stakeholders, make it challenging for evaluation mechanisms (Harris et.al, 2010). The PHI would need to include at least four essential components for quality assurance: internal self-evaluation; visit by an external expert review panel; external evaluation; and public reporting (Amaral and Rosa, 2010). The internal self-evaluation should include the following: academic performance, pedagogic methods, managerial and employment procedures (Pratasavitskaya and Stensaker, 2010).

The external examiners expert review is highly regarded in quality assurance mechanisms and institutions use it to validate internal good practices and to identify areas for improvement. Although external quality audit agencies are not present in Sudan, the PHI can rely on external examiners and review through its international partnerships for example.

Important considerations for curriculum evaluation include the alignment of the evaluation with the learning objectives and teaching methods (Hénard, 2010). The concerns about the context, environment and resources available for evaluation are important for its success. Communication of results to stakeholders is essential to create a cycle of enhancement and to agree on the way forward with the curriculum.

Quality enhancement activities can be divided to monitoring activities and evaluation activities. They are continuous, internally set and applied or less frequent, at specific intervals and include some external assessments. Table (3) provides a list of some of these activities that the PHI can adopt for quality enhancement.

Table (3): Monitoring activities versus evaluation activities for quality enhancement (The author, 2011)

	Monitoring quality	Evaluating quality
For the institution	Quality assurance committee or group or board	External auditors
	A Code of practice	External qualifications or quality assurance
	Quality as inspection	Quality as enhancement
	Quantitative indicators	Qualitative Indicators
For students	Student assessment for progress and achievement e.g. examinations	Student evaluation like student satisfaction surveys
For Teachers	Teacher own assessment e.g. teaching diary	Peer evaluation and student feedback

Other reasons for successful quality enhancement of a curriculum are presence of a proper quality management process, quality assurance markers or indicators, approval procedures for academic programmes and networks for quality enhancement. The use of information technology is also helpful in the monitoring of performance (Bazargan, 2007). Establishing quality networks with other international institutions and making use of the advances of the European network for quality assurance in higher education for example can be beneficial for the programme.

The main reasons of failure in implementing quality procedures in higher education institutions include the resistance to change; insufficient administrative commitment; difficulty to use quality management tools; and lack of experience (Pratasavitskaya and Stensaker, 2010; QAA, 2007). The PHI can overcome this by promoting a quality culture and institutionalising the activities to ensure everyone's participation and commitment. It can also provide training on quality improvement to staff and establish links with quality networks. Students should

also be engaged in assuring quality by being self directed and provide work that is genuine and of quality, and provide constructive feedback to assessments and surveys (Ahmed, 2010).

4.4. Students assessment methods

Student assessments are a common type of assessment used in analysing the performance of an institution. The main purposes are to judge student’s knowledge and skills in a particular subject, measure their progress, recognise their difficulties and evaluate the effectiveness of the curriculum (Cannon and Newble, 2000).

The main types of students’ assessments are summative (results of which guide future decisions regarding students) with the primary goal being the award of grades, and formative assessments providing students with feedback on their achievements (results usually guide the student’s further studies) (Jarvis, 2006; Wakeford, 2003; Cannon and Newble, 2000). Table(4) below shows the differences between formative and summative assessments:

Table (4): Formative Vs Summative assessments (Adapted by the author from: AMEC, 2009?)

Formative Assessment	Summative Assessment
Takes place during the programme of study e.g. assignments	Usually done at the end of a course or at specific intervals e.g. exams, Projects
Often informal	Usually formal
Integral part of learning process (e.g. part of Kolb’s learning cycle)	Specifically assess learners acquiring of skills, knowledge or behaviour of a specific set learning objective
Assessment <u>for</u> learning	Assessment <u>of</u> learning
Conducted by teachers and trainers while teaching	Set by teachers and trainers as a specific activity
Identify students needs and barriers to learning	Identifies students progress on the educational path
Provides feedback to teachers and learners about learning and their performance	Provides bases for award qualification

Students learning approaches are influenced by the assessment mechanism (Harvey and Williams, 2010); therefore different assessment methods are used to assess different aspects of learning. For example, multi- choice tests can be used to assess knowledge recall, while an essay might be used for critical evaluation of theories (Wakeford, 2003). Other methods include short answers, objective tests, oral examinations, structured assessments, self assessment and learning portfolios.

Summative assessments are common in Sudan. The culture of examinations is dominant even at the postgraduate level, although usually mixed with formative

methods. Although the PHI must continue the examination practice for accreditation purposes, the PHI should choose assessment methods that reinforces deep learning approaches among students. Examples of highly valued approaches are problem MSQs, short essay problems, practical tests, learning portfolios and research projects (Salih, 2011).

Student feedback is not common in Sudan; grades awarded are usually communicated without awarding criteria or feedback. The PHI must consider the influence of assessment on students' learning, and the positive impact of communication and feedback on assessment on the learning experience and quality of learning.

Concerns and debates surrounding student assessments are usually related to criteria for setting pass levels or number of attempts a student is allowed on a subject, because they are usually arbitrary set. The criteria for marking should be set to decrease personal variations between markers, as well as double marking mechanisms and external examiners review. This is to ensure validity, reliability and fairness (Wakeford, 2003). Together with catering for diversity of students; assessment methods are a challenging area in quality enhancement (Harris et. al., 2010; Bazargan, 2007; Cannon and Newble, 2000).

The tremendous amount of information obtained on student's grades and achievements is not useful by itself if not further analysed to the roots of teaching and learning methods used (Henard, 2010). With the more use of student focused learning programmes, evaluating the learning outcomes is becoming more popular than assessing teaching or quality systems performance (Amaral and Rosa, 2010; Henard, 2010).

Students themselves play an important role in achieving quality in higher education. They are responsible of becoming self motivated and engaged in learning, self directed and provide work that is genuine and of quality (Beeson, 1998). They should also be honest, open and courteous in giving their feedback to evaluations (Munasinghe and Jayawardena, 1999). The PHI would need to foster accountability among the students and orient them on types of plagiarism and how to use referencing and paraphrasing to avoid it (Dessoffy, 2010).

Assessing student's performance should not be limited to academic results only. It should provide student support, guidance and feedback on student progress and achievement (Hénard, 2010). Feedback to students should be clear, simple, and informative, with a balance between positive and negative outcomes, encouraging to the student and based on clear criteria (Cannon and Newble, 2000).

4.5. Teaching Assessment

The different types of learning requires different teaching methods, therefore, evaluation of teaching will also vary according to the method used. However, the

principles to evaluate teaching quality are to have established standards, document the teaching and ensure an effective evaluation procedure. Examples of good practices are: regular self evaluation, use of reflective critique, keeping a teaching portfolio, peer evaluation and student feedback (Harvey and Williams, 2010).

The practice of teaching assessment is not common in Sudan. Postgraduate level teachers learn skills on the job and through personal or organisational professional development. The training and assessment are neither compulsory nor regular.

Since the explosion in number of medical schools in Sudan in the early 1990s from four to 26 medical schools (Fahal, 2006), the pressure was more on teachers and demands were high. The limited capacity in term of available staff has meant a reliance on part time faculty members. The teaching quality was undermined by this huge demand and the reduced standards for qualification and training (Mahgoub, 2010).

The PHI needs to encourage effective assessment procedures among faculty and to express procedures as an enhancement mechanism and not a judging one. The PHI faculty would need to adapt standards in teaching like the presentation of clear goals and expected learning outcomes, to demonstrate understanding in the subject and skills to present it, and proper preparation and presentation of content. Moreover, the outcomes in terms of student achievement and understanding on a subject are important to recognise.

Students' feedback to teachers, usually through the use of questionnaires is common in teaching assessment. However, it was observed that using student evaluation as a measure for teachers' performance negatively affects the teaching quality (Hénard, 2010). The PHI would need to weigh the benefits of engaging students in teaching assessment which foster their involvement and provide accountability to the potential negative effect on teachers.

4.6. Other considerations

The teaching facilities, equipment and library are currently adequate for the PHI. However, the institution's current ability need to be enhanced to provide a better learning quality like adding relevant resources on health management and policy to the library. The institute should consider training of staff and students on library skills, literature search and other information technology skills as identified by the training needs assessment.

Sudan is a multi ethnic and multi cultural country, therefore, diversity among students and equal opportunities should be provided. Regulations regarding acceptance criteria of students need to be set. This would help ensure standards for learning and fairness. Gender equity is a standard in education and most

medical schools have a 1:1 ratio of females to males. This should also be encouraged at the PHI.

4.7.Conclusion

In this chapter, the understanding of quality enhancement as a continuous deliberate process of preset standards and quality measures was apparent. The PHI would need to adopt a set of quality measures to ensure the learning quality including policies, standards and monitoring and evaluation processes. These standards are to ensure proper curriculum evaluation, student assessment and acceptance criteria and teachers assessment. The next chapter will provide a conclusive summary of the findings of the dissertation, recommendations and reflection on the process.

Chapter Five

5. Conclusion, Recommendations and Reflections

5.1. Introduction

This chapter provides a concluding summary of the findings of this dissertation. It also provides recommendations for a framework of a postgraduate curriculum in health system management for the PHI. A plan to disseminate the results and reflections on the author's own experience with writing this dissertation are also highlighted.

5.2. Conclusion to the study

The area of curriculum development in health management is necessary for the development of health professionals especially their decision making and management skills in resource limited countries like Sudan.

The PHI has the need to develop an effective and fit for purpose curriculum to contribute to health system development in Sudan. It lacks among other things the staff with the needed capacity and teaching skills to set and implement a curriculum. The PHI has many strengths and opportunities to make an effective, fit for purpose programme.

The theories and models of curriculum development are many and the trend has changed through the years with a more learner centred approach, moreover, the learning and teaching methods for postgraduate education are different from undergraduate one. They need to support deep reflective learning through the use of flexible, adaptable, skill based curriculum, and delivered through interactive teaching and one that fosters analytical and strategic thinking while ensuring quality enhancement mechanisms.

The PHI will need to generate educationally sound and logical course content, while taking into consideration their capacity, student characteristics and Sudan context. This entails a proper training needs assessment as conducted before, a clear aim and objectives that are specific to postgraduate level and results of which are measurable. The tools and methods used for curriculum delivery should be appropriate with practical achievable objectives and realistic timing.

A flexible modular type curriculum with core and subject focused modules is suggested and a module based on independent study like a dissertation to complement the master level degree. Teaching methods should support deep learning approaches and critical thinking through the use of postgraduate teaching techniques like small group teaching, PBL and tutorials. A quality enhancement culture needs to be fostered through the set up of a guiding policy and setting

appropriate academic standards including student assessment, promoting teaching assessment and curriculum evaluation.

5.3.Recommendations

As a result of extensive reading and literature review on curriculum development in postgraduate education and challenges of the process, the following recommendations are proposed. The intention that from the background reading and analysis provided, practical operational steps are recommended for PHI to guide their process of curriculum development in health management. In the short run these are to:

- 5.3.1. Assign working group responsible of the curriculum design including the programme coordinator. This can be called curriculum committee, which will be responsible for all the major decisions or changes of the curriculum
- 5.3.2. Set up a consultation process and include all stakeholders as mentioned in 3.4
- 5.3.3. Utilise findings of needs assessment in formulating the curriculum, especially in choosing what to include or exclude.
- 5.3.4. Agree on specific aim and appropriate learning objectives for the curriculum
- 5.3.5. Determine the programme type and plan (modules, core, elective)
- 5.3.6. Determine teaching methods suitable to postgraduate level
- 5.3.7. Determine learning methods
- 5.3.8. Determine supportive environment:
 - Teaching Facilities
 - Library relevant material and skills
 - Administrative arrangements
 - Student support e.g. introduce student representation in the curriculum committee
 - Extracurricular activities expected and encouraged
- 5.3.9. Set-up student assessment mechanisms, including for example setting a student assessment committee to review the tests before and after being taken by students, and to review and analyse the results
- 5.3.10. Promote teaching assessment mechanisms
- 5.3.11. Set up programme monitoring plan and indicators
- 5.3.12. Set up curriculum evaluation and quality enhancement mechanisms, including preparing evaluation forms for student and teachers feedback

- 5.3.13. Produce a curriculum manual (handbook), including an implementation plan, resources and timelines
- 5.3.14. Conduct wide range consultation with stakeholders and internal PHI staff to finalize the curriculum
- 5.3.15. Pre-test the curriculum or pilot it
- 5.3.16. Adjust if necessary and refine the curriculum
- 5.3.17. Get final acceptance from accrediting bodies

Other long term issues that the PHI should consider and are recommended for improvement and reinforcement of the programme are:

- Conduct an extensive programme review by the end of the first year to identify the performance of the programme and make adjustments if necessary
- Hold an external review by international partners if feasible
- Build partnership and networks in quality higher education
- Improve the PHI capacity to afford improved programme set up like the introduction of optional modules.
- Activate the role of the CPD unit to provide higher education training for faculty.

5.4. Dissemination Plan

The results of this dissertation and the recommended framework will be shared with the primary stakeholder; the PHI. Further discussion and consultation would need to take place to shape the programme details and amend the framework to PHI needs. This could be through a workshop with the PHI staff and other appropriate stakeholders.

Presentation of findings to other stakeholders like the FMOH, SMSB and SMC will also be performed. As the author is member of the Undersecretary's council which meets on weekly bases and includes key officials at the MOH, a presentation to the council and invitation of others is possible.

The dissertation would be made available for peer review and commentary through the websites of the PHI, FMOH, SMSB's postgraduate library and through publishing in the Sudan Public Health Journal, the Medical Education Journal and hopefully in international journals as well.

5.5. Reflective Note

The area of curriculum development and postgraduate education is a totally new area for the author. Although she is expected to return to Sudan as a faculty member at the Public Health Institute, she has no prior experience in teaching but has accumulated experience by working in different health management positions at the FMOH.

The experience of writing this dissertation was at times challenging. The author found great support and motivation from others, notably from her supervisor. The fact that the results of this work would actually be put into practice and not end up in a shelf somewhere was really motivating for her to try and come up with a meaningful and useful product.

The journey has not been easy because specific literature on the subject was scarce. The amount of reading needed to understand the fundamentals of curriculum development was enormous. However, the author became so captivated by the subject and the more she read, the more she wanted to read.

The author had to rely a lot on her knowledge and experience with the health system in Sudan and what she knows about the PHI in providing contextualisation of the theoretical information.

It is also reassuring to the author that this dissertation would provide a bases for her next assignment with the PHI as the programme coordinator of the MA HSM upon her return from United Kingdom to Sudan. This would give her a chance to consult and modify the curriculum according to the PHI needs and context and ensure its suitability for their future use.

Most importantly, the experience of writing this dissertation was instrumental in building the author's capacity and her understanding of curriculum development. At the same time provided her with the skills needed for the fulfilment of this degree including being analytical, strategically thinking, and building her time management, literature search and writing skills. Most importantly, she has learned how to become a lifelong learner.

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Appendices

Appendix 1: Vision, Mission and Structure of the PHI (Source: PHI, 2011)

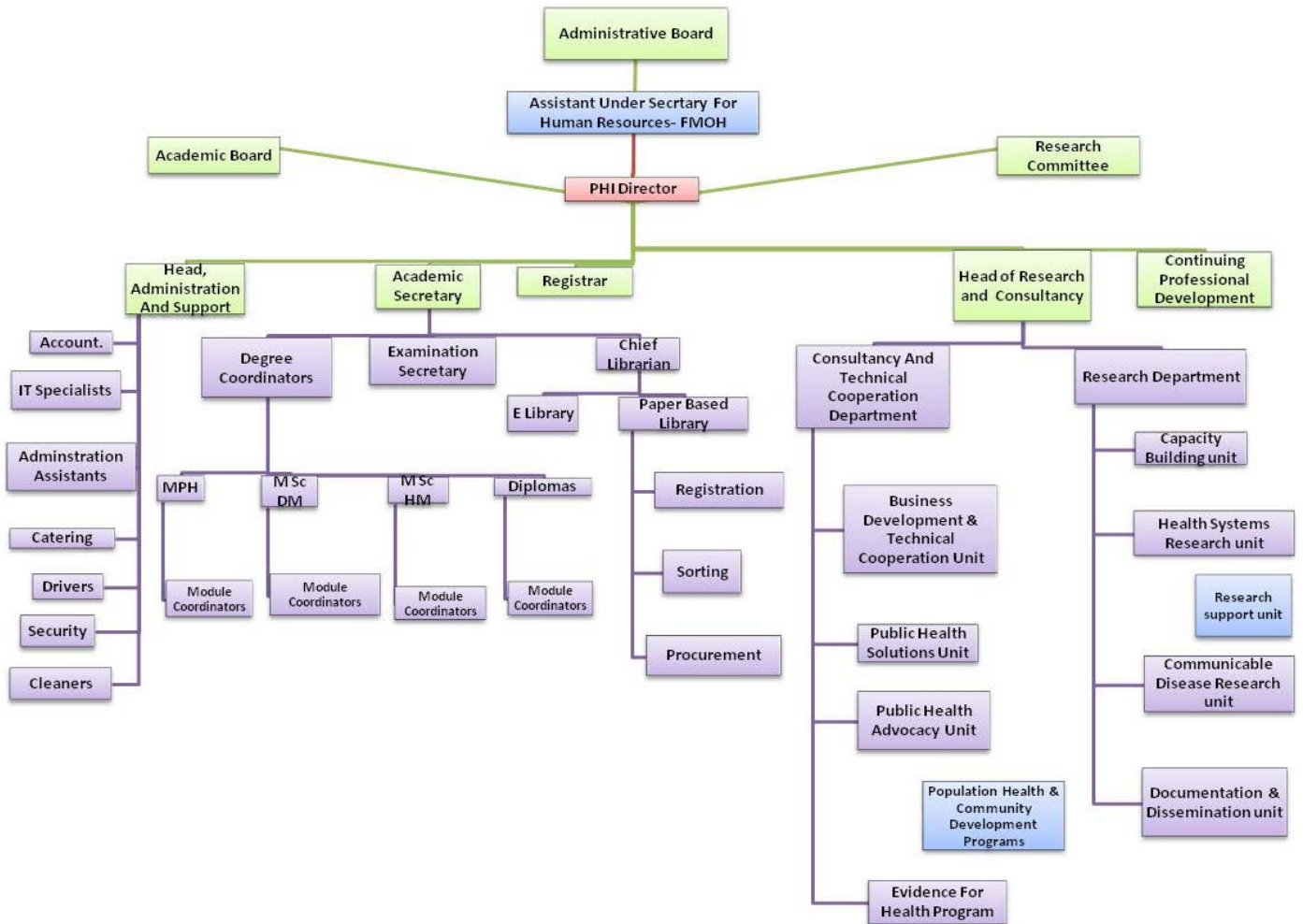
Vision

The Public Health Institute will be a centre of excellence for learning and research in public health and contributing to health systems development in Sudan and beyond in the region.

Mission

To develop staff, working or intending to work in the health sector, at postgraduate level to act as leaders in public health by building their knowledge and skills in public health management; conduct health systems and biomedical research; and to provide evidence based technical advice on issues facing the health systems.

Administrative Structure



Appendix 2: Literature Search

Source of Literature	References yielded	Refining criteria	Final References chosen
University of Leeds Library Catalogue	918	<ul style="list-style-type: none"> • English language • Publication between 1980-2011 • Adding key words • Relevance • Manual browsing at the library of short listed references 	30
University of Leeds Journal Database (Different journals e.g. The Lancet, British Medical journal, Higher Education Journal, Learning and teaching in higher education: LATHE).	3204	<ul style="list-style-type: none"> • Relevance • References with full access • English language • Publication between 1991-2011 • Adding key words • Abstract review 	37
British Journal of Medical Education	2370	<ul style="list-style-type: none"> • Relevance • References with full access • English language • Publication between 1991-2011 • Adding key words • Abstract review • Excluding duplicated ones 	4
Informaworld Database: <ul style="list-style-type: none"> • Quality in higher education Journal • Research in higher education Journal • Other journals • Educational websites 	7989	<ul style="list-style-type: none"> • Relevance • References with full access • English language • Publication between 1991-2011 • Adding key words • Abstract review 	10

Source of Literature	References yielded	Refining criteria	Final References chosen
		<ul style="list-style-type: none"> Excluding duplicated ones 	
Sudan web-pages <ul style="list-style-type: none"> The Public Health Institute The Federal Ministry of Health The Sudan Medical Specialisation Board The Ministry of Higher Education Sudanese Medical Journal 	722	<ul style="list-style-type: none"> Arabic or English Publications Relevance References with full access 	12
The African Journal of research in Education	257	<ul style="list-style-type: none"> Relevance References with full access English language Publication between 1981-2011 Adding key words Abstract review Excluding duplicated ones 	2
The international journal of health planning and management	39	<ul style="list-style-type: none"> Relevance References with full access English language Publication between 1981-2011 Adding key words Abstract review Excluding duplicated ones 	2
Total References	15499		97

Appendix 3: Training Needs Assessment – Health Management Planning and Policy (Source: *Kalliecharan and Dessoffy, 2011*)

The following are the key skills and knowledge areas (listed in priority) in Health Management, Planning and Policy that were identified by staff working in the Sudanese public health system including:

Federal Ministry of Health – Directorate of Policy, Planning and Research
Khartoum State Ministry of Health
Planning and Development Directorate General
Jabel Awliya Locality
Selected Federal and State staff (20) who attended the training needs assessment workshop on 12 January 2011.

Health Policy

- Concept of health policy and health policy process
- Legislative framework for health
- Healthy public policy
- International health policy and its implications for Sudan (e.g. PHC, decentralisation)
- Health sector reform and international trends and experience in health sector reform
 - Primary health care
 - The role of hospitals in primary health care
 - Health systems development
 - Intersectoral collaboration
- Governance and changing roles of the Ministry of Health
- Analysis of and analysis for health policy
- Monitoring and evaluation of health policy
- Advocating for health and healthy public policy
- Health policy process in Sudan – opportunities and challenges in developing health policy in Sudan
 - Sudanese health system
 - 25 year strategic health plan
 - National/state health legislation
 - 5 year strategic plans at state level
- The legislative framework for health legislation at the federal and state levels in Sudan
- Models of community involvement as an example of health policy needs for Sudan

Health Planning

- Concepts of strategic and operation health planning
- Terminology in health planning (e.g. objectives, goals, strategies, activities, targets, contingency planning)
- Tool for planning (e.g. log frames, SWOT analysis, option appraisal)

- Formulation and implementation of plans (health sector plans, human resource plans, health programme plans)
- Generating (research, surveys, health information systems) and using information for planning
- Planning terminology
 - Project planning
 - Programme planning
 - Emergency planning
 - Contingency planning
- Conducting health needs assessment
- Problem analysis and problem solving
- Evidence based decision making
- Priority setting
- Planning and production of budgets
- Monitoring and evaluation
- Results based monitoring
- Management of change
- Resource mapping
- Planning with resource constraints (examples for other countries and exercises from Sudan)

Human Resources Management and Planning

- Recruitment and selection
- Teamwork and building partnerships
- Leadership and governance
- Staff supervision and motivation
- Staff migrations and retention policies
- Developing job descriptions and evaluating/appraising staff performance
- Understanding staff roles within organisations
- HR training, training needs assessment, training module development
- Team building
- Delegation skills
- Communication skills/information dissemination
- Developing and implementing training plans (capacity building)
- Conducting training needs assessment
- Conflict/stress management
- Developing community involvement in health

Health Economics and Financial Management

- Types of health sector financing (insurance, taxation, fees, community financing)
- Managing/co-ordinating donor funds and technical assistance
- Resource allocation
- Generating revenue

- Budgeting – development/analysis
- Monitoring expenditure
- Understanding and using financial reports
- Cost effective analysis
- Costing of health services
- Budgeting and managing budgets
- Understanding financial reports
- Writing bids/proposals for funding health projects/programmes/research
- Negotiating for funding

Quality Assurance

- Models for ensuring quality in health care (e.g.TQM, ISO)
- Concept of quality
- Monitoring of health programmes
- Developing and using indicators for measuring quality
- How to perform an effective inspection
- Setting standards, developing protocols and guidelines
- Quality policies in federal and state levels in Sudan
- Developing effective health systems
- Risk mapping
- Hospital and health facility design
- Identifying and using indicators to measure quality
- Examples of quality initiatives from other countries
- Patient rights, safety, confidentiality
- Complaint systems
- Audit of health facilities
- Referral systems (especially information from hospitals back to health centres)

Health Information systems

- Health Information systems
 - Forms, Essential health data, Quality and reliability of health information, Importance of health information, Understanding of ICD10, and Confidentiality
- Surveillance
- Conducting research and surveys
- Using information to inform evidence based decision making
- eHealth –using web based information
- Reporting and feedback (disseminating information)
- Data collection and analysis skills

Logistics and supplies

- Timely procurement, inventory of supplies
- Demand vs supply issues
- Managing scarcity

- Management of drugs and supplies

Personal skills

- Critical thinking and academic writing
- Report writing
- Mentoring
- Research methods
- Accessing and using relevant literature/information
- Time management
- Organisational skills
- Communication skills (oral and written)
- Stress management
- Leadership skills
- Organising and running meetings
- Bargaining and negotiation skills
- Computer skills (basic, SPSS, EPI info)

Appendix 4: Key learning theories and styles (Source: McKimm, 2002)

Theory/ style	Author/ Year	Features
Bloom's taxonomy	Bloom, 1956	Identifies three domains of learning: <ul style="list-style-type: none"> • cognitive (knowledge and intellectual skills) • psychomotor (physical skills) • affective (feelings and attitudes)
The learning cycle	Kolb, 1984	The cycle describes 4 learning contexts: <ul style="list-style-type: none"> • concrete experience • reflective observation • abstract conceptualisation • active experimentation
Learning styles	Wolf and Kolb, 1984	Describes 4 types of learners: <ul style="list-style-type: none"> • Converger - applies ideas in a practical way; • Diverger – has good imagination and generates ideas; • Assimilator – creates theoretical models and makes sense of disparate observations; • Accommodator – carries out plans and tasks that involve them in new experiences.
Learning styles	Honey and Mumford, 1982	Suggest four types of learners: <ul style="list-style-type: none"> • Activist • Reflector • Theorist • Pragmatist

<p>Approaches to learning and studying</p>	<p>Biggs, 1987 [According to Fry et. al (2003), this is the result of Marton and Saljo's work (1984)]</p>	<p>Describes learning as having five levels: three which indicate a surface approach to learning:</p> <ul style="list-style-type: none"> • an increase in knowledge • memorising • the acquisition of procedures <p>two which indicate a deep approach to learning:</p> <ul style="list-style-type: none"> • the abstraction of meaning • understanding reality
<p>Strategic approach</p>	<p>e.g. Entwistle, 1998 [According to Fry et. al (2003), this is Biggs description].</p>	<p>In addition to Biggs's, this describes students who want to achieve high grades and pass the course, rather than who are interested in the intrinsic value of learning, they learn by <i>organising</i>.</p>

Appendix 5: Some Curriculum Evaluation Models and their Features (Source: Saiful, 2009?)

Model	Features
Scriven's goal-free models (1970s)	<ul style="list-style-type: none"> • Introduced the term 'formative' and 'summative' • Broaden perspective of evaluation • Evaluator should not know the educational program's goals in order not to be influenced by them • Evaluator therefore totally independent • Evaluator free to look at processes and procedures, outcomes and unanticipated effects • Methodology, the field is open to the hunter but he did have a 'lethal' checklist of criteria for judging any aspect of the curriculum
Stenhouse's research model (1970s)	<ul style="list-style-type: none"> • Evaluation as part of curriculum development • Continuous cycle of formative evaluation and curriculum improvement at school level • Relationship between curriculum developer and evaluator is central • Curriculum developer offer solutions • Evaluator is the practical man who temper enthusiasm with judgment • The developer is the investigator; teacher <ul style="list-style-type: none"> ▪ Autonomous professional self-development through self study ▪ Study of others and testing ideas
Tyler's objectives model	<ul style="list-style-type: none"> • Deals with evaluating the effectiveness of planning and actions • Curriculum should be evaluated in relation to its pre-specified set of objectives • Requires an objectives-based curriculum model • Evaluation measures fit between student performance and objective • Methodology will depend on the evaluator's definition of 'measurement' (standard setting)
Stufflebeam CIPP model	<ul style="list-style-type: none"> • • CIPP model of curriculum evaluation is the process to see the effectiveness of the developed and implemented curriculum. Steps in CIPP model: <ul style="list-style-type: none"> ○ Focus the evaluation ○ Collect information ○ Organize information ○ Analyze information ○ Report information ○ Administration of the evaluation report

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