

**CLARIFYING CONCEPTIONS OF CURRICULUM INTEGRATION IN THE
JAMAICAN PRIMARY CURRICULUM**

By

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Abstract

In 1999 an integrated curriculum was developed for Jamaican primary schools. This study clarified the conception of integration within the curriculum (grades 1-3). Five aspects of integration were addressed: the problems within Jamaican primary education that integration was to ameliorate, the kinds of integration recommended, suggestions regarding how and when integration was to be enacted, the rationale/aim for integration, and issues raised concerning integration.

Utilizing a descriptive/interpretative methodology, the investigation analysed five documents related to the development and implementation of the curriculum. Curriculum integration was promoted as a means to increase numeracy and literacy achievement, to strengthen relevance (personal and social) of what is learned, and to encourage effective pedagogy. The curriculum incorporated three forms of integration congruent with these curriculum goals; however, the curriculum's potential to achieve these goals was muted due to a lack of conceptual and procedural clarity regarding integration. The study concludes that the onus is on teacher educators to clarify and promote integration and the curriculum's child centred constructivist view of learning.

Pre-service education needs to provide prospective teachers with appropriate knowledge of content, pedagogy, and curriculum. More specifically, they should be given opportunities to discuss and work with the principles and processes of integration underlying the curriculum. In-service education could be built around exemplars of successful integration, encourage collaborative teacher planning, and focus on the selection and use of teaching resources that enhance integration.

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Dedication

To my mother, the late Beatrice Mullings and guardians, Inez Jackson and her late husband Samuel Jackson. Their wisdom and guidance instilled in me a love of learning. I have learnt to value education and strive for excellence as a worthy goal.

CHAPTER ONE

Research Purpose and Method

Attempts to improve primary education have made the curriculum prominent, with curriculum integration emerging as a significant aspect of reforms around the world. An early Asian Programme of Education Innovation for Development Joint Project Report on integration efforts in Asian countries concluded that:

There appears to be a general consensus among the participating countries about the great potential of the integrated curriculum and the integrated approach to teaching for generating human qualities, making the process of learning more pleasant and motivating, promoting better understanding of and adjustment to one's environment, and nurturing and developing the mental faculties of the child (APEID, 1982, p. 3).

Within integrated curriculum, subject divisions are de-emphasized in order to provide more coherent experiences, and content is organised around topics and themes that concern the child.

Integration is the main feature of the Jamaican primary curriculum; in keeping with international trends and, more importantly, the demands of stakeholders, a new curriculum was designed in 1999 to improve the quality of primary education (Bailey & Brown, 1997; Ministry of Education and Culture, 1999). The effectiveness of implementation however, depends on the key participants, including teacher educators', understanding the conceptual and practical meanings of integration implied by the curriculum.

Purpose of the Study

Ambiguity is part of the history of curriculum integration (Case, 1991, 1995; George, 1996). There are various conceptions and practices, and “advocates laud its virtues but they provide few programmatic details” (Davis Jr. 1997, p. 95). Integration proposals enunciated in curriculum documents often “urge action without providing much direction” (Case, 1991, p. 5). Consequently, as Lewis (1991) points out, “discussion about curricular integration has become confused and many educators have difficulty explaining its meaning and identifying its potential value or drawbacks” (p. 149).

The Jamaican education system has an integrated curriculum in grades 1-3, and teacher educators (like myself) need to clarify the notions of integration implicit within it. Lessons learned from the promotion of integration elsewhere (Chapter 2) suggest that implementation should be based on clear conceptual understandings for effective practice. This can be a challenge for pre-service teachers in their coming to understand the complexities of integration (Thornley & Graham, 1999; Young, 1991-1992).

The purpose of this study is to clarify the conception of curriculum integration implicit within the curriculum documents of the Jamaican elementary programme.

Specifically, the study addresses the following five aspects of the conception:

1. What is the integrated curriculum intended to improve in Jamaican primary education?
2. What is to be integrated? (forms of curriculum integration)
3. How and when is curriculum integration to be enacted? (modes and dimensions of curriculum integration)

4. What is the rationale/aim for curriculum integration? (objectives for curriculum integration)
5. What issues are raised concerning curriculum integration? (problems of curriculum integration)

These questions are based upon Roland Case's analysis of various forms, modes, dimensions, goals, and problems of integration (1991, 1995, 1997) (see Chapter Two).

Curriculum analysis should help to clarify and promote the potential of a curriculum reform (Fullan, 2001; Middlewood, Coleman, & Lumby, 1999). This study has three practical implications. First, clarification of the curriculum has applicability to Jamaican teacher educators as they help pre-service teachers understand and use integration. Case (1997) argues that a "lack of clarity about the meaning of integration – a legacy of its usage as a slogan – undermines the very purpose for what is proposed" (p. 330; Gehrke, 1991; George, 1996; Kain, 1996). The role of teacher educators is to extend teachers' understandings of the "conception and operationalization of curricular integration" (Case, 1994, p. 83). Analysis of the primary curriculum provides insight into what practices may be needed in pre-service programmes. Secondly, the study has implications for teacher professional development and support. The Jamaican primary curriculum is still in its very early implementation. A study that clarifies the innovation is thus timely for in-service programmes because, as Mason (1996) cautions, "teachers and school systems may be guilty of bandwagoning without establishing the conditions to successfully implement the practices" (p. 268). Thirdly, literature on curriculum integration is primarily from North America; this study contributes a Jamaican perspective.

Method of Analysis

A descriptive/interpretative design is used to clarify five aspects of the primary (grades 1-3) curriculum documents. The design includes the following:

1. *Document Selection.* All Ministry of Education documents associated with the 1999 curriculum change for primary schools were selected for analysis. This included the primary curriculum (Grades 1-3, 1999), an evaluation study of the primary education system in Jamaica (1996), a final report (September 1997-July 1999) on the piloting of the revised primary curriculum (2001), a summary document (n. d.) overviewing the revised primary curriculum, and a study on the reengineering of the curriculum (Bailey & Brown, 1997). These documents enunciate a conception of integration.

2. *Document Analysis.* The documents were read in the light of the five research questions. Four of the questions directly arise from Case's (1991) framework for clarifying integration (forms, objectives, modes, dimensions, and problems). His framework defines attributes of integration that concern teachers in implementing integration. In applying this framework to the Jamaican primary curriculum, every statement or section of each document that directly or indirectly spoke to a research question was identified and grouped together (these statements became the data). Data within each group were compared in order to provide a composite interpretation in answer to the question. The use of five documents served as a form of triangulation [multi sources] (Denzin, 1988) to enhance the credibility and dependability of the information, and to provide more context.

This study did not analyse teachers' understanding of the curriculum or its uses in the classroom, nor did it evaluate conceptions and practices of integration. The focus was

on the documents rather than their implementation, and on statements made in the documents rather than the intentions held by the authors. It clarified a primary curriculum from the point of view of its documents in which integration is a major feature.

The following terms are central to the study:

- Integration: “the unity of discrete elements into a whole” (Case, 1991, p. 215).
- Child centred /Child focused curriculum: a curriculum based on the premise that the child is the centre of the educational process and that the curriculum should accommodate his/her interests, needs, abilities, and styles of learning.
- Integrated approach: a “ method of instruction in which children work on a theme or on an activity or on a real life problem in which the work involves competencies related to more than one discipline or subject area” (APEID Report, 1982, p. 10). Integrated approach, integrated studies, and integrated topics mean the same thing in the Jamaican documents, and integrated curriculum is used interchangeably with curriculum integration.

Overview of the Jamaican Primary Education System

Since gaining independence in 1962, Jamaica developed its educational system to reflect both national goals and international trends. Four education levels (early childhood, primary, secondary, and tertiary) are currently in effect and the primary level accounts for the largest percentage (41.9) of the total enrolment. Primary education is mandatory due to the Education Act (1965) and is delivered to children between ages 6-11 in government primary, combined primary and junior high, and all age schools, as well as in private preparatory schools. Currently the net enrolment rate remains high at

92% and the average daily attendance at 82.9% (Economic and Social Survey of Jamaica, 2001) because of the Ministry's Attendance Mobilisation Project efforts to enforce compulsory attendance in primary schools under the 1982 Education Order. There is an automatic age-grade promotion policy. However, the Grade Six Achievement Test (GSAT) – a curriculum-based examination for mathematics, language arts, social studies, science, and communication – facilitates promotion from the primary level to secondary education. Other student assessments include: (1) Grade 1 Readiness Inventory (auditory perception, visual perception, letter and number /knowledge recognition); (2) Grade 3 Diagnostic Test; and (3) a Grade 4 Literacy Test to ensure “no child be allowed promotion beyond Grade Four without mastery in literacy” (Economic and Social Survey of Jamaica, 2000). A typical school day consists of 5.5 hours of instruction.

The Ministry of Education serves as the main regulatory body for policy decisions, and each school has a board and administrative team. Over the years, various curriculum reform projects and programmes (see Table 1) were introduced to address priority areas such as improving quality, equality, relevance, and access. These have not always been successful due to shifts in the vision for education by different political administrations and/or factors within the schools. Nonetheless, new government administrations have been committed to improving the primary education system, and on two occasions a curriculum evaluation and revision have been part of those reforms. In 1980, the first national curriculum for the primary level complete with six curriculum documents (one for each grade and including eight discrete subjects) was introduced. Since 1999, a curriculum offering integrated units in grades 1-3 and nine discrete subject

areas at grades 4-6 has replaced the previous curriculum. It is this new primary curriculum (grades 1-3) that is the focus of this study.

Table 1. Government of Jamaica (GOJ) Projects and Programmes Supporting Primary Education

Project/Programme	Priority Goals
GOJ/Inter-American Development Bank Primary Education Support Programme (PEIP II, 1993)	Improved performance, efficiency and equity of the primary education system (training teachers and principals to use new curriculum, infrastructure, and professional development).
GOJ/World Food Programme (WFP) School Feeding Programme (n.d)	On-going welfare programme to support school attendance and provide nutritional subsidy to students in primary and all age schools.
GOJ/United States Agency for International Development (USAID) New Horizons for Primary Schools Projects (1999)	Innovative mathematics and literacy programme, health and nutrition (breakfast programme), technology (integrated database system), parenting education, governance and leadership training (school board).
GOJ/Department for International Development (DFID) Jamaica All-Age Schools and the MOEC/HEART Trust/NTA EduNet Programme (1999)	Distributing computers to and providing training to a cadre of trainers. The computers are used as tools for curriculum integration and school management.

The study consists of five chapters. Chapter One describes the research purpose and method, followed by a review of selected literature on curriculum integration in Chapter Two. Chapter Three provides analysis of the documents, while Chapter Four discusses the study's findings and outlines implications of these findings. Finally, Chapter Five summarizes the findings and suggests recommendations.

CHAPTER TWO

Review of Literature

Over the past twenty-five years, amidst the panoply of curriculum reforms, integration has once again gained popularity as a way to organise curriculum. Yet, advocacy for integration is not new. Davis Jr. (1997) cites integration “among the curricular phantoms of this century... from time to time it appears, then as abruptly, it evaporates” (p. 95). This re-occurring interest signifies that educators continue to believe it is “both philosophically sound and pedagogically efficient” (Martin-Kniep, Feige, & Soodak, 1995, p. 230), although there is ongoing disagreement over conceptions of curriculum integration.

This chapter clarifies selected conceptions of curriculum integration evident in the literature, and thereby provides a context for discussing the Jamaican primary curriculum in the following chapter. It is organised around two sections: a conception of integration, and practices of integration. The first section outlines a framework devised by Roland Case (1991) and the second section reviews popular integrative models and some implementation problems.

Conception of Curriculum Integration

Various interpretations of integration contribute to it being implemented differently in the educational field. In brief, definitions are “loose” and according to George (1996) “inevitably soaked in confusion and misunderstanding...” (p. 15). As a consequence, Case (1997) believes that “the open-minded and ambiguous nature of definitions of integration may mislead teachers into concluding that they are already integrating the curriculum” (p. 330). Studies show that this ambiguity hinders teachers

from planning integrated experiences for students (Gehrke, 1991; Homestead, 1998; Kain, 1996). Consequently, the application of the curriculum innovation in classrooms becomes difficult and serves little educational use.

Two definitions from the American context are illustrative. Beane (1995) rather vaguely describes curriculum integration as a “search for self and social meaning ... creating a curriculum on life itself rather than on fragmented information within the boundaries of subject areas” (pp. 616, 622), whereas Jacobs (1989) describes integration as “a knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic or experience” (p. 8). Both authors have an interest in establishing linkages within subject matter (what individuals will learn) and learning processes (how they will learn) in relation to student experiences and needs. Nevertheless, each definition seems to imply a different approach to curriculum design. This state of affairs is also reflected internationally, according to a UNESCO (United Nations Educational, Scientific and Cultural Organization) study on Interdisciplinarity in General Education (Louis d’Hainaut, 1986) and the APEID (1982) Report on integrating subject areas in primary education in Asian schools:

Curriculum integration has assumed a variety of shades and forms in different countries in response to the specific problems or cherished expectations from the primary education system Each country has evolved an operational definition or definitions of curriculum integration in its own context. Hence, it is difficult to adopt one commonly crisply defined definition of curriculum (p. 10).

There are consequences from this lack of consensus as to what curriculum integration means. The first is that critical discussion of the merits of integration becomes difficult. Badley (1986) is right in reminding educators that “conceptual clarity regarding “integration” is prerequisite to, and a large part of, any evaluation of utility” (p. 45). And second, in the absence of consensus, integration becomes vulnerable when implemented in schools; it is difficult to protect the integrity of integration if teachers are uncertain of its meaning. This is why Martin-Kniep et al. (1995), for instance, caution against “the temptation to extract curricular reform from its conceptual grounding and to practice without thoughtful critical reflection” (p. 228). Successful implementation of an integrated curriculum requires some understanding of its assumptions and approaches. As Case (1991) argues, “if integration is to be more than a fad, we need to more thoughtfully attend to what it means to integrate the curriculum” (p. 331). To help clarify integration, he provides a conceptual framework that distinguishes eight components of integration: “domain, form, dimension, objective, mode, locus, coherence, and degree” (p. 215). Five of these components are discussed below.

What is to be Integrated? (Forms of Integration)

Integration must begin with the question of what is to be integrated. In response, Case (1991) identifies four possible forms of integration: “(a) integration of content, (b) integration of skills and process, (c) integration of school and self, and (d) holistic integration. The elements to be united determine the “form” of integration” (p. 216).

Integration of Content

Case (1991) defines the integration of content as “connecting the understandings promoted within and among different subject areas or disciplines” (p. 216). It focuses on

linking “the discrete understandings and “pieces” of information we want students to acquire” (1991, p. 217), on the assumption that this will “improve the coherence of what is learned and ensure transfer of learning across the curriculum” (Case, 1997, p. 331). Martin Kniep et al. (1995) point out that “among the forms of curriculum integration, interdisciplinary curriculum has received the most attention in mainstream educational literature” (p. 235), and Case (1997) also describes it as “the most frequently advocated form of curriculum integration” (p. 331). Though popular, this form of integration is not without problems.

One of the unfortunate consequences of this form of integration is that, when units of study are organised around themes, projects, or problems the subject matter can be denigrated. Beane (1995) reminds us that integration has to respect the disciplines of knowledge on which it draws; it is “knowledge from the disciplines [that] is repositioned into the context of the theme, questions and activities at hand” (p. 620). He says that this was the “original meaning” during the 1920/1930s; “the disciplines of knowledge are not the enemy. Instead they are a useful and necessary ally... in order to define curriculum integration there must be reference to knowledge” (p. 616). However, those who regard the disciplines as an effective framework for curricular content argue that Beane’s (1995) view also trivialises the disciplines. In George’s (1996) words, “the integrated curriculum downplays, even derides, subject areas with which teachers have come to identify” (p. 16). The diverse views held by these educators lends further support to the argument that educators need to clarify the role of the disciplines or subject matter in content integration.

Curriculum documents across educational systems often promote the integration of content in vague terms that can be applied in different ways. The New Zealand Curriculum Framework (Thornley & Graham, 1999), which directs curriculum practices within the primary schools, states in very general terms that “schools may achieve a balanced and broad curriculum in a number of ways, for example by organising their programmes around subject, by using an integrated approach, or by using topic or thematic approaches” (1993, pp. 8, 9). Further vague claims state that “integration will often extend to other subject areas and is encouraged” (1993a, p. 21), and that “the broad topic approach employed in the integrated curriculum presupposes distinct disciplines ...we believe that the most effective learning happens when connections are made between curriculum or subject areas” (1993b, p. 2). Similarly, the New South Wales Board of Studies (1996) provides a conceptual framework for curriculum integration in primary schools (K-6), which suggests teachers “enhance and maximise learning both within and across the key learning areas of the primary curriculum” (p. 2). Again the contents to be integrated are very broad and general. The six separate key learning areas – English; mathematics; science and technology; human society and its environment; personal development, health and physical education; creative and practical arts – describe “the broad nature of the K-6 content” (1996, p. 2). What integration means, and how and when it is to occur, is left to the teacher’s discretion.

Not much more specific is the interpretation found in the APEID (1982) Report. It reads, “the integration of subjects is advocated on the ground that there are common threads that cut across subject areas ... the common threads that hold different subjects in complementary relationship” (1982, p. 9). The report expands further, “the content of

education [is] drawn from the environment and the focus is on real life experiences and situations” (1982, p. 28). In Thailand for example, there are three subject areas – social studies, natural science and health education to be integrated through an area of learning called “life experiences ... so as to equip students to learn to solve social and life problems” (APEID, 1982, p.18). As Mansfield (1990) comments, “describing a programme as being integrated does not clearly indicate what is happening within that programme – very different activities can occur under integration” (p. 1). There are considerable overlaps and differences in interpretation between these examples and this raises questions about the lack of exemplary approaches existing in the literature to define practice.

How do teachers integrate educational content in practice? The literature shows that teachers often interpret integration as drawing content from two or more school subjects around a general theme. Martin-Kniep et al. (1995) observed grade nine English and social studies teachers developing interdisciplinary curriculum in three high schools in Brooklyn and Queens (New York) around very broad themes such as “human environment interaction” and “tradition and change.” To investigate these themes, students used literary selections and analysed geographical features of selected countries. Similarly, Pate, McGinns, and Homestead (1994), in their effort to design an integrated curriculum for use in middle school classrooms integrated content from many diverse areas such as social studies, science, language arts, mathematics, and the fine arts around a general “human interaction” theme. In another example, Hargreaves and Moore (2000) studied twenty-nine grades seven and eight teachers in Ontario. The Common Curriculum promoted during that time consisted of four broad program areas: language

arts, self and society, mathematics, science and technology. Several subjects were integrated within each program area. Integrated units related to "Self and Society," for instance, brought "together music, history, geography, literature, and other areas of subject content to address issues of cultural diversity" (p. 107).

An obvious consideration in this form of integration is that teachers "should bring only those disciplines into the study that deepens understanding of the unit theme" (Erickson, 2001, p. 144). Teachers have to be selective and accept the fact that, as Beane (1995) notes "it is entirely possible, even probable that not all the information ... now disseminated by separate subjects teaching will come to the surface in the context of curriculum integration" (p. 620; Case, 1991, 1997; Hargreaves & Moore, 2000; Kniep et al., 1995). More important than coverage is the purpose for integration: the quest for coherent curriculum (Pate, McGinnis & Homestead, 1994).

The previous examples underscore the need for educators to obtain conceptual understanding of content integration. They need both an adequate knowledge base of the subject matter supporting the curriculum and of how to help children acquire this knowledge.

Integration of Skills and Processes

Case (1991) says that "the integration of skills and processes refers to so-called generic skills and processes [and includes] the call to teach reading and writing in the content areas" (p. 216). For the primary curriculum in particular, many authors believe that generic "skills are cross-disciplinary and not connected to any particular subject area" (Drake, 1998, p. 127) and that "skills oriented integration ... enables students to acquire

general skills and strategies that they can apply widely to understand situations and solve problems” (Ackerman & Perkins, 1989, p. 79).

Central to the organising of students’ integrated experiences is the “interweaving” of the different forms of integration. The APEID Report (1982) suggests that the forms of integration “are not mutually exclusive. In fact one form contains elements of the other forms” (p. 12). Similarly Martin-Kniep et al. (1995) report that “although they have been presented as uniquely different in focus (content, skills, self-in-school) in practice one form of integration incorporates others” (p. 246). This is particularly true for the connection between content and skills/processes as it impacts on the child’s learning. Skills are learned through content, and content through skills. Ackerman and Perkins (1989) argue, “it makes obvious sense to try to build connections between the development of skills and the teaching of content [S]kills may be helpful, even essential to students trying to unlock the content [S]kills and content can be integrated both within a subject and across the curriculum” (pp. 79, 80). This is evident in the New Zealand curriculum:

The skills cannot be developed in isolation. They will be developed through the essential learning areas in different contexts across the curriculum. By relating the development of skills to the contexts in which they are used, both in the classroom and the wider world, school programmes will provide learning which students can see to be relevant, meaningful and useful to learners (Ministry of Education, 1993, p. 17).

Palmer (1995) even goes further in her strong claim that “attaining the goals of interdisciplinary teaching [requires] students who are able to apply knowledge and skills

across content, and students who will themselves consciously look and make connections between and among the content and skill they are taught” (pp. 60-61). Interestingly, these educators do not posit how teachers should foster skill development and make the learning experiences meaningful for the students. It is believed that there is no one method to facilitate skill acquisition. For this reason, teachers need to identify the specific skills and decide how to promote them to assist students with knowledge application.

Although authors agree that generic skills/processes are useful to students in achieving future goals, establishing interrelationships, and supporting self-directed learning, there is argument on what skills should be emphasised. Let me provide some examples of the range of proposed skills. Vars (2001), an ardent proponent of integration, believes that “life skills should be the primary focus of integrative curriculum ... [L]ife skills is a category of knowledge that is useful across content areas as well as important for the world of work” (p. 11). He cites examples from standards in the United States, such as Colorado’s “essential knowledge: thinking and reasoning, working with others, self-regulation and life work” (2000, p. 11), and Vermont’s competencies that “cut across all fields of knowledge ... [including] communication, reasoning and problem solving, personal development and civic/social responsibility” (2000, p. 11). New Zealand identifies very general “essential skills that all students need to develop” (1993a, p. 17), including skills related to “co-operating and interacting, reasoning and reflecting, imagining and inquiring, assessing and evaluating” (1993b, p. 1).

Somewhat more specific is the New South Wales’ (1996a) framework of generic student outcomes that is part of all learning areas. The student: (1) locates, selects and

evaluates information from a variety of sources; (2) applies a range of problem-solving strategies to achieve accepted solutions; and (3) makes personal judgements. There is also an accompanying list of more specific “generic skills” which cut across these outcomes and is “not subject specific” (1996b, p. 3): skills of research, communication, problem solving, technology use, critical thinking, task management, co-operation and citizenship. On the other hand, the APEID Report (1982) promotes not “life skills” so much as basic skills of “linguistic ability and numerical and space perception skills” (p. 5), as well as analysis, synthesis and judgement involving problem solving.

Research studies at the high school also show that there is a range of “skills” thought to be generic. Martin-Kniep et al. (1995) describe teachers promoting learning experiences to develop “perspective taking [and] reinforcing skills necessary for self reflection and understanding” (p. 241). Hargreaves and Moore (2000) identified students engaging in “teamwork skills” (p. 98); “higher order conceptual skills (such as theorising, modelling, inquiry, testing and reasoning) and social skill” (p. 99); “life skills in which they could identify and clarify their goals and guiding values as a context for making choices” (p. 101); and “language skills especially in conversation, reporting and writing, as well as skills of inquiry and research” (p. 102).

There are two general conclusions to be drawn from the foregoing examples. First, many authors believe there are skills common to different content areas, and that these skills help students learn those subject areas. These individuals, however, encourage skill development with little reference to the underlying principles to facilitate this development. It is assumed teachers know how to plan these experiences. Teachers will have to design experiential learning experiences to help students fulfil the demands

of integration. This is why Palmer states “for transfer and understanding to occur, students need conscious practice in recognising and applying concepts and skills across disciplines” (1995, p. 58). Second, there is a bias toward “life skills” believed to be helpful for students in the future. These skills vary, although the emphasis seems to be “on higher-order thinking process, co-operative learning and thoughtful consideration of human values considered essential for effective functioning as a citizen and human being, regardless of vocation or station in life” (Vars, 2000, pp. 8, 10). Integration of skills and processes gives primary attention to the transformative role of teaching in the life of the students.

Integration of School and Self

Another form (Case, 1991) is the integration of school and self. It is “the integration of what students study in school (both “content” and “processes”) with student’s concerns, desires, needs, queries, aspirations, dilemmas ... and “things” that students care about” (p. 217). In other words, how does what the students learn in school connect to his/her interests or transfer to the world outside of the classroom? Beane explains, “curriculum integration centres the curriculum on life itself ... to deepen and broaden our understanding of ourselves and our world” (1995, p. 622).

There are two emphases within this form of integration, according to Beane (1996): (1) the integration of experience, and (2) social integration. In terms of the first, Erlandson and McVittie (2001) identify “the integration of curricular activities with students’ life experiences” (p. 30), which they refer to as personal integration. Alexander (2001) simplifies social integration as “developing communities of learners, connections of schools and communities and involving students in the problem-centred curriculum

organised around personal and social concerns” (p. 23). Integration of school and self impacts the curriculum at both the primary and secondary level. The APEID Report (1982) documents both emphases in “curriculum and learning units based on solutions to certain real life problems of the learners ... the problems may be personal problems, community problems, vocational problems, social problems and development problems” (p. 19). A good example of both personal and social integration is from India:

In recent years the areas of nutrition, health education and environmental sanitation have also been integrated with the science education programme ... integrating threads ... are being picked up from the child’s interest and needs, the child’s immediate environment (physical as well as social), the aspirations and needs of the local community as well as the Indian society at large (APEID, 1982, p. 13).

Malaysia also attempted to incorporate student experience through the principle of expanding horizons; “choice of themes was based on accepted principles of learning from the known to the unknown and from the child’s immediate environment, gradually expanding to the world he lives in” (1982, p. 29). Somewhat differently, Thailand emphasised “character development and work-oriented education” (1982, p. 31) topics connected to themes of “good health,” “our behaviour,” “making happy home life,” and “we live with others” (1982, pp. 31-32).

Despite these differences, it may be inferred from these practices that the overarching objective at the primary level is to inculcate “habits” considered essential for individual and social responsibility towards others, the environment, and work. Also, it is difficult not to realise that these practices are in response to Dewey’s (1900/1956)

recommendation that “the subject matter for these years is selected from phases of life entering into the child’s own social surroundings” (p. 105). The school is not to be a place apart from the child’s experience, but a place where her experience outside of school was enlarged and gradually formulated. Most important is the concern for “relevance for daily experiences” (APEID, 1982, p. 3) in the life of the child. This emphasis is largely in response to the need that learning have personal and social relevance.

Along the same line of argument, some research studies have shown that the theme of “identity” is a popular focus for the integration of school and self. Martin-Kniep et al. (1995) found that the exploration of self (“I-in-context”) guided the inaugural unit entitled “Identity: Who are the Africans” (p. 245) used to connect school and self for a group of grade nine students in a New York high school. Ethnic biographies connected “the students personally to the role that geography, history and culture play in any life history, whether their own or that of literary characters ... [T]o know who I am, I must know my family’s cultural and historical background” (pp. 245, 246). Hargreaves and Moore (2000) also found that personal “relevance was a powerful and consistent organising principle underlying the integrated units that teachers had designed” (p. 95) in the classrooms they observed. For instance:

Organised units ... made connections with real issues in students’ lives and with people, ideas, and events beyond the boundaries of their classrooms [The] initiatives brought together school and self, school and family life, school and future work and school and wider aspects of social and political citizenship (p. 95).

They conclude that the efforts to “weave” school and self reflected what teachers believed was central to their students’ future goals.

According to the literature, the integration of school and self is germane to students’ personal and social development. Yet, as Martin-Kniep et al. (1995) opine, of all the forms of integration, it is “perhaps the most challenging one, not because it is difficult to relate school to life, but because schools traditionally have engaged this task so minimally” (p. 244). There could be many reasons. Vagueness of conceptual and practical meanings related to school and self may result in negative attitudes, despite advocacy for this form of integration.

Holistic Integration

Students not only learn from the explicit curriculum, but also from the hallways, playgrounds, sports teams, and school culture (e.g., school rules and norms; organisation of time and groups; etc.). Attempts to bring greater consistency across school related experiences (formal and informal) are referred to as holistic integration (Case, 1991). The Association of Supervision and Curriculum Development (ASCD) (2001) suggests that ‘the hidden and excluded curriculum have a powerful influence on student’s perceptions” (p. 2) because they convey unintended messages. Holistic integration attempts to harmonize the taught curriculum, the learned curriculum, and the unintended or hidden curriculum. In some models of religious or political schooling, for example, there is explicit concern that the values promoted in the curriculum also be consistently reinforced by school practices and modelled by teachers.

In summary, there are various forms of integration: integration of content, integration of skills and processes, integration of school and self, and holistic integration.

Lack of distinctions can lead to confusion when interpreting and implementing curriculum proposals.

How and When is Integration to be Enacted? (Modes and Dimensions of Integration)

Educators often refer to the integration of content in short-hand terms such as “ways that blur the artificial boundaries between the disciplines” (Martin-Kniep et al., 1995, p. 234); “dissolving the boundaries” (Drake, 1998, p. 20); and drawing “connections between subjects rather than strict isolation” (Jacobs, 1989, p. 5). But how is this to be done? According to Case (1991), connections can be established to different degrees (modes of integration) and at different times (temporal dimensions of integration). A high degree of integration connects two or more contents to such an extent that they lose their identity, whereas a low degree of integration results in content areas retaining their identities (Young, 1991-1992). To clarify degree of integration, Case (1991) isolates four modes for drawing connections between elements of the curriculum: “fusion, insertion, correlation, and harmonization” (p. 220). He borrowed them from Badley (1986) who originally defined them as a schema of “distinguishable if sometimes overlapping classes of alleged educational integration” (p. 65). The four differ on degree of integration.

Fusion represents a high degree of integration by bringing two or more subject areas into a new arrangement. It is the “joining into a new single entity curricular elements previously taught separately” (Case, 1991, p. 220). According to Badley (1986), the combined elements may lose all or most of their original identities, resulting in new interdisciplinary courses such as, for example, “the humanities,” or in

interdisciplinary thematic units or projects. The majority of international curricula featured in the APEID Report (1982) fused content around themes or a single discipline. Fusion has been criticised, however, as a potentially counterproductive strategy for integrating the curriculum (Badley, 1986; Case, 1995, 1997). Badley (1986) contends fusion is not useful unless there is "commonalty of interest among the elements to be joined" (p. 93). Case (1995) is adamant that fusion may result in "artificial integration" when disciplines are collapsed or when some subjects become the handmaiden to others; also, the availability of different forms of inquiry is reduced.

Insertion or incorporation maintains the identity of the separate subjects by "adding or absorbing one curricular element into a larger constellation of curricular elements" (Case, 1991, p. 220). In other words, a topic from one subject area is fitted into another subject area. This "fitting into" does transform to some extent each of the integrated components. For example, the incorporation of career education across the entire Jamaican secondary curriculum (academic, practical, aesthetic) is proposed as a way to enhance the availability of career education even though there is also a separate scope and sequence in the Grades 7-9 programme for career education (1998). The intention is to sensitise students through all subject areas to values, skills and knowledge essential to the future workplace.

Case (1991) refers to correlation as "drawing connections and noting parallels between elements that remain separately taught" (p. 220). It is distinguishable from fusion and incorporation because "nothing is joined"; instead, the classroom teacher notes points of contact. "[W]hile fusion and incorporation are structural-formal relationships then correlation integration is a pedagogical or strategic activity" (Badley, p. 72). In

Martin Kniep et al.'s (1995) study, the social studies and English teachers collaborated on special themes and timed them so that they could draw connections between the two discrete subjects that were taught concurrently.

Harmonization occurs when "disparate elements are made compatible with or promotive of each other" (Case, 1991). Although it is usually associated with holistic integration, harmonization can also be used with the other forms of integration. For example, teachers may organise learning experiences to emphasise inquiry skills across subject areas.

These four modes of content integration remind us that the degree of integration is an important consideration when planning curriculum. However, there is also another consideration. Integrating content also occurs along two temporal dimensions:

"integration at any given time" and "integration over time" (Case, 1991 p. 217). He drew this distinction from Tyler's (1958) much earlier work on curriculum organisation.

According to Tyler:

The relationships between the experiences provided in fourth-grade arithmetic and in fifth-grade arithmetic we are considering the vertical organisation, whereas when we consider the relationship between the experiences in fourth-grade arithmetic and fourth-grade social studies, we are considering the horizontal organisation of learning experiences (p. 107).

Vertical integration occurs "over time" as teachers' help students establish connections between their current learning and what was learned in a previous unit or grade.

Horizontal integration occurs "at any given time" as students see connections among and

between different subject areas within the same grade level. Both dimensions need explicit attention because, as Tyler (1958) cautions:

When vertical and horizontal organisation develop without systematic attention being given to integration, the pupil will often fail to perceive connections and utilise appropriate concepts, values and skills because the possibility of their applicability has not been emphasised (pp. 107-108).

This quote emphasises the importance of pedagogy in promoting connections within the curriculum. Although “a well-organised curriculum can greatly facilitate integration [it] cannot alone assure the achievement of integration on the part of the learner” (Tyler, 1958, p. 24). Connected learning underlies this characteristic of integration.

The teacher’s role is crucial in leading students to the broader connections these progressions of learning imply.

What is the Rationale/Aim for Curriculum Integration? (Objectives of Integration)

Integration is an “attractive proposition” to many teachers says Mason (1996) because it “possesses considerable validity and common-sense appeal” (p. 263). There are many examples of teachers in schools attempting integration (Drake, 1998; Erickson, 1995, 2001; Hargreaves & Moore, 2000; Jacobs, 1989). Underlying most examples, though, is the belief that the “traditional curriculum fails to meet the needs of students in a complex, technologically advanced interdependent world” (Mason, 1996, p. 296), and that an integrated curriculum will be more relevant and effective for students and the wider society.

Case (1991) cites four objectives for integrating content. First, writers believe this form of integrating will help students in “dealing with the complexity of the world” (p. 218).

Beane (1995), Drake (1998), and Jacobs (1989) for example, argue that single subject curriculum presents knowledge in a fragmented way; integration, in contrast, facilitates connections and thereby provides depth to teaching and learning. Further, when real life problems are the focus, integration localises the curriculum and better prepares students to face the challenges of contemporary society. These arguments assume that integrated curriculum, with its capacity to pull knowledge from the different disciplines, provides students with learning experiences that helps them “better appreciate the world in which they live” (Martin-Kniep et al., 1995, p. 227).

The other three objectives for integrated content relate to “promoting greater efficiency; respecting the seamless web of knowledge; and overcoming perceptions of subject boundaries” (Case, 1991, p. 218). Drake (1998) and Jacobs (1989) believe pedagogical efficiency is enhanced when teachers bring content together across the different subject boundaries, thereby saving time by reducing duplication of subject matter. As Hargreaves and Moore (2000) verify, educators do not have enough time to address every topic within separate subjects. As students construct meaning they utilise integrated rather than discrete skills and competencies in their educational experiences. These competencies are transferable to different situations. Finally, proponents argue discipline based learning divides knowledge into artificial categories, and that this division allows some subjects to be seen as more or less important than others. In contrast, integrated content results in more congruence between disciplines and reduces the narrow perspective students may have concerning the relevance of some subjects. It is accepted that when students are exposed to different types of content this processing of different perspectives provides the background they need to contextualise their learning.

Case (1991) states that functional competence is the “dominant objective behind integration of skills and processes” (p. 219). Key proponents of skills integration, such as Erickson (2001), Palmer (1995), and Vars (2001), suggest that students learn inquiry processes through carefully designed integrative units. Drake (1998), Hargreaves and Moore (2000), and Mason (1996) endorse the fact that as students engage in active learning they learn life skills, knowledge and attitudes that they can take into the field of work, and that an inquiry oriented curriculum leads to student acquisition of higher-order thinking and problem solving. In sum, the integration of skills and processes plays an important role in active learning and critical reflection and both warrant consideration in effective integrated learning.

Case (1991) states “proposals to integrate school and self are generally based on a desire to increase students’ perceptions of the relevance of school” (p. 219). The APEID Report (1982) concurs, “knowledge has value only if it meets the needs of the learner or it has some social utility ... this is why some form of curriculum integration tries to centre the instructional process around the children’s interests, needs and concerns as expressed in their actual life” (p. 9). Appeals are often made to the social constructivist perspective of learning, Gardner’s theory on multiple intelligences, or Caine’s neuro-psychology research in support of the suggestion that individuals learn best when learning is connected, is based on active student involvement, and promotes the psychological /developmental level of the child (Akins & Akerson, 2000; Lake, 1993-1994; Mason, 1996). Studies also point to students having positive learning experiences (Aschbacher, 1991; Erlandson & McVittie, 2001; Hargreaves & Moore, 2000; Martin-Kniep et al., 1995) in integrated learning activities that result in improved attitudes to

schoolwork and peers, and to greater social and environmental awareness. These discussions point out that integration of school and self emerges as a means for children to make sense of what is learned. Specifically, it minimises fragmentation in both the curriculum and the way students learn.

The promotion of student efficacy and equity are the goals of holistic integration (Case, 1991). Integrating all aspects of school practices (administrative, instructional and curricular) enhances opportunities for the more vulnerable students to achieve. It is now widely recognised that some students are disadvantaged in schools for various reasons. Curriculum reforms efforts must address the needs and concerns of students. Research studies confirm that integration appeals to students' different abilities, intelligences and interests, and that through their active engagement in learning these students feel less marginalized in school. However, teacher preparation is necessary to facilitate student concerns and interests.

Justifications for integration are grounded in a range of ideas about pedagogy, curriculum relevancy, socio-cultural beliefs, child development, and the motivation of learning. Nevertheless, other writers do question the validity of claims about the benefits of integration (George, 1996; Schug & Cross, 1998). They contend that there is little evidence to demonstrate that more student involvement with integrated curriculum provides greater depth in learning beyond what already exists in a disciplinary paradigm. Even Vars (2001), a proponent who conducted studies to assess the effectiveness of integration, admits that "it is one thing to list the presumed benefits of curriculum integration, but obtaining evidence to back up these claims is no mean feat, especially since there are many desired outcomes to measure" (p. 9). Counter arguments in defense

of integration claim that most educational outcomes and the worth of pedagogical practices cannot be determined by narrow achievement testing; for example, “the measure of achievement used in these studies may not have captured the kinds of knowledge (deep vs. superficial) interdisciplinary methods promote” (Mason, 1996, p. 266). Even so, Vars (2001) notes, “almost without exception, students in innovative interdisciplinary programs do as well as, and often better than students in so-called conventional programs [E]ducators who carefully implement any of the various types of interdisciplinary approaches can be reasonably assured that there will be no appreciable loss in student learning” (p. 9; Aschbacher, 1991; Beane, 1997; Lee & Smith, 1995; Marks, 2000).

In summary, the literature shows integration to be a vague and complex concept. Case (1991) attempts to clarify the concept by drawing distinctions across and within forms, modes, dimensions, and objectives of integration.

Practices of Integration

This section focuses on some practices of integration. The two areas discussed are models of integration and selected problems of implementation.

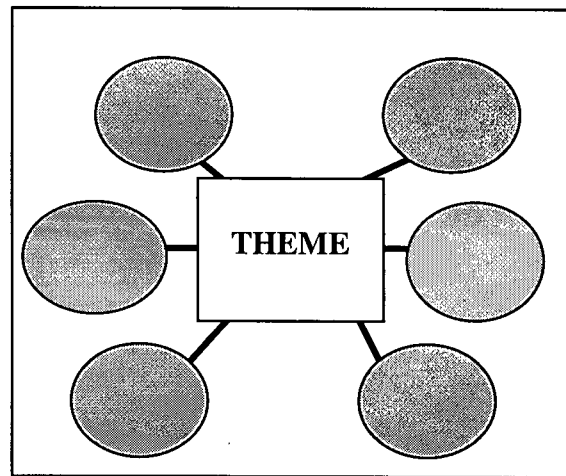
Two Models of Curriculum Integration

Authors offer many models to design an integrated curriculum. Critics point out this plurality further complicates problems of clarity, and that some of these models may even result in fragmented rather than integrated learning. Two of the more popular theme-based models are briefly described in this section; it is not the researcher’s intention to determine their effectiveness, but to outline how integration is supposed to be achieved. Both models influenced the development of the Jamaican curriculum.

In her book *The mindful school: How to integrate the curricula*, Fogarty (1991) provides “ten models that represent ten different views for integrating the curricula” (p. xiv) based on the writings of “the expert theorists and the expert practitioners” (p. ix). The models can be aligned on a continuum beginning with integration within single disciplines and ending across several disciplines. On the continuum is the webbed model, cutting across several disciplines in order to “pull what were separate and disparate parts of the curriculum together for the kids” (Fogarty, 1991, p. 57). Central to this model (see Figure 1) is a theme (or themes) serving as the organising centre or as a “fresh lens with which to frame and view content” (p. 58). The central purpose of this thematic approach is to bring curriculum content and disciplinary knowledge (subject areas) together around “fertile themes.” The model draws from Perkins’ (1989) recommendation to use “an integrative theme as a kind of lens through which to look at different subject matters” (p. 70); in his criteria a theme functions as a lens if it: “(1) applies broadly, (2) applies pervasively, (3) discloses fundamental patterns, (4) reveals similarities and contrasts, and (5) fascinates” (pp. 70-71).

Constructing a webbed curriculum begins with a cross-departmental team deciding on themes (e.g., topics, concepts, or categories) to serve as “an overlay to the different subjects” (p. 54). She says that one of the advantages of using this model is the variety of themes generated through camaraderie established among colleagues. Alternatively, a disadvantage is the difficulty of selecting relevant themes to effect meaningful learning (Fogarty, 1991); as a consequence, curriculum developers often pre-select themes for teachers.

Figure 1: The Webbed Model



Source: Fogarthy, 1991, p. 58.

Another popular method for integrating the curriculum is Jacobs's (1989) "Interdisciplinary Concept Model." Similar to Fogarty's (1991) webbed model, its central aim "is to bring together the discipline perspectives and focus them on the investigation of a target theme, issues or problem" (1989, p. 54). This approach to curriculum design includes four tasks:

Step 1: Selecting an organising centre

The first task (see Figure 2) is to select "an organising centre, which acts as the focus for curriculum development" (p. 54). This centre (a topic, event, theme, or subject area) is selected on criteria similar to those suggested by Perkins (1989).

Step 2: Brainstorming for associations

Having selected the theme, the group considers its possibilities from the point of view of various disciplines (see figure 2). She advises: (1) personal brainstorming prior

to group sessions to generate ideas; (2) group brainstorming associated with the organising centre; and (3) deliberate examination of topics through various discipline perspectives.

Step 3: Establishing guiding questions to serve as a scope and sequence

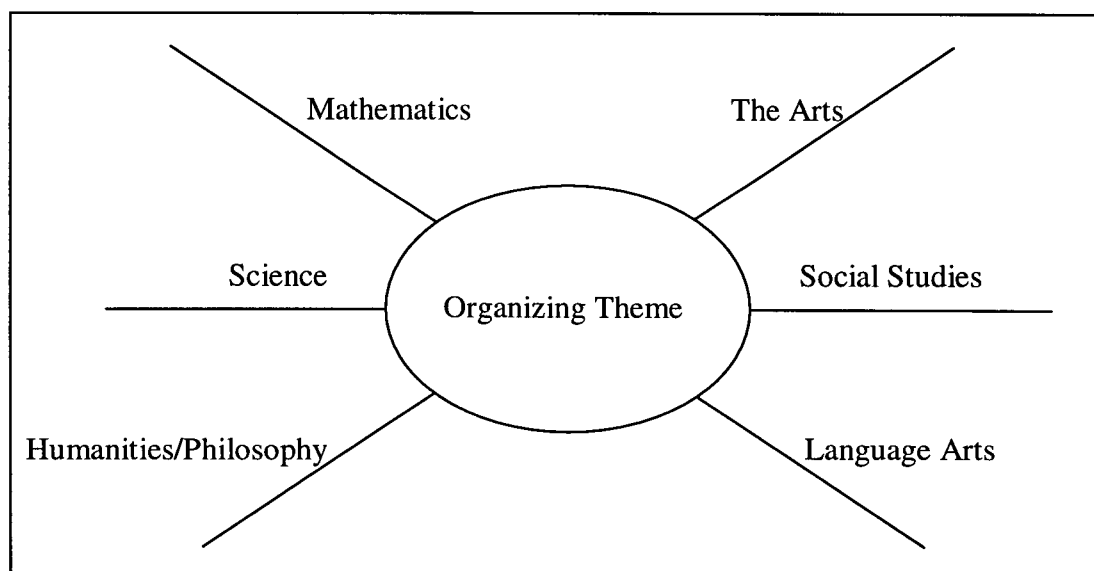
This task takes the brainstormed associations and devises a series of guiding questions for organising a unit's scope and sequence. The questions serve as the "framework for investigating the organising centre" (p. 60).

Step 4: Writing activities for implementation

Activities are developed to help students explore the guiding questions. She recommends, for example, the use of Bloom's taxonomy (1956) as one way to help the group consider a variety of activities.

This model is adaptable, according to Pizarro (1993), because "it is designed for any school level" (p. 68) and it is relatively easy to implement. Further, Jacobs (1989) believes that her model addresses two problems that often arise when teachers plan integrated units: (1) the potpourri problem (scattered sampling of activities that results in fragmentation), and (2) the polarity problem (the distinctions between the disciplines that result in conflicts).

Figure 2: Interdisciplinary Concept Model



Source: Jacobs, 1989, p. 56

A very similar, although simpler, approach is advocated by Beane (1995): “curriculum integration begins with the identification of organising themes or centres for learning experiences” and is then followed by the question, “what significant activities might be done to address the theme” (p. 619). He distinguishes five sources of themes: (1) the existing subject curriculum; (2) major social issues or problems; (3) personal concerns of young people; (4) process concepts; and (5) appealing topics. He cautions that “appealing” topics have to be educationally significant (2002).

Although thematic integration is the most common practice, it is not new. Bloom (1958) and Dressel (1958), for example, referred to “integrative threads,” whether principles, purposes or themes, as the centre for integrating curriculum. Over the last two

decades, using themes as the organising centre gained momentum (APEID, 1982; Beane, 1995; Fogarty, 1991; Jacobs, 1989).

Many educators extol the virtues of thematic units, particularly ease of implementation and the potential coherence they lend to learning. Erickson (1995), for example, says “a theme carries the idea of the concept into a form that is understandable and approachable for students and sets the parameters for the content study ... [The theme] can be stated as a question to engage students in their search for knowledge” (p. 136). Lipson et al. (1993) view thematic teaching as promoting coherence across disciplines as it facilitates the “transfer of learning from one context to another ... process and content knowledge. ... [and] the acquisition of an integrated knowledge base” (pp. 253-254). These views are supported by research conclusions that endorse thematic integration as a way to enhance student learning (Lawton, 1994; Schubert & Melnick, 1997; Yorks & Follo, 1993). Beane (1995) claims that “even when teaching and learning move into what looks like discipline-based instruction, the theme continues to provide the context and the motivation” (p. 620).

In summary, there has been extensive coverage on thematic integration in the literature. As a consequence thematic integration assumes many forms. Its advocates argue its usefulness in organising and providing meaningful integrated experiences. It is apparent no single thematic model may satisfy all curriculum goals and philosophies. Alternatively, educators need to familiarise themselves with models that support the desired practice and outcomes.

Problems in Implementing Thematic Integration

The proponents of thematic integration, according to Alleman and Brophy (1993), would have us believe it “is one of those ideas that is obviously good” (p. 288). But if it has so many ‘virtues’, then Mason (1996) is right in posing the question “why are there not more good examples of integrated instruction in schools?” (p. 266). He cautions that “simply possessing a willingness to engage in interdisciplinary teaching is not enough. Serious consideration must be given to several important issues, if broad-based integrated curricula are to be successful” (1996, p. 268). There are obstacles to successful implementation. The literature identifies at least eight: lack of conceptual integrity, “force-fitting” of ideas, denigration of disciplines, relevance, extent of integration, locus of integration, teacher and student competence, and assessment.

Although the literature (Fogarty, 1991; Jacobs, 1989; Vars, 1991) advances “connected learning” as the main reason for integration, there are educators concerned about lack of conceptual integrity when diverse contents are brought together under a theme. Commentators like Brophy and Allerman (1991) bemoan the lack of “educational value” that is sometimes evident in the use of themes. They observed students engaged in meaningless social studies ‘integrative activities’ that were ill conceived and counterproductive to learning significant knowledge. For this reason, the National Council for Social Studies (NCSS) warns “unless they [the activities] are developed as plans for accomplishing major social studies goals, such programs may focus on trivial or disconnected information” (p. 166). This warning is applicable to any integrated practice.

Thematic integration should not lead to the “force-fitting” of subjects. This results in what Mason (1996) describes as the “trivialization of concepts which fails to enhance student understanding of important ideas” (p. 266). Thornley and Graham (1999) refer to curriculum planning as ‘crow barring’ if the intention is “to fit essential learning areas to a theme ... through forcing artificial connections” (p. 5). They lament:

The links or connections made in the name of integration may be, in such cases, so abstract as to be devoid of meaning for children [T]heoretical and conceptual links between the disciplines may not be truly forged through thematic programmes that simply accept the drawing of pictures as the art, the writing of a story as language or the singing of the song as music (p. 5).

That is why the New Zealand Ministry of Education cautions “Curriculum links should be natural and authentic, not forced” (1993b, p. 2), and Badley (1986) asks, Is there a “natural adherence” between the areas connected by the theme, or are the connections that result forced? (p. 90). Teachers need to establish:

Authentic linkages across key learning areas ... linkages and areas of commonality [have to be] made explicit ... [The] selection of learning experiences should be on the extent to which they promote progress or broaden and confirm understanding rather than whether they cross the boundaries of key learning areas (New South Wales Board, 1996, p. 6).

It is “not through artificial manipulation, or worse still though a distortion of the specific nature of the disciplinary field itself, that we should either achieve the aims of learning or construct the broader scheme of relations that underline integration in the sense of the word” (Gozzer, 1982, p. 291).

There is concern that integration may result in the denigration of some disciplines (Akins & Akerson, 2000; Badley, 1986). Music educators, for example, complain that their discipline is given a subservient role and used as entertainment or a mode of communication instead of developing worthwhile music skills (Wiggins, 2001); this disregard for content knowledge leads to the handmaiden phenomenon (Fisher, 1990; Gardner & Boix-Mansilla, 1994; Kain, 1996; Seeley, 1995). Erickson (1995) goes further to say that “if we cannot maintain the integrity of disciplines, then we should not design inter disciplinary units” (p. 143).

Enhancing the relevance of what is learned by students is a goal of thematic integration (Hargreaves & Moore 2000; Jacobs, 1989; Martin-Kniep et al., 1995). Based on international case studies, Ranaweera (1990) writes “any curriculum, which starts with the student and his needs, has a very good chance of being relevant relevancy is a matter of purpose” [whereas] a “curriculum which is structured around subjects and the accumulation of information has little chance of being relevant to the learner” (p. 15). This means that if a curriculum is to meet the needs, interests and abilities of students, the teacher should:

Draw themes from social issues and personal concerns since they emerge from real life issues, offer powerful, significant and relevant contexts for learning, and offer possibilities for introducing students to democratic problem-solving and constructivist uses of knowledge (Beane, 2002, p. 5).

Critics counter that such claims may be valid in principle but in practice the benefits are not always evident (Case, 1997; Davis Jr., 1997; Mason, 1996). For example, Case (1995) notes that: (1) “students tire of the same theme or of the unrelenting connections

made among subjects” (p. 6); (2) “thematic units limit the distinction of vertical and horizontal integration of content as objectives of curricular integration” (p. 7) and (3) “loosely defined themes increase the likelihood of curriculum fragmentation” (p. 8). If integration is to promote meaningful learning through connected learning, then this goal highlights the importance of selecting worthwhile themes as organising centres for integration. Educators would be advised to remember, “a theme is more than a series of activities; it is a way to facilitate student learning and understanding of conceptual connections” (Lake, 1993-1994, p. 12). This caution is significant because of its overarching concern. It points out that greater attention must be paid to the criteria used for selecting and organising both content and activities in a teaching and learning environment that supports integration.

It is not sufficient to make decisions only on what is being integrated (the elements to be brought together). There is also the extent of integration. More integration is not necessarily superior than less integration. Different degrees are appropriate depending upon purposes and contexts (APEID, 1982; Drake, 1989; Erickson, 1995, 2001; Fogarty, 1991).

Badley (1986) states that “one of the persistently controversial aspects of integration is the “locus of integration” – where does integration take place, within people or within curriculum?” (p. 101). First, there is an epistemological view that the locus is in the curriculum and “the most effective learning happens when connections are made between curriculum or subject areas” (Ministry of Education, 1991a, p. 2). A second view is that the locus lies within the individual for psychological (personal adjustment) and pedagogical (meaningful connections) reasons (Badley, 1986). Bloom (1958) claims

integration “takes place in the student, only as the integrative threads are meaningful to the student and are used by him are they likely to have any value for him” (p. 95). Davis Jr. (1997) expands further “curriculum does not integrate for individuals. Only individuals integrate; only individuals make their meanings ... curricular integration cannot predict that pupils will learn what others have integrated in their behalf” (pp. 95, 97). Finally, there is the interactive view that integration involves both the curriculum and the student, i.e., “though integration may be encouraged by the way in which content is offered, it is dependent on the extent to which learners themselves see the possible relationship” (Badley, 1986, p. 106). The view that students determine what they learn has gained impetus from studies examining students’ conceptions in learning. Therefore, it is argued that connections in an integrated learning environment depend on the balance struck between the conditions in the learning environment and factors within the child that facilitates integration. Promoting the motivation for students to learn is important in integration. The challenge for teachers is how to assist students in their interpretation of subject matter.

Integration also raises widely recognised concerns about teacher and student competence. Integrative themes require that teachers be both pedagogical generalists and content specialists. Mason’s (1996) concern is “if teachers lack knowledge and skills within disciplines, their ability to integrate those disciplines is highly problematic” (p. 266). Martin-Kniep et al. (1995) aptly phrase it “no amount of creative activities, no matter how coherent or relevant, can compensate for teachers’ erroneous or superficial lack of content” (p. 248). Teachers require strong disciplinary knowledge, something that primary teachers in some countries (including Jamaica) often lack. As Blakeston

(1990) submits, “success [in integration] depends on the understanding and acceptance of the principle in harmony with the training, and resources to put it into place” (p. 9). This is why the APEID Report (1982) concluded that “the success of curriculum integration will depend on a high degree of teacher competence Without improvement of teachers’ qualifications the curriculum integration will fail” (p. 7). Given this strong recommendation, an important component of the implementation process has to be teacher training. Content specialist teachers sometimes see integration as a threat to their autonomy because most integration models require them to work together across disciplines. However, even experienced teachers find that “curriculum integration is rewarding but also difficult and demanding” (Hargreaves & Moore, 2000, p. 111) and “the time it takes to plan, implement, assess and defend it takes a toll in emotional and familial ways” (Weilbacher, 2001, p. 18).

Beyond teacher competence are issues related to student competence. If the locus of integration is the individual, what is not clear is how the child will achieve it. Ranaweera (1990) acknowledges that integration “places a very large responsibility on the child for their own learning. A problem arising out of this situation is whether all children possess in equal measure the capacity and the motivation to fulfil this responsibility” (p. 54). The demands upon students’ knowledge and skill are significant, for as Davis Jr. (1997) states, “in the process of integration, pupils collect and examine and wonder; they perform and compose. Their efforts to integrate call upon their expanding capacity to think, to associate, and to interpret as well as to remember” (p. 96). Schug and Cross (1998) advise “Neither students nor teachers can integrate what they do not know. To attempt to integrate what is not understood will distort, nullify and

simplify content” (p. 56). Focusing on student competence is one way to promote effective learning. It is often the case that students will possess different levels of abilities; for this reason, teachers must make considerable effort to arrange various experiences that stimulates the child’s involvement in learning.

Assessment is an integral component of the integrated curriculum. Ercikan (1992), Mason (1996), Soodak and Martin-Kniep (1994) note however, that despite calls for integrating across disciplines too often assessment standards are drawn from the disciplines. What is missing are standards to assess students’ attainment of subject matter relationships. Ranaweera (1990) attributes this to the fact that “while subjects (disciplines) are well structured and suited to evaluation, integrated activities are often more complex and disordered” (p. 54). Teachers need to be taught how to assess learning across the disciplines (Ercikan, 1992; Soodak & Martin-Kniep, 1994). To this end, Pate et al. (1994) suggest teachers learn how to combine traditional and alternative assessment so as to better match assessment to themes and students’ needs in keeping with constructivist practices and learning theories associated with curriculum integration. Ercikan (1992), Soodak and Martin-Kniep (1994) support this view but also argue specifically for performance-based assessment that is closely aligned to the “real world tasks” of the curriculum.

These are some issues to be considered in the implementation of integration as an alternative curriculum design. If these concerns are neglected, commentators like Davis Jr. (1997) warn, “current prominence notwithstanding, the active life of the “integration” label now affixed to many curriculum likely will be depressingly short” (p. 95). Jacobs (1989) is more optimistic. She comments that “there is no right or wrong choice for

integration, only a range of options with distinct advantages or disadvantages” (p. 24) and that the benefits of integration originate from the teachers’ educational beliefs. This implies that teachers are able to articulate the reasons for their choices. If they cannot, Stark (1991) reasons, “without a clear idea, a map, of where one should be heading, there is a strong possibility that integrated lessons may end up being trivial exercises rather than valid intellectual pursuits” (p. 57). In the school context, effective integration should be the result of clear conceptions rather than “trial and error.”

CHAPTER THREE

Presentation of Data

In this chapter, the researcher clarifies the conception of integration in the Jamaican primary curriculum; each of the research questions that guided this study is addressed separately. The presentation is descriptive, and includes numerous examples and quotations from the curriculum.

The main document for the primary curriculum (1999) sets out the philosophy, rationale, scope and sequence, and overarching theme ("All about me and my environment"). This document also lists the topics and questions for twenty integrated units; each of these units provides teachers with attainment targets, objectives, learning procedures/activities, skills, and assessment tools. Other supporting documents include: (1) the curriculum evaluation study of the primary education system in Jamaica (Bailey, Brown, & Lofgren, 1996); (2) the evaluation study of the "reengineering" of the curriculum (Bailey & Brown, 1997); (3) the final report on the piloting of the revised primary curriculum (Ministry of Education, 2001); and (4) a summary document (n. d.) outlining an overview of the revised primary curriculum. All documents contain vital information for implementing the curriculum.

What is the Integrated Curriculum Intended to Improve in Jamaican Primary Education?

In 1999, as part of "a series of initiatives to address inadequacies at the primary level of the Jamaican education system and thus improve the quality of education" (Bailey & Brown, 1997, p. 148), the Jamaican government introduced a revised primary curriculum. Recommendations to revise the curriculum resulted from several years

(1993-1996) of stakeholder consultations, inquiries (an absenteeism study; and an evaluation of primary education conducted in 1996 by Bailey, Brown, and Lofgren), discussions with officers in the curriculum unit and other “experts” in the field of education, and a series of pilot programmes over two academic years (1997-1998; 1998-1999). The consultations and inquiries concluded that the previous series of curriculum guides *Foundations of Self Reliance/Self Development* had not achieved its major goals.

These goals included:

An integrated approach to the education of the children in primary grades

[T]he concept of strongly interrelated learnings in a real-life context [T]he acquisition of a set of skills and a body of concepts/ generalisations as a basis on which continued learning can take place (Ministry of Education, 1980, p. ii).

Consequently, “there was a strong call for the curriculum to be reengineered” (Bailey & Brown, 1997, p.148). Integral to this recommendation was the government’s goal for primary education, outlined in the *Jamaica: Education and Training Plan* (1990-1995), to “improve the quality of primary education so that all children on completion of grade 6 will have acquired literacy, numeracy, learning and social skills” (Bailey, Brown, Lofgren, 1996, p. 1).

According to the introductory statements, vision statement, and rationale of the curriculum (1999), as well as the evaluation report (1996) and the report by Bailey and Brown (1997), the perceived problem was the “quality of education.” The three quality indicators were student achievement in numeracy and literacy, personal and social relevance of the curriculum, and effective pedagogy (Appendix A).

Student Numeracy and Literacy

In the first place, from their observations the curriculum evaluators reported:

The low functional literacy and numeracy of the grade six students in the public schools make them ill equipped to operate efficiently at the grade seven level This calls into serious question the quality of teaching of these two subjects (Bailey, Brown & Lofgren, 1996, pp. 8, 103).

This evaluation report recommended that a “new curriculum be developed to counter the reality that many students leave the primary level without being able to read, write or do simple arithmetic” (p. 13). Additionally, numeracy, computation, and literacy were three of the six competency skills that most principals (64% of a sample of fifty-four) believed grade six school leavers should have attained (1996).

The curriculum’s vision statement (Appendix B) gave high profile to literacy and numeracy among children:

The child completing primary school should be functionally literate and numerate, demonstrating a positive self concept and a willingness to take responsibility for his /her own learning (Ministry of Education and Culture, 1999, p. vii; Appendix C).

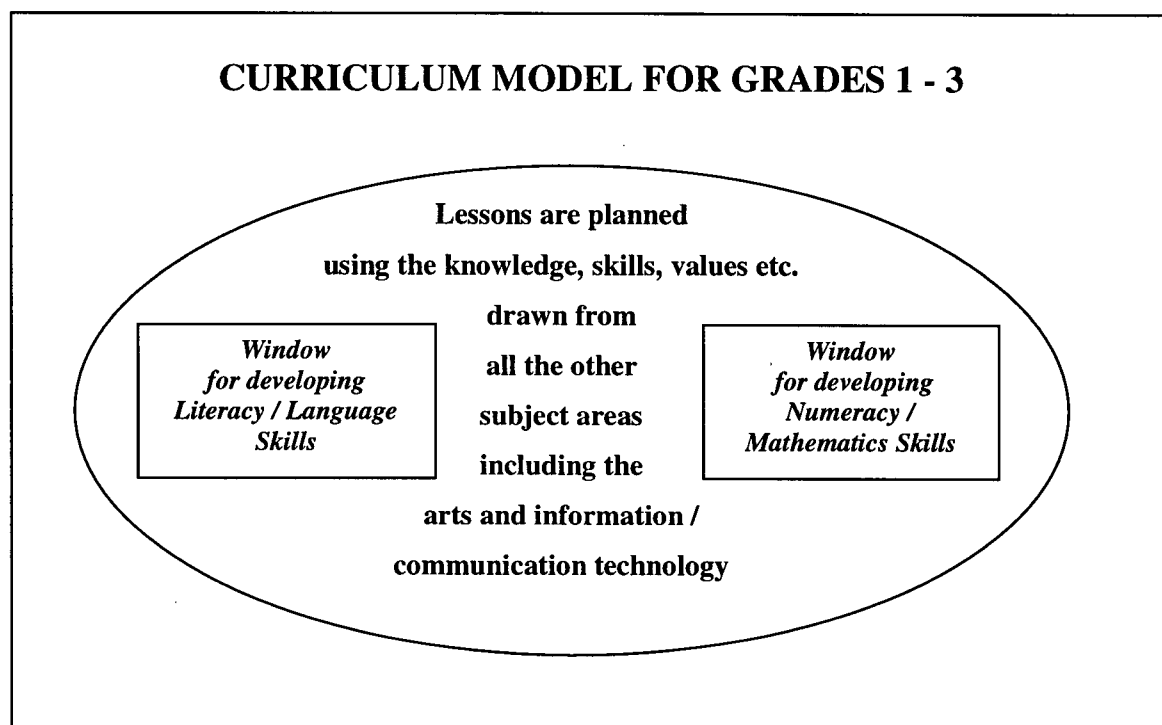
In subsequent introductory messages within the curriculum, the government’s Permanent Secretary reinforced the importance of “the vision of a child who is ... literate and numerate” (1999, p. iii), as did the Acting Chief Education Officer for the core curriculum unit who stated that “pupils [would] be empowered by increased achievement in numeracy and literacy” (1999, p. v). This vision is further highlighted through a

special organizational feature of the curriculum referred to as “Windows in the Curriculum” (Figure 3):

The term window is used to refer to particular sessions in the grades 1-3 timetable designed for concentration on literacy and numeracy. This approach is considered necessary as pupils’ performance in both Language Arts and Mathematics has remained consistently low over the years (1999, p. xi; Appendix D).

The “windows” approach highlights the curriculum's major emphasis on enhancing students' abilities to read, write, and utilise numbers. This emphasis is also reiterated in the special sections of the curriculum labelled “Language Arts in Grades 1-3” (1999, p. xii) and “Mathematics in Grades 1-3” (1999, p. xiv). Nine of the twenty-one attainment targets identified throughout the curriculum are clearly related to language arts skills and content. Some examples include “give and receive information,” “know and use basic language skills and the convention of spoken language and written language,” “apply relevant decoding skills to the reading process,” “use recognisable handwriting, appropriate spelling and vocabulary,” “write to narrate, persuade and for a range of transactional purposes,” “read for meaning, fluency and enjoyment,” “apply study skills and be able to search for information” (1999). There is the clear expectation that “by the end of grade three, all pupils ... should be reasonably competent in speaking, reading and writing English at the levels expected of that grade” (1999, p. xii).

Figure 3: Windows in the Curriculum



Source: Overview of the Revised Primary Curriculum, Jamaica, Ministry of Education
and Culture, n. d., p. 8

Similarly, nine attainment targets are specifically related to mathematics; for instance “represent and interpret numerical /pictorial information,” “demonstrate awareness of time and the relationship between events,” “explore the attributes of people in order to classify and make comparisons” (1999). The significance of these attainment targets is emphasized:

In order to improve the level of numeracy at an early stage, the curriculum envisages methodologies that give the pupils scope to: make conjectures, explore

and make generalisations, talk and write [M]athematics learning cannot just be facts...pupils should be given a chance to begin to take charge of their learning and to enjoy mathematics as they use their experiences and are exposed to new concepts (1999, p. xiv).

In focusing on numeracy and literacy the Ministry explicitly declares its commitment to improved achievement in these area at this foundational level of schooling.

Personal and Social Relevance

Another goal was to enhance relevant learning, including personal development and learner autonomy that would enable children to become productive citizens in the future. To illustrate, the vision statement (Appendix B) foresees children “demonstrating a positive self concept and a willingness to take responsibility for his /her own learning. He/she should be culturally, aesthetically and spiritually aware, and be guided by a commitment to social and moral principles” (1999, p. vii; Appendix C).

This goal was to address two concerns. First, in the evaluation study a “concern was raised with respect to areas such as music and religious education ... [and to] relevant personal and social issues not currently addressed in the existing curriculum” (Bailey & Brown, 1997, p. 148). In the prior curriculum, the volume of subject matter to be covered contributed to the de-emphasis of these subject areas and issues, and so Bowie (1999) says there was:

Strong representation to the ministry for the inclusion of relevant messages in the primary curriculum [T]he most prominent issues are healthy lifestyles, environmental awareness, the role of the aesthetics in personnel development and the need to ensure that the curriculum fosters the development of positive social

values and attitudes ... a child who is culturally aware ... with a well developed sense of community (1999, p. iii).

The second concern was that the curriculum content was dated: "factors such as rapid and far reaching advances in science and technology ... health and environmental concerns and changes in values and attitudes have prompted the revision of the curriculum" (Summary Document, n. d., p. 1; Appendix E). Although these and other changes have led to a state where "the planet and human society are endangered" (1999, p. 2), the curriculum rests on the optimistic assumption that "the best way to reach communities is through the children who are influenced by schooling" (n. d., p. 2; Appendix E). This emphasis on societal and individual needs reflects a curriculum orientation that "schools are created to serve the interests of society" (Eisner, 1985, p. 74; Eisner & Vallance, 1974). Strengthening links between development and education aims to improve the quality of life.

Pedagogy

Dissatisfaction with the quality of education was not confined to student performance alone, but also to teacher's performance. Citations from Bailey, Brown and Lofgren's (1996) study typify weaknesses observed in teacher performance:

Use of strategies which did not cater to different cognitive levels. Inappropriate use of instructional materials and little effort to integrate content across subject areas Too much repetition and memorization (rote learning) one way communication where teachers talk most times and teachers guiding children through the textbooks instead of allowing exploration (pp. 11, 88, 90).

Bailey and Brown (1997) found that the “rigid discipline based approach to the curriculum as well as the highly didactic pedagogical strategies used to deliver the curriculum” (p. 147) were the main sources of stakeholder discontent and subsequent pressures for change. The rationale for the new curriculum clearly reiterated this point “the most poignant concern was that the delivery of the curriculum made it boring and irrelevant for most children” (1999, p. x). In accounting for poor teaching practices, principals said that their teachers lacked the skills and knowledge to interpret and use the curriculum (1996).

A significant difference existed between stakeholder’s dissatisfaction and teachers’ perception of the old curriculum. On the whole, teachers considered the curriculum to be relevant and suitable (Bailey, Brown, & Lofgren 1996, p. 7) with the exception of music and religious education. Very few school personnel recommended changes to the curriculum guides, although several respondents, teachers and principals alike, opted for integration as an approach to curriculum organisation if a new curriculum was recommended. In summary, three problems gave rise to the recommendation for integration: student achievement in literacy and numeracy, social and personal relevance of the curriculum, and ineffective pedagogy. As stated in the introduction to the curriculum, “the areas of significant changes reflect the feeling that the revision was long overdue” (1999, p. viii; Appendix F).

What is to be Integrated?

The following ten citations introduce teachers to the conception of integration. The citations read:

1. The curriculum uses an integrated approach to learning, which entitles our students to understand the relevance of what they learn and the relationship between different subject matters (1999, p. i).
2. An integrated approach at grades 1-3, which establishes links between subject areas so that learning will be more meaningful for the child (1999, p. ii).
3. The curriculum for grades 1-3 exemplifies the integration of content around major themes adding greater meaning to learning and is supported by effective methodologies, learning experiences and assessment (1999, p. iv).
4. Help pupils develop positive attitudes and values and the coping skills necessary for survival in an increasingly complex world In addition it [integrated curriculum] teaches pupils how to learn, a skill which will not only allow them to have a greater sense of responsibility for their own progress, but will also allow for the adaptability required in a world where learning will be continuous The curriculum is child centred and child focused (1999, p. v).
5. Base the curriculum on the needs of the child and the society, not on the requirements of a particular subject (1999, p. x).
6. Provide opportunities for the development of all the intelligences (1999, p. x).
7. The revised curriculum is designed to be delivered in such a way that children will be able to make connections between what they learn in all subjects and between school and the world outside (1999, p. x).
8. Language Arts ... will be taught as part of the integrated content ... children [will] talk and listen to others ... and join in discussions on integrated topics (1999, p. xii)
9. Mathematics is delivered in the integrated studies (1999, p. xiv).

10. Grades 1-3 are fully integrated (1999, p. viii).

For those teachers who know little or nothing about integration, these statements are not very precise in delineating the meaning of integration. In fact, these multiple descriptions suggest that integration may assume many forms and meanings. This language needs further specification if it is to provide direction for teachers in their planning and implementation activities.

In accordance with the conceptual framework expounded by Case (1991), one can say that three forms of integration are implied in the curriculum. First, integration of content “connecting the understandings promoted within and among different subject areas or disciplines” (p. 216) – is evident in citations one to three, and seven to nine. Second, integration of skills/processes, which “refers to so-called generic skills and processes” (p. 216), is implied in citations four and six. Third, the integration of school and self – “integration of what students study in school (both content and processes) with students’ concerns, desires, queries, aspirations, etc.” (p. 217) – can be inferred from citations four, five and seven. The term “fully integrated” (citation ten) is too general to classify. On the other hand, holistic integration, “the integration of all school related experiences” (p. 217), is not evident in these citations or elsewhere in the curriculum. In the following discussion each of the three forms of integration is examined separately.

Integration of Content

Of the three forms, integration of content is by far the most common, and illustrates a concern for studying issues or topics of real life experience from different subject area perspectives. This is illustrated in the following discussion.

Thematic Organisation

The integration of content is done around a thematic organisation (see Figure 4). An overarching theme (“All About Me and My Environment”) separates into seven sub-themes across the grades (Myself, My Home, My School, My Family, My Physical Environment, My Community, My Community, The Nation and The Wider World). These sub-themes subdivide further into twenty units each guided by inquiry or focus questions, attainment targets, objectives, key vocabulary/concepts, procedures/activities, skills, and assessment and evaluation suggestions (Appendix H).

Woven throughout the sub-themes are four big concepts – the environment, technology, culture, and life processes. Technology, for example, is viewed as a tool to access information: “information and communication technology (ICT) impact clearly on the delivery of learning activities” (n. d., p. 5). Content themes related to the environment, culture, and life processes prominently occur within the sub-themes in all grades.

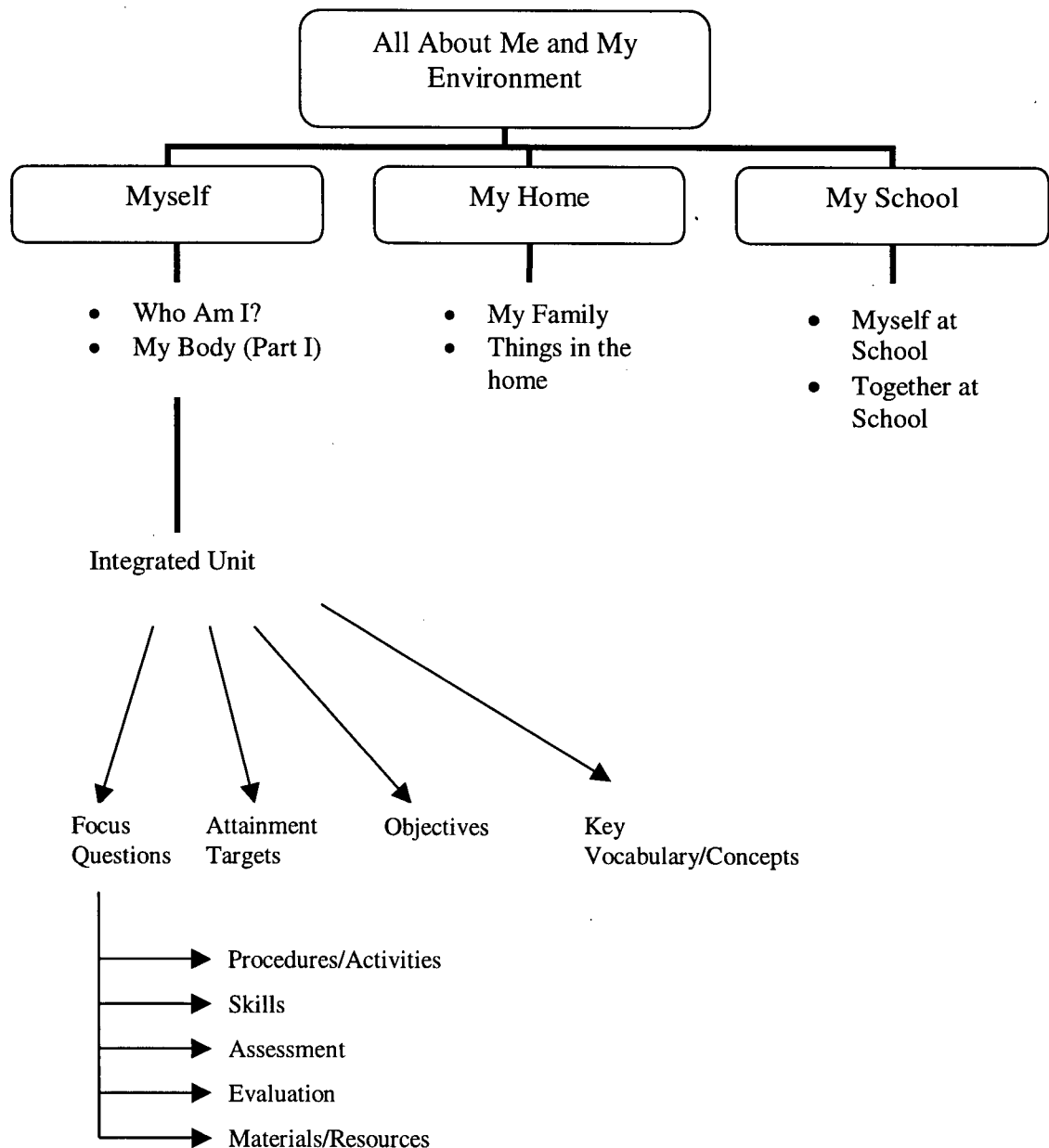
Environmental content promotes concern/care for the physical environment and care of self and others (e.g., healthy living, safety, and accident prevention); some focus questions include “How do I care for the things in my home and use them safely?” (grade one), “What do I do to be safe (at home, at school, on the road)?” and “How do I care for/protect the plants and animals in my community?” (grade two), “Why and how should I care for different parts of my body?” (grade three). Cultural aspects of the Jamaican society are given prominence in the grade three unit “Aspects of the Jamaican culture”; focus questions like “How did the Jamaican culture emerge?” and “How does it continue to evolve?” draw connections among content areas such as art forms, customs, folk

tales/songs, ethnic groups, and nation builders. In grade two, the focus question “What are the places in our community that we find interesting?” draws on content obtained from field trips and interviews of resource persons. Life processes deal with issues such as character development, individual and social responsibility, human and societal needs, career awareness, group relationships (e.g., family relatives, classmates, school staff, community members), and interdependencies between Jamaica and other countries. The scope of life processes requires an interweaving of content from different areas.

Content

Within each of the twenty integrated units (Appendix G) that comprise the primary curriculum, linkages of content drawn from different content areas are established using themes. The seven content areas include language arts, mathematics, science, social studies, religious education, technology, and aesthetics (drama/theatre, visual arts, music, movement education, and dance); which subjects are given prominence depends on the focus question of the unit (1999). The suggested procedures and activities illustrate how content is to be integrated around themes. Another distinguishing feature of the organisation of the content is the inclusion of language arts and mathematics in all units and in separate “windows” (Figure 3) to pursue the goals of numeracy and literacy.

Figure 4: Grade One – Format for Integrated Unit



Source: Revised Primary Curriculum, (Grades 1-3) Jamaica, Ministry of Education and Culture, 1999.

Within each integrated unit, content from different subject areas is integrated under one or more focus questions. To demonstrate, the grade one unit “My Body (Part 1)” is guided by the focus question, “What do I look like and what can I do?” Teaching content is drawn from aesthetics, language arts, mathematics, and biological science, as illustrated by the teaching procedures/activities: (a) “make a drawing/model of the outline of the body” (p. 20), (b) “explore the use of the limbs to do movements at different levels” (p. 21), (c) “use the body to do various movements in space with or without apparatus [C]reate simple rhythmic patterns such as clapping two beats and hopping once, as they move to music with a change in tempo at intervals and use parts of the body as percussion sound makers, maintaining steady beats for songs, jingles and rhymes” (pp. 20-22). These activities particularly emphasise visual arts, music, and movement education. To a lesser extent, the same question also draws on biology to help students “observe, discuss, and display pictures/models of external parts of the body” (p. 20), and mathematics is introduced through counting external parts of the body and using this information to construct pictographs, and by using various parts of the body as non-standard measures to compare measurements. Clearly though, language arts is the communication tool for making meaningful connections between these subjects; for example, in completing these activities, students are encouraged to express themselves in sentences using singular and plural forms, to read orally, and to order words alphabetically.

In the same “My Body” unit, the focus question “How do I take care of my body?” draws on health science content as the main focus for the procedures/activities. For example, “demonstrate, and using models, ways in which they care for their bodies,” and “observe medicine containers/pictures/videos and discuss the dangers of taking incorrect

dosage of medicine and poisonous substances ..." (1999, p. 26). The aesthetics are incorporated as a means for having students demonstrate understanding: "recite/compose poems/jingles about caring for parts of the body discuss messages conveyed" (p. 26). This use of the aesthetics does not detract from the health science goals of safety and prevention.

One of the features of the curriculum is the role of the language arts and aesthetics as media for communicating and learning integrated content. It is emphasised that the "aesthetics play an important role in the curriculum delivery process" and that "language arts is delivered in [a] more holistic manner" (n. d., p. 5). Although the focus question draws upon particular subject areas, these are relayed through language arts and the arts. In the grade three unit "Satisfying other needs," the focus question "What is the difference between basic needs and other needs?" is an example of how the language arts are used instrumentally; objectives include: (a) "distinguish between basic and other needs," (b) "discuss some of the ways in which moral values help shape society," and (c) "describe the importance of acceptance to the individual" (1999, p. 206). The procedures/activities make connections between social studies and religious education content, but convey this information for the most part through language arts activities.

For example:

Listen to pre-recorded story or read articles which illustrate the relationship between basic and other needs, and respond to questions posed. Discuss story/activities and list other needs mentioned. Talk freely about other needs, defining new words as they emerge in the discussion. Write a paragraph expressing their feelings/needs. Pick out and discuss adjectives and adverbs used (1999, pp. 207-208).

Procedures/activities centred on the focus question “How do we satisfy other needs?” in the same unit demonstrate the instrumental role of the aesthetics: (a) “dramatise scenes showing how needs may be satisfied,” (b) “listen to/read sacred and other stories that relate to needs.... Illustrate parts of the story with a collage,” (c) “produce simple songs from rhymes/jingles to depict other needs,” (d) “sing Caribbean folk songs, etc Discuss and state some needs that are met by these songs, festivities and movements,” and (e) “develop creative pieces—sing, dance, picture, poem, painting story, etc. which expresses personal thoughts/feelings about identified needs, e.g. need for love, friendship, safety” (1999, pp. 209-212). The aesthetics are used here as the medium of communication and to demonstrate understanding. The summary document (n. d.) states that the aesthetics “are considered to be the ‘heart’ of the curriculum and especially as the vehicle for motivating positive learner behaviour” (p. 6). Notwithstanding this attempt to “fit” the aesthetics (drama, music, movement, visual arts) in the regular curriculum, this statement shifts the focus of aesthetics (for its own sake) to providing a service for other subjects; this may result in aesthetics losing some of their integrity. Moreover, too much is expected from aesthetics as the medium for student motivation. This dual purpose for aesthetics poses a challenge for teacher preparation (Tucker & Bowen, 2001).

Integration of Skills/Processes

Consistent with the thrust on functional student competence articulated in the vision statement, rationale and introduction of the curriculum, a variety of skills/processes have been integrated to teach students “how to learn.” Noted among these skills are those related to: (a) interpreting information, (b) acquiring and organising information, (c) communicating information, and (d) evaluating and applying information. Lesser

emphasis is also given to social participation and valuing skills. There is also an emphasis on language arts “skills” such as listening, speaking, reading, writing, and grammar as indispensable tools for communication and for helping students use the mechanics of Standard English in the classroom. The integration of skills fulfils a twofold objective: (a) as a vehicle to engage students with the subject matter so as to gain self-understanding, and (b) helping students to reinforce or connect previous understanding with current knowledge.

Additionally, the orientation of the curriculum on developmental learning underscores how and when the skills are introduced, developed and extended within and between grades. There is a shift in the type of skills emphasised as students advance from grades one to three. At the introductory level, the skills emphasise both teacher dependent and independent exploration, mainly through acquiring, organising and communicating information; examples include: (a) making comparisons and recalling information, (b) associating letter sounds with symbols, and numbers with numerals and words, (c) differentiating, discriminating, categorising and organising ideas, (d) writing, (e) composing sentences, and (f) summarising messages. Skills are acquired and demonstrated through instructional procedures/activities such as drawing, role-play, demonstration, making collages, active observation of the environment, and creating and performing. By grades two and three, importance is placed on values such as respect for self, others, and authority, and social participation skills which result in co-operation and tolerance of others.

There is also a shift in the extent to which skills are integrated from grades one to two. More skills are integrated in grade two. Also, grade two students move beyond

knowledge acquisition to more interpretation and application of knowledge within group work. In particular, priority is increasingly given to tasks such as “drawing conclusions,” “reporting on findings,” “making comparisons,” “explaining observations,” “reading for information,” and “collecting, organising, analysing and displaying data.” Positive attitudes toward self, others and the environment, are accentuated, as are social group skills stressing co-operation and teamwork. Learning activities in which students are involved include brainstorming, discussions, field trips, role-playing, interpreting different data sources, composing and creating, journal writing, and dramatisation.

Compared to the shift from grades one to two, there is little shift in the integration of skills from grades two to three. The interpretation and application of information continues, but it is expanded to include a greater variety of sources, and more emphasis is given to the synthesis and evaluation of information. In brief, students are asked to do more independent research individually and collectively and communicate this information; illustrative are skills related to “making valid inferences,” “observing for details,” “inferring from observation,” “research data,” “identifying relevant facts,” “describing observations,” “listening, analysing and drawing conclusions,” “discussing to form conclusions,” “deducing, classifying and sorting,” “conveying information,” and “sequencing ideas.” Social participation skills are featured significantly in grade three; as student become involved in group tasks they assume responsibilities that commit themselves to completing tasks and co-operating with others to achieve worthwhile goals, respecting the opinion of others, and seeing themselves as potential problem solvers in the community.

By grade three, students are asked to use multiple skills to complete multiple tasks within an instructional activity. A case in point are the procedures/activities based on the second focus question “What is the difference between basic needs and other needs?” in the unit “Satisfying our needs.” Examples of these procedures/activities include:

Listen to pre-recorded story, or read articles which illustrate the relationship between basic and other needs, and respond to questions posed; discuss story/articles and list the other needs mentioned; dramatise the main points of the story (p. 206).

In completing this activity, students learn to obtain and analyse information, draw conclusions, and sequence information using content from language arts and social studies.

Skills related to language arts and mathematics are used as vehicles to demonstrate understandings of other content areas such as science, social studies, and the aesthetics. It is explicitly stated that “Literacy /Numeracy [are] highlighted as important skills for learners to develop” (n. d., p. 7). This discourages the former practice of confining these skills only to mathematics and language arts. Skills such as observing lines and textures, classifying shapes, estimating and measuring distance, recording findings, representing data, measuring and comparing, and tabulating measurements are some example of mathematical process. This practice confirms Erickson’s (2001) arguments that “mathematics and language process skills apply across all curricular areas” (p. 138).

Integration of School and Self

The integration of school and self is strongly supported through the child-centred learning stipulated in the introduction, rationale and vision statement. Specifically, the rationale emphasises that “children will be able to make connections between what they

learn in subjects, and between school and the world outside. Education at this level should be a process through which children construct meaning for themselves, begin to understand the world and make wise choices" (1999, p. x). The intention is that this integration enables students to see themselves and others through "expanded lens." Also, it is visualised that school will become more meaningful to students if it is centred on their concerns, interests and needs. Unit titles with the inclusion of the word "my" emphasise a personal dimension and encourage integration of school and self in two ways: (a) personal relevance and (b) social responsibility.

Personal Relevance

Personal relevance in the curriculum is linked with the child's (1) ability to apply knowledge and skills, (2) interests, (3) future goals tied to character development and vocational competence, and (4) self awareness/identity. An example of the first is the suggestion that students be asked to "respond critically and aesthetically to literature and other stimuli" (1999); the instructional purpose is to promote self-confidence and motivation in expressing and defending their points of view, and to take greater responsibility for learning. Secondly, personal relevance is enhanced as learning is linked with the child's artistic, emotional, intellectual, and physical interests and capabilities. This is illustrated in attainment targets (i.e., general goals) such as "explore and know about the dynamic interaction of the physical, social and mental aspects of their lives" (1999), and through procedures/activities that engage self-expression through the aesthetics and other media of communication.

Thirdly, decision making, accepting responsibility for one's actions, and problem solving are considered beneficial for character building; these lifelong values, when

combined with other skills and vocational competencies, have future relevance to the work place. Finally, there are attempts to explore self-awareness or self-identity in the curriculum. The first sub-theme (Myself) encompasses six units across all grades on issues of identity; the inaugural unit entitled “Who am I” suggests a “weaving” of school and self to ensure the curriculum’s importance to children. Relevance is illustrated in activities/procedures related to the questions “How do you know me?” and “To which group do I belong?”(Grade 1): they identify themselves by names, talk about changes in themselves over time, and talk about their likes and dislikes. Other topics such as “How do I keep my body healthy?” and “What do I do to be safe (at home, at school, on the road)?” promote positive practices associated with hygiene, nutrition, fitness, and the need to be safety conscious.

Social Responsibility

The concept of relationships is an important aspect of social responsibility in three areas: family, school and community. This is in keeping with the expanding horizon principle for organising learning and assumes that in an interdependent world students need to realise how their actions influence others. The chief characteristics of interpersonal relations are respect in dealing with others and forming habits of co-operative behaviour. Examples of focus questions include “How do family members care for each other?” and “How does my family satisfy basic needs?” (grade two).

That each student takes responsibility to contribute to a healthy environment is an explicit intention of this curriculum. In grade one, students examine and engage in care for the school environment, followed by care for plants and animals in the community (grade two), and by grade three address environmental concerns such as “Why and how

should I care for the environment?" and "How can I persuade others to care for the environment?" Procedures/activities include: (a) "observe pictures, and read stories about the results of not caring for the environment. Discuss, then write a list of ways /results of not caring for the environment e.g. landslides..." (1999, p. 286); (b) "role-play some problems that may result from lack of care of the environment" (1999, p. 286); and (c) "write letters to the newspaper editors or friends encouraging other to care for the environment" (1999, p. 288). Different subject contents and skills are integrated to raise environmental consciousness.

How and When is Integration to be Enacted?

The curriculum lacks specificity on how and when integration is to be enacted. Integration is supposed to occur within the following organisational framework: (1) theme based, (2) expanding horizons, and (3) spiral curriculum. This organization is clear but teachers need explicit help. They are expected to be able to implement after being told that there is to be "the integration of content around themes" (1999, p. iv) and that "grades 1-3 are fully integrated using the overarching theme of "Me and My Environment" (1999, p. viii). Bailey and Brown (1997) refer to the "integrated transdisciplinary, thematic organisation" (p. 152) of the curriculum as a "thematic approach which allows for horizontal organisation of the subject matter and establishing relationships across subject boundaries" (p. 148). Inspiration for this approach came from the broader international literature. First, "the design was informed by steps recommended by Jacobs (1989) in her interdisciplinary concept model [and this] ... was conceptualised in more comprehensive and detailed stages for the reengineering of the curriculum" (Bailey & Brown, 1997, p. 152). Second, "at the lower cycle it was decided

to use what Fogarty (1993) describes as the webbed approach to integration where appropriate concepts, topics, and ideas drawn from the whole constellation of disciplines are webbed around a fertile theme” (Bailey & Brown, 1997, p. 154). However, lack of clarity concerning when and how integration is to be enacted is a major oversight on the part of the curriculum developers, and leaves the document open to a broad range of interpretations.

The general framework of the integrated curriculum revolves around the overarching theme “All about me and my environment” (1999, p. xv). From this basic theme, seven sub-themes are formulated with twenty learning units and focus questions (Appendix G). Examples of sub-themes and their learning units are as follows:

Grade1: Myself: Who Am I? and My Body (Part1)

Grade 2: My Family: Living Together as a Family

Grade 3: My Physical Environment: Caring for My Environment

Within each sub-theme are the focus questions, which are the nucleus for “blending” the different forms of integration together. The summary document states that focus questions are “guides to [the] selection for the content of the unit [and] should generate learning activities spread over a wide range of disciplines and taxonomies” (n. d., p. 7).

The curriculum is also organised across subject boundaries along the expanding horizon principle where children focus on themselves first and then outwards to the wider world as they advance to grade three. Emphasis is placed on prominent societal issues, literacy and numeracy, the role of the aesthetics in personal development, and the fostering of positive values and attitudes. At the grade three level in particular, the unit focus moves outwards to “My community, the nation and the wider world,” but resumes

in term three to look at the community. At the same time, in grades one and two the focus is on the immediate environment –“My school” and “My community”.

Bailey and Brown (1997) refer to the “spiral nature of the curriculum” and the “horizontal organisation of the subject matter” (p. 158) which Case (1991) calls “vertical integration” and “horizontal integration.” Hence integration operates at two levels in the curriculum: horizontal (at any time among subjects within the grade), and vertical (from one grade to the next). Vertical integration is reflected in the scope and sequence where connections are established between topics across the grades. For example, the sub-theme “Myself” is taught concurrently through grades 1-3 (Appendix E), and the unit “My body” reappears in greater depth through grades 1-3.

What is the Rationale/Aim for Curriculum Integration?

The assumed benefit of integration is pupils’ effective learning. It is suggested that individuals learn best when ideas are connected to each other rather than compartmentalised. Curriculum integration is seen as helping children to make connections between subject areas, and between school and the outside world in order to “empower the child to face the challenges of a new millennium” (1999, p. x). To ensure that children experience learning in a more holistic and less fragmented manner, the organising units portray knowledge as a “seamless web” in which separate subjects lose their identity. Specific reasons to justify curriculum integration include child-centred learning, and socially relevant learning.

Child-centred Learning

Considerable emphasis is placed on the pedagogical efficiency of the integrated curriculum. Compared to the old curriculum, Bailey and Brown (1997) believe that “the

integration of subject matter ... would facilitate the rationalisation of the volume of subject matter,” and address “the highly discipline based approach to the curriculum as well as the highly didactic pedagogical strategies used to deliver the curriculum” (pp. 147, 148). Similarly, the rationale for the integrated curriculum affirms that “the most poignant concern [with the former curriculum was that] the delivery of the curriculum made it boring and irrelevant for most children” (1999, p. x). To modify teacher-centred or teacher-dominated approaches, the rationale proposes to “let the focus be on learning rather than on teaching” (1999, p. x). Such statements from the curriculum authors (1999) suggest that a “student-centred” or “child-focused” approach to learning is an essential feature of the integrated curriculum. This is also implied in the pilot report (2001) in statements that the curriculum is “child centred,” is “meeting students needs,” and is “relevant to students experiences.”

Why is this type of learning important? Because it is sensitive to enhancing learner competence and efficacy in different ways. Firstly, it aids the development of self-concept and responsibility. The vision statement (Appendix B) explicitly mentions that the child should develop “a positive self-concept ... a willingness to take responsibility for his/her own learning” (1999, p. vii). Secondly, it caters to students’ abilities. The rationale specifies that the curriculum will “give children opportunity to work together and to discuss their work ... recognise that there are many ways of being intelligent, and provide opportunities for the development of all the intelligences” (1999, p. x). Similarly, the Minister of State (1999) suggests, “this revised curriculum should enable all students to acquire a wide range of skills and a responsible attitude to learning” (p. ii).

Thirdly, it facilitates the diversity of abilities and learning styles. According to the Acting Chief Education Officer (ACEO) “the curriculum is designed on the premise that every child can learn, and as such provide opportunities for the identification and development of all their intelligences The curriculum is ... also flexible to adapt it to satisfy the varying abilities and learning styles of their pupils as well as the demands of their local environment” (1999, p. v). The summary document concluded that “activities [are] pupil centred ... appropriate to grade level and ability levels within grades Skills [are] appropriate to the grade levels” (n. d., p. 7). Fourthly, meaningful learning (constructivism) is encouraged. There is a claim that “education at this level should be a process through which children construct meaning for themselves” (1999, p. x). Finally, it affords the application of learning to experience. The Minister of Education and Culture asserts that the curriculum “takes a student centred approach to learning which gives focus to the competency of the students in applying knowledge” (1999, p. i). In agreement with this claim, the ACEO clearly stated the goal that “the primary education must lay the foundation for life long learning” (1999, p. v), and the summary document later affirmed that “the curriculum [is] written to better reflect the “real world” situation of the pupils in terms of giving models /appropriate guidance for positive learner behaviours” (n. d., p. 6).

These reasons affirm that “the curriculum should enable all students to acquire a wide range of skills and a responsible attitude to learning” (1999, p. ii). To facilitate a child-centred and child-focused approach to learning, teachers as facilitators are expected to provide a supportive environment through “adapt [ing] new methodologies in the learning experiences of our children” (1999, p. ii) in keeping with “accepted learning

theories” (1999, p. iv). Consequently, curricular units do not focus on particular subjects, but integrate content and skills around topics. However, because of concerns regarding teacher competence (Bailey & Brown, 1997; Bailey, Brown, & Lofgren, 1996), one would have expected more guidance on appropriate teaching methodologies and learning theories for delivering the curriculum.

Socially Relevant Learning

The integrated curriculum is viewed as a means to develop the child’s awareness of the socio-cultural environment, so that what is learnt in school is perceived as relevant and connected to the student’s outside world. One of the stated intentions in the vision statement is for the child to “be culturally, aesthetically and spiritually aware, and be guided by a commitment to social and moral principles” (1999, p. vii). To support this vision, the rationale for the curriculum insists that teachers should “base the curriculum on the needs of the child and the society” (1999, p. x). It further suggests that “children need to be educated about many important social, cultural and health issues ... the curriculum should cater to these needs” (1999, p. x).

In their reflection, Bailey and Brown also refer to arguments by stakeholders for “the inclusion of relevant personal and social issues” (1997, p. 148) in the curriculum. This entails the teaching of values and attitudes to achieve several aims (1999, pp. 316-317). For example, there is the desire “to produce persons ...who will make valuable contribution to the development of Jamaican society” (1999, p. 317), and to this end the Acting Chief Education Officer states “the curriculum is designed to help children establish their own identity as citizens” (1999, p. vi). This outcome of an informed and

productive citizen, it is assumed, “can only be treated from an interdisciplinary perspective” (Bailey & Brown, 1997, p. 148).

The Acting Chief Education Officer visualises competent citizens possessing the knowledge, skills, and attitudes necessary to embrace broader social changes (1999). The curriculum developers responded with socio-cultural environment units that focus on “I in-context” (1999) such as “My family” and “Myself at school” (grade 1); “This is my community” and “Living together as a family” (grade 2); “Aspects of the Jamaican culture” and “Caring for my environment” (grade 3). By shifting the focus outwards, by grade three the topics are designed to expand students’ understanding of local and international issues in relation to Jamaican society.

Focus questions are structured around personal needs (self-identity, care and safety of self, and satisfying needs), societal needs (goods and services, relationships), and social and environmental issues (cultural transmission, health practices, and care of the environment). With regards to skill development, social participatory skills, problem solving skills, and research skills are used in inquiry investigations to enhance students’ co-operating with others, explaining cause and effect relationships, and drawing conclusions about issues (1999). This utilises project group work involvement in community activities, and researching and interpreting information through different learning resources such as the arts, three-dimensional models, journal entries, and texts. The supposition is that students will learn how to research and question issues affecting their daily lives and act as responsible members of society.

What Issues are Raised Concerning Curriculum Integration?

In this section, three issues and problems explicitly identified by the curriculum concerning integration are discussed: (a) values and attitudes in the integrated curriculum, (b) mathematics and language arts in the curriculum, and (c) student assessment. Other pertinent issues raised in the summary document (n. d.), but not stated in the curriculum, relate to teachers' planning and their conceptualising the curriculum (Appendix I).

There is a concern by the curriculum developers that citizenship goals may become lost in the integrated curriculum. Given the nature of the unit topics and the emphasis on personal relevance and social responsibility, these citizenship goals are necessary. Consequently, the section entitled "Values and Attitudes in the Integrated Curriculum" outlines a list of directives teachers need to be aware of regarding the inclusion of values and attitudes in the curriculum. It states, "Teachers of the grade 1-3 curriculum need to be aware of the following":

- (1) The values and attitudes, which are important for good relationships, care of self, as well as for physical, emotional and spiritual development are included in the curriculum through the input of religious education and other subject areas.
- (2) Religious education does not involve Christianity only.
- (3) Pupils are not expected to study the major religions in standard form at this level, but will discuss their experiences as they learn about themselves, the home, the school, and the wider community.
- (4) Most of the activities, which should help pupils to develop positive values and attitudes, include stories, research, discussion, reading, writing and any of the aesthetics (Ministry of Education and Culture, 1999, pp. 316-317).

In sum, “positive moral attitudes, values ... may be taught through or integrated into any subject area or art form” (1999, p. 317). This is noticeable in the examination of the integrated units. Teachers are also cautioned that “the objectives, attitudes and values are by no means exhaustive. Teachers may therefore supplement them within the confines of any unit, content, theme and Focus Questions being examined” (1999, p. 317).

Another concern of the curriculum developers is that the educational goals of numeracy and literacy may not be emphasized as intended. To ensure that teachers emphasise these goals across all units advantageously, there are “comprehensive lists of targets and objectives in mathematics for grade 1-3 ... a guide for the teacher to know what is to be covered for a particular year group” (1999, p. xiv; pp. 298-315). Similarly, the curriculum demarcates specific targets and objectives for language arts by grades because the integrated curriculum is uniquely “meant to foster literacy development” (1999, p. xii; pp. 298-304). For mathematics, a comparison between the previous and current curriculum highlights changes; for example, “Algebra is now introduced in grade one as number sentences and geometry involves exploring shapes and patterns, with pupils creating models and making generalisations” (1999, p. xiv). Concerning the delivery of mathematics teachers are challenged that “the mathematics lesson cannot be just for obtaining facts and practising calculations [instead] pupils should ... enjoy mathematics as they use their experiences and are exposed to new concepts” (1999, p. xiv). Because the integrated curriculum cannot on its own rectify the issues of literacy and numeracy the timetable includes special “windows” each day for language arts and mathematics (Figure 3). The APEID Report (1982) noted similar practices in countries implementing an integrative curriculum.

Two concerns are reflected in the “Notes on Assessment” (1999, pp. 290-291) in the curriculum. First, there is the need for teachers to carefully monitor students, and second, the need for teachers to recognise that mastery of skills/processes is dependent on the relevance of the activities provided to students. Hence, the curriculum states, “assessment should not be an afterthought. It is an integral part of the delivery of instruction Evidence of learning should be collected in an on-going continuous process using a variety of techniques [T]he characteristic of the grades 1-3 child should be considered when designing the activities, tools or products that will provide the evidence you need” (1999, p. 290). The summary document (n. d.) quite clearly emphasises “assessment as product, performance or both” (p. 6). Such statements are indicative of the increased responsibility given to teachers in a student-centred environment; the teacher is integral to helping students fulfil their potential.

The importance of “common planning time [individually or in groups] as an important element of curriculum delivery” (n. d., p. 6) is recognised although only in the summary document. Teachers are expected to “interpret and adjust ... the curriculum for each grade to particular local conditions; [and] participate in meetings with colleagues to share experiences in the implementation of the new curriculum and to learn from them” (n. d., pp. 11-12). These directives are too general given teachers' limited experiences with such planning, and their full workloads. Capacity building is necessary if teachers are to provide child-centred experiences.

Lastly, concern is raised by the curriculum developers about teachers' abilities to adequately interpret the curriculum. The summary document (n. d.) specifies that to implement the curriculum “teachers should be able to: (1) comprehend and explain the

foundation of the new curriculum and its relationship to teaching practices; (2) explain the structure of the new curriculum and the purpose and meaning of each one of its dimensions and of their elements; (3) articulate the activities interpreted as windows to the integrated ones” (p. 11; Appendix I). These teacher expectations are reasonably requisite to curriculum integration. However, assistance to achieve these expectations is sparse within the curriculum. Goals have been articulated, but less clear are the conceptual and practical meanings of integration. This may pose some difficulty for teacher planning. The literature shows integration to be complex, and the Jamaican curriculum assumes that teacher competence is essential to implementation. More guidance is required.

The next two chapters provide some suggestions about the form that such guidance could take, particularly through the means of teacher pre-service and in-service training.

CHAPTER FOUR

Discussion of Findings

In this chapter, the success of the curriculum is evaluated in terms of the clarification and promotion of integration it provides. The data presentation (Chapter Three) reveals a commitment by the Ministry of Education to integration, as the means for achieving three goals: numeracy and literacy, relevance, and effective pedagogy. The following discussion briefly summarizes how the curriculum attempts to promote these goals, judges the clarity and adequacy of these attempts, and suggests some implications for teacher education (i.e., preservice and in-service) in order to strengthen the implementation of these three goals.

Numeracy and Literacy

The curriculum is based on the premise that “schools must guarantee that all students having attended classes are literate and numerate when they leave primary schools” (Bailey, Brown & Lofgren, 1996, p. 103). Assessment data on students’ low achievement levels (1996) gave urgency to these priorities. Promotion of these goals occurs in three ways within the curriculum: (1) specifying teaching objectives, (2) allocating “windows” (separate slots) in the timetable dedicated to numeracy and literacy, and (3) infusing opportunities for numeracy and literacy across the curriculum (Figure 4; Appendix D).

Of the curriculum’s twenty-one attainment targets, nine relate directly to numeracy and nine to literacy. These objectives “specify the orientation of the work in the school and the qualitative development desired in the school” (1999, p. 100) by clearly highlighting language arts and mathematics. The curriculum assumes that

teachers understand its numeracy and literacy agenda, and are committed to the eighteen attainment targets.

The “windows” approach requires teachers to create a separate period daily for each of language arts and mathematics in the timetable (Appendix D). This explicitly focuses teachers on the numeracy and literacy goals. Precedence for the windows approach can be found in other countries, and represents a concern:

About the adequacy of a total integrated approach to the development of basic skills relating to language and maths. It is commonly believed that the acquisition of such basic skills requires certain amount of systematic and structural instruction in separate subject areas. Consequently, most countries have adopted only partial curriculum integration (APEID, 1982, p. 11).

In other words, numeracy and literacy are too important to be left to the teacher’s discretion in terms of teaching. Everyday the “windows” are to be opened. However, this does raise questions concerning effective teaching and has implications for professional development. In the previous curriculum large proportions of time were allocated to mathematics and English, yet despite this, the performance standard remained unsatisfactory (Bailey, Brown & Lofgren, 1996).

Notwithstanding the reform intentions, Jamaican teachers have voiced confusion about the practical meanings of the windows (Ministry of Education And Culture, Core Curriculum Unit, 2001). The curriculum does not specify a time allocation for the windows, thereby assuming teachers will make such decisions based upon the stated objectives, perceived student needs, and local classroom factors. The “openness” of the windows reminds teachers of the curriculum priorities while maintaining scope for

flexibility in practice. The authors presume teachers' competency in planning makes them accountable for using the windows productively. However, leaving the time schedule to teachers' discretion could result in some students receiving less rather than more help in developing literacy and numeracy for two reasons. First, teachers preoccupied with curriculum coverage and national student examinations may see these windows as intrusions. Second, while experienced teachers may be able to handle a flexible time frame, this flexibility may pose more difficulty for new teachers accustomed to operating within a fixed time frame during their pre-service training. These individuals may need assistance in their selection of materials, subsequent lesson planning, time management, and effective instruction.

What competencies do teachers need to deliver the windows in a way that results in in-depth learning? The curriculum gives little attention to this question. For instance, specific content related to the objectives, and instructional methods related to content delivery and student assessment, are largely lacking. The teacher is perceived as the source of subject matter knowledge and is expected to use the attainment targets as a guide to freely choose content that best fits the classroom situation. Clearly the developers recognise and respect teacher autonomy. Given the importance of the goals to be achieved, however, this crucial aspect of implementation should not be left to chance. It cannot be assumed that teachers are equally competent to select appropriate instructional content and methods. Nissen (n. d.) and Evans's (2000) research on pre-service teachers' use of the previous primary school curriculum concluded that "content knowledge [what is learnt in college] may not provide the knowledge needed to teach the subject matter in the primary school curriculum. Conversely the content of the primary

curriculum subject may not be included in the subject matter content” (p. 13; Jennings, 2000). There must be congruence between the two, because, according to Palonsky (1993), “advocates of teacher professionalization assume that good teachers possess a special knowledge base as well as a means of representing and communicating it” (p. 7). The curriculum authors have made a similar assumption about teachers. However, both trained and untrained teachers instruct in Jamaican primary classrooms (Bailey, Brown, & Lofgren, 1996). For this reason, many primary teachers may benefit from further knowledge of effective pedagogy for numeracy and literacy.

Teachers require two kinds of knowledge to deliver the windows: (1) knowledge of the curriculum and its pedagogical implications, and (2) knowledge of the discipline content to be taught. Schulman (1987) claims these knowledges underlie teacher competence, and research evidence to date links teacher pedagogical and subject matter knowledge with student achievement. At the Jamaican primary level, Bailey, Brown and Lofgren (1996) allude to the consequence of not having these two windows taught by competent teachers who know the subject matter and how to teach it. As Evans (2000) also contends, in the Jamaican context teachers have to realise that “subject matter learned for teaching purposes is more than subject matter taught at the G.C.E. or CXC level [achievement exams at form five in the secondary programme]”(p. 12). Similarly, when examining numeracy in Australian schools, Bobis (2000) found that many teachers failed to realise that numeracy involves aspects of mathematics but “mathematics does not equate numeracy” (p.30). Focusing on teacher knowledge underscores its critical importance in effective teaching of numeracy and literacy. In short, teachers with inadequate numeracy and literacy knowledge (content and pedagogy) undermine their

students' potential to be numerate and literate. Hence the quality of instruction provided in teacher education becomes an urgent imperative.

Researchers confirm that the nature of the knowledge provided in teacher education programmes is important in preparing competent teachers of numeracy and literacy. In 1995-96, the Teacher Training Agency (TTA) commissioned two large scale studies to investigate effective teachers of numeracy and literacy at the primary school phase in London. Effective and ineffective teachers comprise the sample group. Teachers' beliefs, pedagogical and content knowledge, practices, and professional development are the focus of the study. In sum, the researchers concur that effective teachers of numeracy and literacy have: (1) a coherent and consistent set of beliefs, understandings, and skills which underpin their teaching, i.e., what it meant to be numerate or literate, presentation and intervention strategies; (2) knowledge and awareness of task setting and task content and how to match these to the students' abilities; (3) understandings of the subject knowledge and the pedagogical purposes behind classroom practices; and (4) organised their classrooms to provide opportunities for students' learning. Other comparable studies in Australia (Bobis & Cusworth, 1994; Crevola & Hill, 1997) and the United States (Presley, Rankin, & Yokoi, 1996) paint a similar picture. The research studies from Australia in particular highlighted the following as effective practices: clinical interviewing for children's understandings, research informed planning of mathematical and literacy instruction, collaboration with peers, and supportive "mathematics specific" and "language specific" professional development.

Teachers also need to understand how to plan the windows in relation to the attainment targets across the grades. As Evans (2000) argues, many teachers need help with assessing and teaching for the needs of their learners; the curriculum asks teachers to consistently monitor and assess students' progress. Knowledge of students' developmental levels and of how they learn mathematics and language helps determine appropriate strategies. The curriculum implies that a structured classroom programme based on knowledge of students' needs underpins planning and is requisite to achieving the goals (APEID, 1982; Bobis, 2000; Crevola & Hill, 1997).

The third approach to enhancing numeracy and literacy infuses opportunities to apply, extend, and reinforce these areas across the integrated studies portion of the curriculum wherever possible. This is similar to the form of integration that Case (1991) calls integration of skills and content: "to acquire competence ... students would likely need opportunities to study and to apply [the skills] in each relevant context" (p. 219; Ackerman & Perkins, 1989; Palmer, 1995). In the grade three unit "Living and Non-Living Things in my Environment," for example, when pursuing the focus question "Why do living things need special habitat?" students are to:

Tally numbers of the different types of animals and record where found (on tree, grass or shrub, etc.). Discuss why animals are found in specific locations and write brief narrative using standard Jamaican English (1-3 paragraphs) on why a particular location was beneficial to the named animals (1999, p. 275).

Collecting, recording, and organizing data from different sources illustrates the reinforcing of the numeracy goal, and narrative writing relates to the literacy goal. Although "counting" and "writing" are part of "doing" science, highlighting them (as this

example illustrates) reminds teachers of the curriculum's emphasis on numeracy and literacy.

Infusing both language arts and mathematics across the curriculum is also similar to the mode of integration that Case (1991) and Badley (1986) refer to as incorporation. Case (1995, 1997) advocates incorporation as an appropriate strategy for thematic units, because "it does not mean that it is necessary to draw upon all subject areas for every topic" (1997, p. 331). Where relevant, skills from language arts and mathematics are incorporated to serve as thought and communication tools (Erickson, 2001; Seely, 1995). Incorporation addresses the themes, as well as numeracy and literacy, concurrently.

Nevertheless, incorporation raises questions about whether some subject matters are used primarily as a means for numeracy and literacy. Too much emphasis on numeracy and literacy can overshadow important aspects of other subject areas and even result in content distortion. Two examples will suffice. In the grade three unit "My Body", with the focus question "Why are my teeth, stomach and lungs important parts of my body?", one of the activities asks students to discuss and create word frames using prefixes (e.g., inhale /exhale, pre-molars), and to:

Compile a word bank or class dictionary of new words, and translate statements from Creole relating to teeth, stomach and lungs to Standard Jamaican English.

Afterwards, students compile a list of words beginning and ending in "th," participate in a spelling activity using words with "th" (e.g., this/that,

Thomas/Thompson), and create a jingle with the "th" sound (1999, p. 193).

Although pronouncing words correctly and creating jingles are important, these activities may detract from the health lesson. The second focus question in the same unit, "Why

and how should I care for different parts of my body?”, asks students to “record measurement of height and weight, length of stride, distance of jump etc. and place in a portfolio”; next, they “monitor measurements over the term/year and report differences between initial and final values in graphic form, e.g., bar graph, pictograph, pie chart, etc. and make a journal entry” (1999, p. 193). However, the inclusion of this activity does not relate closely to the content taught in the lesson. This weakness constitutes a major criticism of the curriculum’s emphasis on integration of numeracy and literacy across all subject area. Studies have elaborated on this weakness elsewhere. Allerman and Brophy (1993) noted such lack of coherence when they wrote that “developers often insert unnecessary counting and sequencing activities into ... materials as a way to incorporate mathematical skills” (p. 289). The APEID Report (1982) also reminds educators to base integration on “common threads that hold ... subjects in complementary relationships” (p. 19); these threads should be “educationally meaningful” (Case, 1992, p. 385). What is germane to those implementing the curriculum is the need to critically assess the activities recommended in the curriculum to see if the “networking” is denigrating a subject area. Teachers have to be cognisant of the contribution that each area brings to the integrated learning experience. Incorporation of language arts and mathematics should not supersede, but rather be compatible with the other subject matter; and lead to significant learning (Brophy & Allerman, 1991; Case, 1995, 1997). The previous examples suggest this is not always observed in the curriculum, and may result in fragmented or disconnected learning.

Although the authors gave attention to some implementation issues (1999; Appendix E & I), they neglected to address the dangers of pseudo integration and content

trivialisation. The literature (Chapter 2) identifies these as major weaknesses associated with incorporation. This oversight indicates the authors did not anticipate the trivialisation of content that can result when skills are “force-fitted” (Allerman & Brophy, 1993; Brophy & Allerman, 1991; Case, 1995, 1997; Mason, 1996); this oversight assumes that the teachers are equipped to handle such problems as they arise. Past attempts at integration, however, imply that this level of competence may be lacking (Bailey, Brown & Lofgren, 1996; Ministry of Education and Culture, Core Curriculum Unit, 2001).

The literature on integration abounds with arguments for the importance of teacher competence to effect meaningful integrated learning (Andrews, 1994; APEID, 1982; Le Claire, 1993; Lewis, 1991; Mason, 1996). Ben-Peretz (1990) further notes that in any curriculum the “teacher’s ... role is deemed central for discovering ... gaps and bringing about change or improvement” (p. 11). But to do so teachers require the requisite expertise in practices associated with integrated instruction, including the incorporation of literacy and numeracy. They need conceptual frameworks for practice. The curriculum model (Figure 3), timetable (Appendix D), and unit organisation (1999) outline some expectations in very general terms, but provide little understanding for the broader purposes and practices of integration. This is why Ranaweera (1990) points out that “pre-service and in-service teacher training programmes should be designed to assist teachers to implement curricula while conforming to the principles of integration” (p. 69).

Teacher training could clarify the integration models used in the primary curriculum (Figures 1 & 2), including their advantages and disadvantages, and guidelines for using these models (Gordon-Carter, 1994). Even when models provide similar

rationales for integration, they may lead to different integrative practices (Case, 1991; Drake, 1998; Fogarty, 1990). Firsthand experience that comes through reading and discussing these models (Dohrer, 1998; Lewis, 1991) provides one way to encourage insights regarding the implications and weaknesses associated with using these models. But an adequate grounding in incorporation will not emerge from studying integration models alone. Training has to focus on how and when to incorporate language arts and mathematics so as to involve “authentic application of skills from [these] disciplines” (Allerman & Brophy, 1993, p. 287). In particular, participants need opportunities to identify and critique examples of trivial or disconnected incorporation in this curriculum, and to consider how the problem could be rectified to ensure meaningful learning experiences for the child (Schug & Cross, 1998). College programmes could also model incorporation (DeCorse, 1996; Dohrer, 1998; IEQ/Jamaica Team 2002) within courses for pre-service teachers who are accustomed to discrete subject areas.

For the purpose of enhancing the numeracy and literacy goals, in-service teachers will also need training to plan and implement incorporation through thematic instruction. The curriculum’s explanations, examples and suggestions are inadequate. Within each content area, teachers need capacities to: (1) select meaningful themes (Beane, 2002); (2) identify and use organisational tools to deliver the theme (i.e., sub themes, objectives, attainment targets, organising subjects and content); (3) explain the procedures/ activities which could be used to deliver the theme; and (4) select assessment procedures to evaluate learning (Wells, 1990). Above all, they need to know how to use themes to establish “purposeful ... links among existing subject areas” (Lewis, 1991, p. 161; IEQ/Jamaica Team 2002), and especially with mathematics and language arts. The focus

on the numeracy and literacy goals reminds teachers that the curriculum is committed to enhancing human capital in response to societal and global changes. Teacher understanding of the “windows” approach, incorporation and theme based learning can help to further the numeracy and literacy goals.

Personal and Social Relevance

The curriculum documents consistently portray integration as enhancing child-centred and socially relevant learning. Learning should have personal and national relevance (Jamaica, Ministry of Education and Culture, 1999; Appendix A, B & C), and this is consistent with the rationale for integration supported by stakeholders and the literature (Case, 1991, 1997; Jacobs, 1989; Vars, 2001). Hence, the curriculum favours active learning directed to the child’s intellectual, socio-emotional, and physical growth, and is respectful of the learner’s point of view and needs (Dewey, 1900/1956).

Organizational features of the curriculum do support this goal of personal and social relevance through activities that promote the integration of school and self. Learning is linked with the child’s experiences, and often occurs within real-life contexts (Jacobs, 1989). An emphasis on learner autonomy and social responsibility encourages self-identity and character development, and advances understandings of the physical and social environment as a precursor to social action.

The curriculum’s use of themes around the strands of environment, technology, culture, and life processes (Bailey & Brown, 1997) clearly focuses on relevance. Themes are grounded in personal concerns of the children in contrast to themes that originate from existing subjects (Beane, 1995, 2002), and include “real-life” issues (e.g., health, safety, nutrition, identity, and environment) related to children’s lives in society

(Appendix D & F). For example, “Who Am I?”, “Living Together as a Family”, “Myself at School”, and “Caring for my Environment” (Appendix G) encourage a sense of self worth and establishes connection to the community (APEID, 1982; Erlandson & McVittie, 2001; Hargreaves & Moore, 2000; Vars, 2001). As students explore family, community, nation, and other parts of the world they are supposed to develop attitudes of care for self, people, and the environment. Integrating health and environment issues, which are daily concerns at the primary level, sensitises students to healthy practices and social responsibility. The authors must be commended for identifying themes that deal with significant and practical issues in the child’s life and that have social utility (Appendix F). Martin-Kniep et al. (1995) note significant results with meaningful themes as “the guiding thread” (p. 247).

Beyond the selection of relevant themes, there is also an emphasis on connected learning as a key factor in knowledge construction (APEID, 1982), learning progresses through a sequential series of experiences. The themes are organised to promote horizontal (within grades and across subject boundaries) and vertical (across grades) integration in order to support more cohesive learning (Appendix F; Bailey & Brown, 1997; Case, 1991; Tyler, 1958). As students progress vertically from the lower to upper primary grades, there is content overlap as well as the introduction of new ideas (Appendix G). It is unclear, though, why the curriculum does not explicitly discuss the rationale for the “expanding horizons” and “spiral” principles. Successful applications of these principles depend on the teacher’s ability to assess student’s previous and ongoing knowledge attainment.

The identification of relevant themes is a concern when implementing curriculum integration (APEID, 1982; Case, 1997; Lipson et al., 1993). Should themes be broadly prescribed or derived from students' interests? The latter is favoured by those constructivists (Brooks & Brooks, 1993) and proponents of integration (Beane, 1995) who want to maximize student autonomy. The Jamaican curriculum prescribes themes (Appendix G) to reflect its goals for three reasons: at this early stage students may not know what is educationally desirable, prescription reduces the likelihood of teachers selecting trivial content (Jacobs, 1989; Lake, 1993-1994; Martin-Kniep et al., 1995), and prescription prioritises the relevancy of themes. Nevertheless, the curriculum also appeals to student autonomy as a rationale for integration (Ministry of Education and Culture, 1999, p .x; Appendix A & B & C). Selection of meaningful themes does not, of course, constitute relevance by itself; relevance and student autonomy are enhanced by what teachers do with the themes in classrooms. This further highlights the importance of teacher competence.

Similar to practices in other countries (Hargreaves & Moore, 2000; New South Wales, 1996; New Zealand, 1993), fluid subject boundaries in the curriculum facilitate relevancy goals by allowing different subject groupings. "Integrated threads" are supposed to provide opportunities for new learning and connections across disciplines. For instance, fluid boundaries make it possible for students to encounter different subject matters (where relevant); themes related to the child's life are used to make these subject matters coherent. This makes it less likely that one subject area dominates while others are ignored (e.g., aesthetics). In an integrated curriculum, content should have utility

value as students use the knowledge gained to make sense of the world and fulfil social and personal goals.

The curriculum also promotes the integration of content through a range of broad participation, communication, thinking, and valuing skills relevant for learning.

Braunger and Hart-Landsberg (1994) rightly maintain that the “curriculum must take on the dual aim of teaching content and process because learning processes are best developed in purposeful learning about content” (p. 33; Ackerman & Perkins, 1989; Palmer, 1995). Advocates of the dual content-process approach also recognise differing degrees of skill development integration. Consequently, in the curriculum there is a shift in skills application across the grades that allows for more “independent learning”; this implies that teachers are able to clarify and adapt skills appropriate for pupil abilities and content levels.

Nonetheless, to enhance its relevancy goals, the curriculum needs greater clarity and practicality. To illustrate, the summary document (n. d.) asks teachers to organise learning experiences that “apply the meaning of curriculum integration and differentiate [between] the elements [of integration] in the new curriculum: grades 1-3” (p. 11). However, there is a lack of clarity concerning the elements to be integrated, the extent to which they should be integrated, and how. Bailey and Brown (1997) state that teacher competence is a critical requisite to implementing this curriculum, and yet remain doubtful in teachers’ abilities “to cope with the demands of the reengineered curriculum” (p.159):

The increasing number of untrained teachers in primary schools and lack of resource centres to access information to aid development of thematic approach and scarcity of instructional materials contributed to nagging concern (p. 159). This is a serious concern, because as research on teacher professionalism points out, “classroom change happens only if teachers understand goals and feel able to initiate change” (Clarke, 1988; Lewis, 1991, p. 160; Zeichner & Tabachnick, 1981). Yet, research on teacher capacity to implement integration is not hopeful. Schug and Cross (1998), for example, affirm that “elementary teachers have great difficulty doing meaningful integration. Although we have seen some outstanding examples of integration in the elementary grades, what passes for integration is apt to lack educational value or amount to pointless busy-work” (p. 55; Case, 1991, 1997; Jacobs, 1989; Ranaweera, 1990). The curriculum (1999) and the summary document (n. d.) acknowledge that integration can be problematic for teachers, especially issues related to assessment, planning, and the role of mathematics and language arts in the curriculum. Unfortunately, neither document provides teachers with much help for planning and conceptualising integration. Given concerns with the previous curriculum, one would have expected a more “depth approach” around useful background information on the meaning and principles of integration, and helpful hints and appropriate examples for practice.

Teachers’ understandings of integration influence their practice (Andrews, 1994; DeCorse, 1996; Gehrke, 1991; Jadine, 1993; Mansfield, 1990). Some implications for teacher education programme are clear. Emphasis needs to be given to conceptual and practical knowledge related to the definitions, forms, dimensions, and modes of

integration (Badley, 1986; Case, 1991; Fogarthy, 1991) if the curriculum's goal of personal and social relevance is to be realised.

Definitions of Integration

While definitions do not reveal everything teachers need to know about integration, they can be useful starting points for clarifying conceptions and practical meanings. The term "integration" is not defined in the curriculum even though the summary document states "teachers should be able to comprehend and apply the meaning of curriculum integration" (Jamaica, Ministry of Education and Culture, n. d., p.11); instead, curriculum statements imply some of the term's intentions. This lack of definition fails to acknowledge that there are various conceptualisations of integration. Teachers are left to identify commonalities across these statements and determine what integration could mean.

The literature on integration seems divided on the need for explicit definitions. In Walker's (1996) opinion, "a single definition ... is elusive" (p. 1). Lack of concrete definition "allows teachers the flexibility to select the appropriate approach to suit their teaching style, ability and classroom structure" (Jadine, 1993, p. 55). Even Badley (1986) assumes that teachers should be free to construct their personal conception of integration. One is uncertain whether the Jamaican curriculum developers held a similar perspective. Other writers argue for either concrete meanings or consistent practices to define integration (Grehke, 1991; Kain, 1996). It seems reasonable that, to be effective, teachers implementing an integrated curriculum should be exposed to the various definitions and helped to formulate ones that are "workable". The cross-curricula nature

of the goals warrants this clarification. Teachers need conceptual tools if they are to apply integration in the classroom with understanding.

Forms of Integration

Conceptual understanding also applies to the three forms of integration evident in the curriculum. According to Case's (1991) framework, the primary curriculum (1999) promotes "integration of content" (1999, pp. i, ii, iv, v, x, xii, xiv; Bailey & Brown, 1997, p.156), "integration of school and self" (1999, pp. i, ii, x), and "integration of skills/processes" (1999, pp. v, iv), although integration of content is featured prominently (Case, 1997; Martin-Kniep et al. 1995). For the most part, curriculum statements treat the three forms separately. In a curriculum that claims personal and social responsiveness (1999, p. iv) and a commitment to laying "the foundation for life ... [and] the base for further learning" (pp. v, vi), this imbalance toward content integration has limitations. No one form is adequate, as Martin-Kniep and her colleagues (1995) wrote:

Significant sacrifices can result from an imbalanced integration around one of these focuses [In this example the] students made powerful self-in-school connections. They did not, however, necessarily sharpen their writing skills [T]he teacher must consciously recognise these potential imbalances and find ways to avoid or at least compensate for them (p. 247; Case, 1991).

There are practical advantages to having three forms of integration in the curriculum. First, authentic learning experiences can emerge from each one as a source of knowledge. Second, all three are necessary for designing learning experiences based on the curriculum objectives. In keeping with the curriculum's relevancy goals and student centred approaches to teaching and learning, though, teachers need to move beyond

content integration and should focus more on integrating the learning experiences of students rather than primarily subject knowledge. Hargreaves and Moore (2000) found successful integration occurs when teachers focus on issues relevant to the students and the curriculum themes. The skills and competencies students require as future citizens, as well as the curriculum's personal and social goals, illustrate the need for balance across the forms.

Despite the emphasis on content integration, the developers fail to identify particular contents in sufficient detail. The attainment targets contain references to the kinds of content required, but teachers determine the content and how it is to be taught. Subject matter implied from the themes, focus questions, and suggested activities, rests on the constructivist assumption that a rich array of learning resources help children construct knowledge. However, this approach disregards teachers with limited classroom experience, and adds considerably to teachers' already heavy workloads. The lack of a specified common content may result in inequitable learning environments across the island; if what teachers consider important determines student achievement, this increases the likelihood of some students being disadvantaged in future grade six final exams. The type of content coverage offered to students constitutes a vital aspect of their learning experiences in a constructivist-learning environment. Content provides the context in which they connect or construct "mental maps" of their experiences. Quality education depends on content, and this issue will need to be addressed further in teacher education programs.

Teacher education can provide knowledge of various forms of integration. Such information would encourage better judgement in planning and utilising the forms

effectively, and in effecting curriculum balance. DeCorse (1996) and Dohrer's (1998) studies on teacher professionalism and integration endorse this view and suggest teachers could also benefit from assistance in adjusting the curriculum to their students' needs. This would involve a systematic study of the curriculum in order to identify places where connections can be drawn between school and self. Pre-service teachers could also plan and critique lessons individually or with their peers (IEQ/Jamaica Team 2002) to demonstrate their understanding of relevance. A similar procedure could prove useful in the collaborative planning time allocated to teachers in schools, in which they identify specific content, skills/processes, and activities to make the curriculum relevant.

Knowing the forms is not enough. Teachers also require strong knowledge of the disciplines to help students "establish connections" and see relevance in what they study (Mason, 1996; Young, 1991-1992). At the pre-service level, participants must be "fully grounded in the disciplines" (Mason, 1996, p.269) as a requisite of all pedagogy courses.

Dimensions of Integration

A curriculum's organization influences the child's learning. "By its very nature," an integrated curriculum "does not provide a clearly demarcated structure with logical and well-defined sequences to follow" (Ranaweera, 1990, p. 38; d'Hainaut, 1986). However, the Jamaican curriculum does explicitly use themes, and to a lesser extent, expanding horizons, spiral organisation, and a webbed approach to planning (Bailey & Brown, 1997; 1999). In keeping with most primary school curriculum, the scope and sequence typify both a spiral and expanding structure that encourages students to see connections with previously learnt content over time; the authors assume that teachers will recognise

and be able to use this organization effectively for meaningful learning (APEID, 1982; Ranaweera, 1990).

The following examples further accentuate why teachers need to be aware of issues related to the temporal dimensions of integration (horizontal and vertical). Case (1997) cautions that, “integration of the formal curriculum along the vertical dimension is not likely to be advanced by theme based units” (p. 334) which support horizontal integration. The unit “My Body” taught in all grades serves as an example. In grade one the focus questions include “What do I look like?”, “In what ways do I grow?”, “What do I need to grow?”, and “How do I take care of my body?”; in grade two, “What do I need to know about my brain, heart and skeleton?”, “How do these parts work together?”, and “How do we differ in size?”; students in grade three examine “Why are teeth, stomach and lungs important parts of my body?”, “Why and how should I care for different parts of my body?”, and “How does food help to make my body healthy?” These questions do not necessarily result in a coherent whole over time (vertical integration). Also, through expanding horizons (horizontal integration) from home to school to community and to the wider world, students may “become increasingly confused about the connections among their studies” (Case, 1991, p. 218). As Tyler (1958) notes, “the effectiveness of curriculum organisation in facilitating integration depends on the extent to which it aids the students in perceiving appropriate relationships” (p. 105). In this curriculum, the authors fail to emphasise the importance of these relationships across the grades. Lack of explanation for “expanding horizons” and spiral curriculum” means that teachers may not even recognise these features or their purpose in selecting and teaching themes, content, and activities. The APEID report (1982) recommends that the principles underlying a

curriculum be stated. This makes sense because the organisational framework provides the medium through which integration occurs, and teachers should be able to use this framework in their collaborative and individual planning to implement a balanced and relevant curriculum based on effective scheduling and connecting of themes across and within grades. Given that integration in the previous curriculum (1980) met with little success, teachers would now benefit from clear understanding of the organisational framework guiding practice.

Curriculum knowledge has long been recognised as a valuable aspect of teacher professional development (Ariav, 1991). The curriculum design implies that teachers as reflective practioners have the conceptual and practical tools necessary for instructional planning (Carter-Golden, 1994; Dohrer, 1998). Pre-service and in-service courses can focus on tools such as “horizontal organisation,” “vertical organisation,” “expanding horizons,” “spiral curriculum, ” and “theme based” planning (Daugherty, Foehr, Haynes, & McBride, 1996), thereby contributing to what Ben-Peretz (1990) describes as increased “teacher curricular autonomy” (p. 112). The Jamaican curriculum claims that, its flexibility allows “teachers to adapt it to satisfy the varying abilities and learning styles of their pupils as well as the demands of their local environment” (1999, p. v). To adapt successfully to their particular contexts, teachers require appropriate curricular knowledge that will make a difference in student achievement.

Modes of Integration

Although teachers are expected to understand “the structure of the curriculum and the purpose and meaning of its dimensions and elements” (Jamaica Ministry of Education and Culture, n. d., pp. 11-12), it provides no guidelines for how elements should be

integrated and the extent to which integration must occur. The modes of integration — whether fusion, insertion/incorporation, correlation, or harmonisation — are unclear, although fusion and incorporation seems to be implied by the theme based organisation (Case, 1991). Some explanations and guidance would be helpful.

Bailey and Brown (1997) state “the whole constellations of disciplines are webbed around a fertile theme” (p. 154; Figures 1 & 2). For example, content from social studies, aesthetics, science, mathematics, and language arts can be fused or incorporated within a unit theme like “Who am I” (grade one). Religious education and social studies feature prominently in themes related to values and attitudes, science within environmental and health themes, and the aesthetics (e.g., music, art) as media for communication throughout the curriculum. Thus fusion and incorporation are supposed to provide a “bigger picture” by cutting across subject divisions. However, this can result in a “force-fit [of] certain subjects into a theme resulting in awkward combination of ideas” (Bailey & Brown, 1997, p. 188; Thornley & Graham, 1999) and the denigration of some subjects (Erickson, 2001). Some examples from the curriculum are chosen to exemplify these arguments. For instance, in the unit topic “Who am I?” with the focus question “To which group do I belong?” the objectives include:

Use locomotor and non-locomotor movements in self space and general space;
identify numerals and associate them with their names and numbers and display and
analyse data using attributes, e.g. materials, shapes, size, colour and patterns
(1999, p. 12).

The corresponding activities suggest that students “draw/model given sets of objects to associate numbers with the numeral symbols,” and “given various manipulatives, group

them and give reasons for the groupings (colour, size, shape, texture)” (p. 13); afterwards “in groups, do locomotor and non-locomotor activities in self-space and general space with or without music, using different levels -high, medium, low” (p. 14). If the purpose of the unit is to teach children about social groups then it may be better to keep the primary focus on social studies. “Force-fitting” mathematics, music and movement into the unit for the sake of integration does not produce a coherent understanding of the topic. Instead, denigration and distortion of subjects rather than meaningful connections among content areas becomes evident. As Allerman and Brophy (1993) opine, “rather than expanding the scope and meaning of the ... curriculum, these so-called integration activities disrupt its coherence” (p. 287).

Another example relates to the “call for a re-emphasis of the aesthetics [to] nurture the many, varied intelligences” (1999, p. 318). The curriculum authors acknowledge the aesthetics as:

Strong agents for integration in the curriculum, enabling learning to cross the normal boundaries so that particular activities or lessons may be structured so that one discipline facilitates learning in another e.g., Mathematics in Music, Language through Movement or Science in Drama (p. 318).

However, the aesthetics have a subservient role. In the grade one unit on “My Body” (focus question: “What do I look like and what can I do?”), students “use parts of the body as percussion sound makers, maintaining steady beats for songs, jingles, and rhymes” (1999, p. 20); “recite and create jingles using the names of the upper limbs. Explore the use of the limbs to do movement at all levels” (p. 21); and “use parts of the body, e.g. hands or feet to make prints on paper or other medium” (p. 21). In grade two,

the unit “My Family” with the focus question “Who are my family members?”, students are to “draw and colour members of families and talk about drawings and write/words sentences about the drawings” (1999, p. 35); “act out stories from sacred writings on the family” (p. 36); and “listen to and sing songs which relate to family members paying attention to pitch and cues” (p.37). In the grade three unit “Aspects of the Jamaican Culture” (focus question: “What is culture?”), students:

Listen to folktales/songs ... and answer questions as to what aspects of life they portray. In storytelling sessions, tell folk tales of their own choosing” (p. 254); “learn and perform dialect pieces/folksongs then discuss the aspect of life demonstrated in the dialect pieces/folk songs” (p. 254); “after discussion, make a collage/montage to depict aspects of culture, e.g. food, dress, music dance, art ...” (p. 255) and “in groups, with help of resource persons, create folk dances and perform them” (p. 257).

Apparently students are to acquire creative skills associated with the art forms; some of the activities do indeed encourage meaningful skills transferable to the later years (e.g., keeping a pulse and pitch in music) whereas others trivialise the aesthetics.

More noticeable, though, is using the aesthetics as a communication tool to promote understanding in other subject areas; it becomes a handmaiden for other disciplines. Fusion here limits children to using some skills rather than developing meaningful music experiences (Wiggan, 2001). Further, music is used for entertainment:

The inclusion of the aesthetics brings the added dimension of fun and joy to the learning situation, creating a less formal environment with teacher as coach off to the side, in a way long accepted as positive educational practice (1999, p. 318).

Children do need to enjoy what they learn. However, neglected are understandings that result from learning musical concepts, elements, and procedures.

The previous examples highlight major limitations in the curriculum that impact on its relevancy goals. A view of integrated learning assumes that knowledge become relevant as learners see relationships and associations. Through teacher education, participants come to understand how to create integrated lessons that fuse and incorporate the disciplines effectively by creating meaningful connections that do not denigrate or force fit subjects. Brauger and Hart-Landsberg (1994) caution that selecting subject content “mainly because they dictate instruction in particular skills or lead to certain activities” (p. 34) results in shallow connections, and Martin-Kniep et al. (1995) urge teachers to pay adequate attention to the “merit and substance” of content linkages. Teachers have to understand the curriculum model (Figures 1 & 2) when selecting fertile themes, and develop criteria for judging the appropriateness of their efforts to plan coherent lessons (i.e., Are content, skills and activities incorporated in line with goals to be achieved?) (Allerman & Brophy, 1993). Pre-service teachers in particular, need ample opportunities to observe and critique experienced teachers using integrated approaches, and do individual and team teaching. Misunderstanding can arise from a lack of opportunity to examine “good” practices. Mason (1996) argues that “it is inappropriate to ask pre-service teachers to make connections among elements of the curriculum if they have no opportunities to observe, reflect upon and engage in the development of interdisciplinary curriculum through the course of their teacher education experience” (p. 269; IEQ/Jamaica Team, 2002).

Pedagogy

The primary programme seeks to enhance more effective pedagogy (Ministry of Education & Culture, 1999). However, stating what constitutes “effective pedagogy” in general terms provides little guidance for facilitating translation into practice. For example, the summary document states that “teachers should be able to:

Interpret and adjust the activity plan included in the curriculum guide for each grade to particular local conditions ... master knowledge required to develop the curriculum activities ... use efficiently the available teaching – learning resources design and apply different strategies for continuous assessment and evaluation of student learning and development ... use adequately the results from assessment and evaluation activities (n. d., pp. 11-12).

These general guidelines do little more than place onus on teachers to effect change. They need guidance to be effective. Lewis (1991) claims that “although curriculum integration does not impose a set of accompanying instructional strategies, it is insufficient merely to organise interdisciplinary studies around an important issue without considering the most powerful instructional approaches to increase student engagement” (p. 159). A child centred and constructivist conception of teaching and learning (Braunger & Hart-Landsberg, 1994; Brooks & Brooks, 1993, 1995) further underlies the curriculum’s call for effective pedagogy (Evans, 2000). The learner’s thinking is to predominate over the subject matter, as implied in such curriculum statements (1999) as “let the focus be on learning rather than teaching” (p. x); “teach pupils how to learn” (p. v); allow children to “construct meaning for themselves” (p. x). Cognitive oriented constructivist theory (e.g., Piaget, Bruner) accounts for how children actively construct

meaning through exploration and discovery, whereas socially oriented constructivist theory (e.g., Vygotsky) emphasises how learning occurs through social interaction. The curriculum acknowledges both schools of thought, as well as Gardner's (1983) Theory of Multiple Intelligences (seven intelligences) to encompass students' different abilities. Integrated learning calls upon many intelligences to complete "real life" tasks (Ercikan, 1992; Schubert & Melnick, 1997).

The curriculum, suggests a child centred constructivist classroom in four ways. First, focus on students' capabilities: "modify units to suit their particular pupils' needs/learning style or local environment" (1999, p. viii); "satisfy varying abilities and learning styles of their pupils" (p. v); "focus on the competency of the students" (p. i); "consider [the child's] developmental stages (characteristics) when designing activities for assessment" (p. 290). Ability levels are to be considered in unit organisation, instructional methods and evaluation (Appendix A). Second, encourage active participation within and outside of classes as a way to enhance learner autonomy and curiosity. For example, active learning means (1999): "providing numerous activities to give "hands on" experience [using a] ... wide range of materials and resources" (p. viii); "assessment is [of both] product or performance" (p. viii). Third, make learning both an individual and social process. Because students make meaning in different ways, teachers must: "nurture the many varied intelligences" (1999, p. 318); "give pupils opportunity to work together and to discuss their work" (p. x); "encourage pupils to explore and share ideas" (p. v). Proponents of integrated curriculum such as Beane (1996; 2002), Erickson (2001) and Vars (2001) insist on inquiry that makes children active participants in their learning. Examples of hands-on activities that promote

knowledge construction (1999) include: discussing, journaling, writing, creating, acting, using primary sources and manipulatives, collaborating within small groups, working individually (especially at the grade two and three levels), and researching problems that encourage higher level, critical, and causal reasoning. These are some of the activities repeatedly presented as the medium to challenge students' investigative abilities and expand their knowledge and reflective capabilities. Teachers will need to ensure that such activities are congruent with a student's level and pace of development.

Fourth, the curriculum prescribes an "integrated approach to learning, which entitles our students to understand the relevance of what they learn and the relationship between different subject matters [as well as] school and the world outside so that learning will be more meaningful for the child (1999, pp. i, ii, x). Integrated learning places emphasis on students' learning styles, knowledge application, higher order thinking, and skill development (Daugherty, et al., 1996). Especially in grades two and three, the onus falls on the teacher to make the material applicable and relevant outside of school.

Teachers concerned with providing rich educational experiences for their students will welcome these ideas. However, the curriculum lacks procedural suggestions. A constructivist approach requires skilled teachers, but too often they are left to figure out things for themselves, and this leaves the curriculum open to various interpretations. Clearly, the curriculum supports teacher autonomy, but too much flexibility amidst limited clarification may result in confusion. For the untrained or novice teachers in particular, lack of conceptual and procedural clarity can lead to confusion. Experienced teachers can also become confused (Gehrke, 1991; Kain, 1996). Ariav (1991) reminds us that many teachers are unfamiliar with "curriculum terminology, history and theory" (p.196), and curricular

practices involving evaluation of materials. She cautions that “much of what we assume to be conventional wisdom of teachers vis-à-vis curriculum is actually absent or partial” (p. 196). It is not sufficient for the curriculum to state the need for “new methodologies in the learning experiences of our children” (p. ii) or that “the curricula is supported by effective methodologies” (p. iv) and then to withhold explanation about strategies to create the desired learning environment. Bailey and Brown (1997) warned that teachers “would have to make ... shifts both in their thinking and in their teaching strategies before they would take the change on board” (p. 159). Success depends on their ability to reflect on their teaching in light of the curriculum, and to take appropriate action.

Consider the statements that the child should: “develop a willingness to take responsibility for his own learning” (1999, p. vii); “have a greater sense of responsibility for their own progress” (1999, p. v); and “acquire ... a responsible attitude to learning” (1999, p. ii). These suggest that the locus of integration is the learner as an intentional agent (Bloom, 1958; Davis Jr., 1997). But how do students acquire this responsibility? And how is it to be accommodated in the curriculum? The student’s role changes from a passive to an active recipient and the teacher’s role expands from imparting knowledge to facilitating the growth and application of knowledge by students. Both individuals need preparation to adopt their new roles.

As part of their role, teachers ensure that students gain the requisite competence to accomplish integrated learning. Each unit provides attainment targets, linked objectives, and suggested activities but leaves it to teachers to determine implied skills. Activities in the grade two unit “Care and Safety of Self” aligned with the focus question “How do I keep my body healthy?” are illustrative. In the second procedure, students “use words,

pictures and actual items at a display table to group foods, under the six headings” (1999, p. 99). This task utilises one skill (grouping). Next, students “discuss the effects of lack of food from any or all of the groups, on life and read the poem, The Junk Food Man” (p. 99). This activity goes beyond classifying to more complex processing of information. Further on, another activity asks students to “sing familiar and new songs about buying and selling foods paying attention to pitch, phrase and expression [and] accompany the songs with body percussion [like] snapping, clapping, tapping and playing a steady pulse on a Congo drum” (p. 100); this entails multiple skills such as “maintaining steady tempo, pitching accurately, performing music, playing instruments” (p. 100). Another group activity asks students to:

Take a survey of four classes in the school to find out how many people have had conjunctivitis/“pink eye,” a common eye disease which affects both adults and children in Jamaica. Use the information to draw a pictograph/bar graph and report findings to class (1999, p.102)

These examples illustrate the demands of constructivist teaching; children need to question, talk and write about their inquiries and it is up to the teachers to create these opportunities.

The role of assessment as a pedagogical tool, and particularly its link to instruction in the integrated curriculum, warrants consideration. Many problems identified with the previous curriculum resulted from teachers’ inability to design continuous and realistic assessment that utilized students’ understandings. Bailey and Brown (1997) claim that in the new curriculum, “assessment would not be linked only to paper and pencil tests” (p. 156). The curriculum specifies that there be “continuous

assessment ... so that teachers can better monitor and report on students' progress and use the data to inform their teaching strategies" (1999, p. ii), and provides guidelines to conduct assessment (1999, pp. 290-292); this shift necessitates alternative forms of assessment (1999; Ercikan, 1992; Fraser, duPlessis, & Thomas, 2000; Mason, 1996; Soodak & Martin-Kniep, 1994). In spite of this requirement, the suggested assessment procedures do not always focus on the learning connections between sequential activities or across subject boundaries. To illustrate, the focus question "How do I know my school?" in the grade one unit "Myself at School" asks students to:

Tell what they know about their school through role-play or 'speak easy' drama mode. Do research to find out how the school got its name and motto and how old it is. Report findings from which details will be used to compose sentences.

Read and then copy sentences (1999, p. 62).

But the assessment only focuses on the "oral/written report, sentences, and legible writing and oral reading" (1999, p. 62), and neglects the integrated learning supposedly taking place. The curriculum assumes that teachers have the competence to assess the desired "higher levels of attainment and achievement" (1999, p. iv).

There is no research evidence to suggest that a curriculum change alone can shift pedagogy. According to Bailey and Brown (1997):

A shift in the organisation of the curriculum content would require a corresponding shift in the methodologies employed for the delivery of the curriculum. There was therefore a call for the use of a constructivist pedagogical framework in primary level classrooms (p. 148).

As Evans (2000) suggests, "the change from teacher centred to student centred ... may be more difficult than we imagine [because] teacher centred practices are so entrenched in our [Jamaican] schools" (p. 1). For such a shift to occur, though, requires considerable changes in teacher training. Lewis (1991) believes "teachers must identify dimensions of practice that need to be changed" (p. 160) in the process of easing into constructivism. Brooks and Brooks (1995) elaborate that as part of this shift, educators could address the following questions. First, "why change?" and "what is it I'm being asked to change?" to help teachers conceptualise the change. Second, "how will the practices suggested by the constructivist literature benefit students more than what I presently do?" Third, "how will learning be assessed under the new system?" and "what type of education and support will the school's administration provide for my professional development?" Such questions validate the need for professional development where the aim is to discuss concerns that may affect teachers during implementation, and to make more explicit the theory and assumptions undergirding constructivism, and how they translate into practice.

Beyond exposure to the learning theories supporting the curriculum, teachers need training in the implied pedagogy and assessment related to the integrated units, and need to be convinced that what is being advocated has more benefits than previous practices (Weeks, 1995). In particular, teachers need to understand and use methodology that promotes "active learning," "authentic assessment," and "cooperative learning," "hands-on experiences," "discovery and inquiry learning," and "educating the whole child."

Instructional planning must also be in keeping with constructivist learning theories. The literature describes seven broad competencies: (1) streamlining objectives

to match tasks; (2) structuring learning tasks which equally emphasise the forms of integration; (3) questioning techniques that result in students interpreting and applying knowledge in and outside the classroom; (4) designing activity-based experiences based on individual differences in the class; (5) selecting and using multiple representations of reality; (6) formulating criteria to select and assess authentic tasks; and (7) arranging the physical infrastructure to incorporate the new techniques (Braunger & Hart-Landsberg, 1994; Brooks & Brooks; 1993, 1995; Brualdi, 1996; Simmons & El-Hindi, 1998; Soodak & Martin-Kniep, 1994). Because teachers implementing an integrated curriculum face a complex set of challenges, awareness of these competencies narrows the theory/practice gap. As part of “hands on” experience for teachers, Brooks and Brooks (1993) point to the value of structuring training programmes to incorporate constructivist-based teaching techniques. Additionally, prospective teachers should be given field-based opportunities to observe experienced teachers using these strategies (DeCorse, 1996); this reinforces positive practice. Information gleaned from such sessions could become part of resource booklets for use in future training or within the schools; these documentations would illustrate teachers’ commitment to reform innovation and professionalism.

Both teachers and students adopt new roles in an integrated classroom that encourage student autonomy. Thinking through the complexities of these roles is part of implementation. According to the APEID Report (1982), “while the role of all concerned agencies is significant, the teacher plays a very crucial role in the effective implementation of the integrated curricular. He is a vital link between the objectives and the children ...” (p. 37). They provide feedback and encouragement; act as resource persons and facilitators; monitor student work in ways that endorse independence; use

classroom management practices that encourage student autonomy. In doing so, Simmons and El-Hindi (1998) point out that training “will include areas beyond the comfort level of knowledge that a teacher may possess [Yet] teachers ... have the responsibility of providing an open environment that encourages students to question, probe, and generate theories” (p. 33). Helping teachers and students to accept these roles may be a daunting task.

In summary, the curriculum was designed to enhance three goals: literacy, relevant learning and effective pedagogy. The means to do so are tied up in the notion of integration. However, the integration implied by the curriculum is more complex conceptually and practically than is described for teachers. The curriculum lacks clarity and little practical help is provided. This means that, if the three goals are to be enhanced, teacher trainers must pick up the slack.

CHAPTER FIVE

Summary and Implications

The study's intention was to produce understanding of the conceptual and practical meanings of integration implied in Jamaica's lower primary curriculum. This chapter briefly summarises the study findings and draws some implications for curriculum implementation, pre-service and in-service teacher education, and for further research to promote integrated teaching and learning.

Summary

In 1999 Jamaica published a new primary curriculum that promoted integrated learning in classrooms. The purpose of this study was to clarify the conception of integration embodied within that curriculum. Five research questions were formulated from Roland Case's (1991) writings on curriculum integration, and were then used to analyse the five documents comprising the Jamaican primary programme (grades 1-3) (Chapter Three).

1. What is the integrated curriculum intended to improve in Jamaican primary education?

The integrated curriculum was intended to improve student learning in primary classrooms. Three goals guided the curriculum change: to increase numeracy and literacy achievement, to strengthen relevance (personal and social) of what is learned, and to encourage effective pedagogy. These goals emerged from stakeholder consultations, a curriculum evaluation, international reform trends, and the Ministry's commitment to reform the quality of primary education. Integration was selected as the means of reform to achieve these goals.

2. What is to be integrated? (forms of curriculum integration)

Three forms of curriculum integration — of content from different subjects areas, of skills/processes with content, of school and self — were the chief means for promoting the goals. The curriculum was organized around themes and focus questions related to four concepts: environment, technology, culture, and life processes.

3. How and when is curriculum integration to be enacted? (modes and dimensions of curriculum integration)

The themes draw on content and skills from various subject areas and are organized to promote both horizontal and vertical integration (“expanding horizons” and “spiral curriculum”). Within a theme, contents taken from subject areas are integrated in two major ways. The first mode is incorporation in which contents are brought together but do not lose their identities: in the second mode, referred to as fusion, the contents taken from separate areas lose their identities.

4. What is the rationale/aim for curriculum integration? (objectives for curriculum integration?)

The rationale /aim for integration is in keeping with child-centred learning where the emphasis is placed on the learner’s needs, capabilities, interests, and learning styles. In line with constructivist learning theory, the child is to be provided with educational experiences that have personal meaning and social utility.

5. What issues are raised concerning curriculum integration? (problems of curriculum integration)

The issues raised were both explicit and implicit in the curriculum. The curriculum itself explicitly identifies some issues for teachers to consider when planning integration: maintaining focus on citizenship, numeracy, and literacy goals; assessing

integrated learning; expectations for teacher efficacy to implement integration. Issues implicit, but not addressed by the curriculum, include the potential imbalance, “force-fitting,” distortion, and trivialisation of content areas.

In summary, the research questions clarified the conception and importance of integration as the approach to enhance student learning in the Jamaican primary curriculum. There are conceptual and practical complexities surrounding this conception that have implications, as discussed in the following section.

Implications

The study raises implications for curriculum implementation, teacher education and further research.

Implications for Curriculum Implementation

To be implementable across a range of teachers, a curriculum needs to be perceived as having at least four characteristics: need, clarity, manageable complexity, and practicality (Evans, 1996; Fullan, 2001). The Jamaican curriculum is not organised in ways that maximises the last three characteristics.

The need for the new curriculum is clearly communicated by the three goals of numeracy and literacy, relevance, and effective pedagogy. Integration is to be the means for achieving these goals. This is made clear by the curriculum model, the vision statements, the rationale, directives regarding use of literacy and numeracy “windows” and attainment targets, teaching and assessment suggestions, and a detailed scope and sequence for organizing content. The ultimate desire is to prepare responsible citizens who are competent in numeracy and literacy, and knowledgeable on personal and social

issues. Emphasis is placed on the child's immediate and future-oriented needs, and the constructivist approach is designed to help students become autonomous learners.

Secondly, although the need for the new curriculum is clearly articulated, the means to achieve its goals are far less clear. There is a lack of conceptual and procedural knowledge on forms of "integration," prominent modes such as "incorporation" and "fusion," and the organization of learning experiences through "vertical" and "horizontal integration." There is insufficient background information available in the curriculum documents on the elements and principles of integration, and a lack of concrete examples of what integration would look like in practice. More explicit procedural conceptualisation could reduce "false clarity" (Fullan, 2001) and frustration on the part of the users. Furthermore, clarity helps standardise practice, and reduces potential problems such as the imbalance, trivialization and "force fitting" of content, and the fragmentation and incoherence of learning. The flexibility that the curriculum gives teachers in selecting content to meet classroom needs only heightens the need for conceptual and procedural understanding. Teacher professional development does need to address this knowledge gap.

In the third instance, the difficulty, extent, and personal implications of this change make it complex. For example, integration impacts norms within the school because it requires collaboration at different levels of the educational system. Collaborative decision-making allows for groups to share their expertise and decide how best to improve student learning. School administrators must also facilitate timetable scheduling for the "windows" and collaboration among teachers as a way to address integration challenges. A child centred constructivist learning environment challenges

the status quo of the traditional classroom and results in role changes for both teachers and students that need to be explicitly defined in an ongoing manner. Teachers now become facilitators who support student agency in knowledge construction, design activities that focus on experiential learning and reasoning, clarify and connect ideas drawn from several content areas, cater to different levels of student ability, foster the social and personal relevance of learning, and work closely with colleagues.

Whether integration is perceived to be practical depends on the extent to which clarity and complexity are addressed. Other complimentary factors include the availability of instructional resources to facilitate integration (including content selection and student assessment), and the physical and organisational capacity of the schools to facilitate integrated learning. The Ministry of Education could provide professional development for principals in order to build school capacity. Moreover, the Ministry could also develop support documents that further clarify the curriculum's conception of integration (definition, models, forms, modes, dimensions, goals, problems) and its pedagogical implications. These documents would also provide guidance on how to minimise problems such as “trivialization of aesthetics” and “force-fitting” of subjects.

Implications for Teacher Education

All primary teachers need to know how to create enabling conditions to foster a child centred constructivist approach to teaching, as well as the principles and rationale informing integration. Chapter Four (the discussion of the study findings) puts the onus on teacher educators to assume leadership and prepare teachers who will be able to implement the curriculum. If the curriculum is to be implemented in ways that enhance its numeracy, literacy, relevance, and pedagogy goals, teacher education needs to be a

means for promoting understanding of the curriculum's need, clarity, complexity, and practicality.

The following recommendations would strengthen the capacity of pre-service and in-service teacher education to effectively deliver the curriculum.

Pre-service Training

There are at least three priority recommendations that relate to pre-service training. These are recommended by the Joint Board of Teacher Education, which is responsible for the quality of teacher education in Jamaica. The Board has identified integration as needing greater attention within pre-service teacher training. Their education quality project (Fraser, duPlessis, & Thomas, 2000; IEQ, 2002) in collaboration with the United States Agency for International Development is designed to strengthen teacher educators' instructional competencies in the college programs to support the primary curriculum (Joint Board of Teacher Education, 2001a; 2001b).

1. To ensure that primary students receive quality education, prospective teachers require knowledge of content (what to teach), pedagogy (how to teach children), and curriculum (how to use the curriculum). There is little point in expecting teachers to design integrated experiences if they do not have a broad supportive knowledge base (content, pedagogy, and curriculum) (Evans, 1997, 2000; Fraser, duPlessis, & Thomas, 2000; IEQ/Jamaica, 2002; Jennings, 2000; Tucker & Bowen, 2001).
2. More specifically, prospective teachers should be given opportunities to discuss and work with the principles and processes of integration (definition, forms, models, dimensions, modes, objectives, problems) underlying the Jamaican curriculum, and how these ideas relate to planning for instruction and assessing student learning. Special

attention should be given to: thematic planning and teaching as promoted by the curriculum, and how themes can be used to enhance numeracy, literacy, and relevancy; methods of alternative assessment such as performance assessment, and use of rubrics to record student progress (Fraser, duPlessis, & Thomas, 2000); strategies of classroom organization that support group and inquiry learning; selection and use of learning resources for integrated learning experiences.

3. The above recommendation can be implemented through at least three means: a course for all pre-service primary teachers dedicated to the purposes and means for integration (IEQ/Jamaica, 2002); a focus on integration within each of the subject methodology courses (e.g., music, mathematics, language arts); opportunities for prospective teachers to observe experienced teachers working with the curriculum (i.e., their planning and organizing for integration) (Joint Board of Teacher Education, 2001a; 2001b).

In-service Training

Recommendations related to in-service are as follows:

1. In-service teacher training could be built around exemplars that identify successful attempts at integration. Examples could be provided through reports from experienced colleagues, classroom observations, demonstrations, and resource materials (audio-visual or handbooks) without sacrificing teacher autonomy. These exemplars could illustrate the kinds of content and pedagogical knowledge required to implement the curriculum, as well as methodologies that reflect how constructivist ideas can be used to design integrated experiences and assess desired learning outcomes.
2. Training could incorporate collaborative strategies so that participants experience the benefits of collegiality and working together. This recommendation attempts to change

teachers' tendency to work in isolation from each other. Horizontal and vertical integration, as well as the curriculum "windows," imply collaboration of teachers.

3. Training could focus on the selection and use of teaching resources appropriate for particular students' needs, the development and sharing of teacher made resources, as well as the accessing of Ministry resources and instructional materials.

Implications for Further Research

Very few research articles address curriculum integration in the Caribbean. Further research in at least two areas could contribute to more informed curriculum development and teacher education:

1. The present study did not analyse teachers' understandings and uses of the curriculum. Explication of their conceptions of integration and interpretations of the curriculum would yield insight into the difficulties they experience in delivering the curriculum, and could provide a basis for more relevant in-service training.
2. The present study emphasised the importance of pre-service programmes if curriculum integration is to achieve its three goals. Teacher educators can play a key role in providing both pre-service and in-service teachers with the competencies they need to deliver the integrated curriculum. Conceptions of integration held by teacher educators, some of the ways in which these conceptions are manifested in their instructional approaches, and the difficulties student teachers have with planning lessons based on integration, can be made explicit through research. In other words, teacher educators should conduct research on how their practices are meeting the demands of the primary curriculum (Fraser, duPlessis, & Thomas, 2000). Further, the dissemination of research

on integration to teacher educators, including those studies promoting “best practices” in the Jamaican colleges, must be improved.

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Appendix A

Summary of Findings from Consultations

The Primary Curriculum should:

- focus on children's (and society's) needs
- be integrated at Grades 1-3
- combine subjects and integration at grades 4-6
- allow for differences among children
- provide challenge
- include attainment targets for self assessment
- provide a basis for the establishment of standards
- ensure improved reading, language performance and numeracy
- reflect and promote essential features of Jamaican culture
- include education in the arts, and the use of information technology
- involve children in active learning, promoting skills, values, knowledge
- make children aware of health and environmental issues and equip them with the knowledge and skills for making wise decisions
- give children an interest in science and technology and a feeling of competence in these areas
- encourage the development of positive values, attitudes and mental habits

Source: Overview of the Revised Primary Curriculum, Jamaica Ministry of Education
and Culture, n. d., p. 3

Appendix B

PRIMARY EDUCATION – THE VISION FOR THE CHILD

“The child completing primary school should be functionally literate and numerate, demonstrating a positive self-concept and a willingness to take responsibility for his/her own learning.

He/she should be culturally, aesthetically and spiritually aware, and be guided by a commitment to social and moral principles.”

*Vision statement formulated in the PEIP II Project Workshop,
Jamaica Conference Centre, September 12 & 13, 1996
Final amendment July 13, 1998*

Source: Revised Primary Curriculum (Grades 1-3), Jamaica Ministry of Education and Culture, 1999, p. vii

Appendix C

PRIMARY EDUCATION – THE VISION FOR THE PROGRAMME

The primary school programme provides opportunities for pupils to develop at an appropriate developmental level: a positive self concept, basic competence in the skills needed for literacy, numeracy, creative expression, independent learning and problem solving; basic understanding of their physical, social, cultural, spiritual and aesthetic environments; growing capability promoting their own physical and spiritual health; empathy for the needs, feelings and viewpoints of other people and a willingness to work with others towards common goals; a sense of responsibility of their personal environment; a positive attitude to work and the desire to continuously increase their own knowledge and skill.

Source: Final Report on the Piloting of the Revised Primary Curriculum, Jamaica
Ministry of Education and Culture, 2001, p. 182

Appendix D

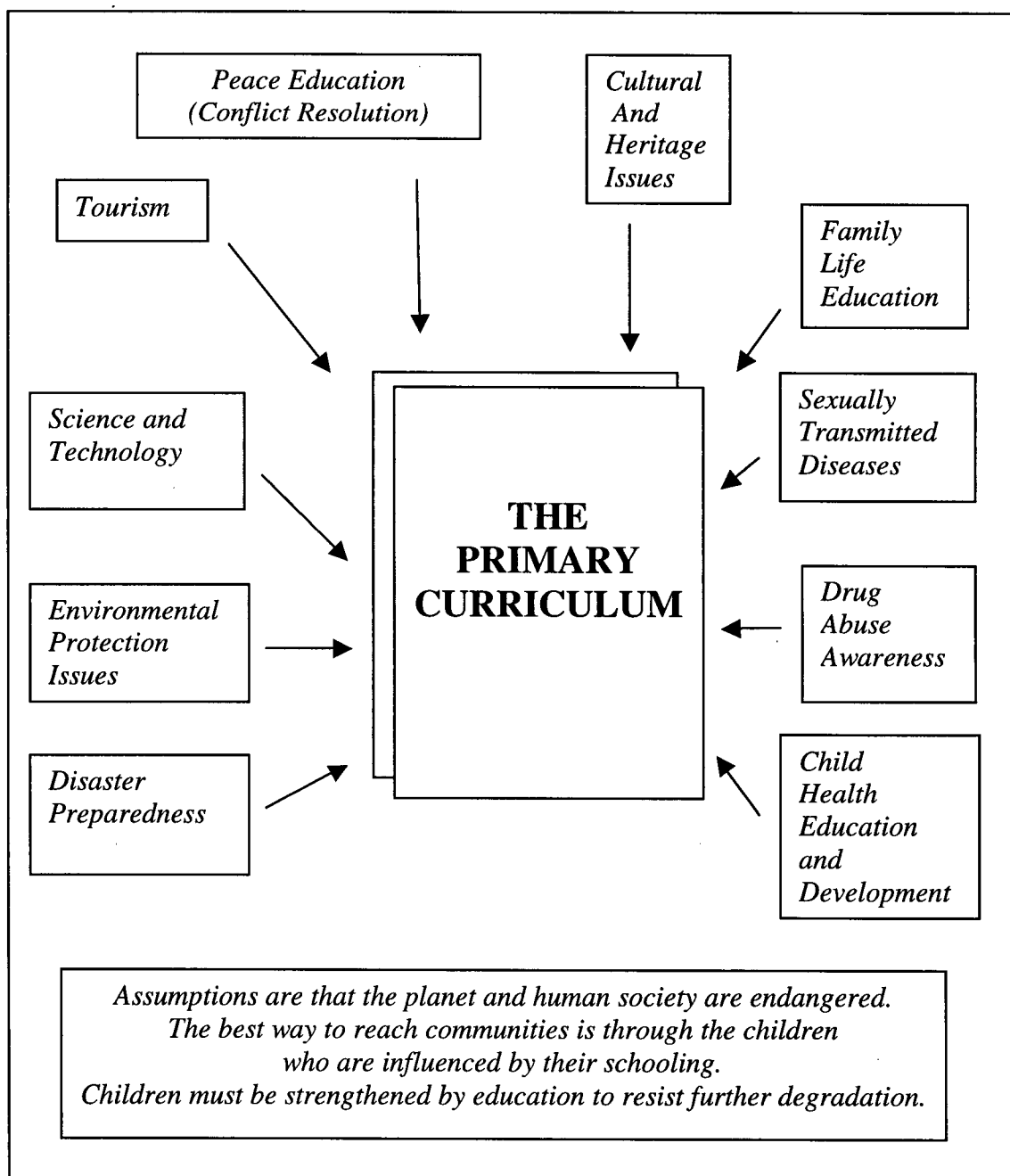
SAMPLE TIMETABLE FOR GRADES 1-3

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:00 – 8:15	ASSEMBLY & DEVOTIONS				
8:15 – 10:00	INTEGRATED STUDIES	INTEGRATED STUDIES MATH (Window)	LANG. ARTS (Window) INTEGRATED STUDIES	MATH (Window) INTEGRATED STUDIES	INTEGRATED STUDIES LANG. ARTS (Window)
10:00 – 10:15	B	R	E	A	K
10:15 – 11:30	LANG. ARTS (Window) INTEGRATED STUDIES	INTEGRATED STUDIES	INTEGRATED STUDIES MATH (Window)	LANG. ARTS (Window) INTEGRATED STUDIES	INTEGRATED STUDIES MATH (Window)
11:30 – 12:30	L	U	N	C	H
12:30 – 2:30	INTEGRATED STUDIES MATH (Window)	LANG. ARTS (Window) INTEGRATED STUDIES	INTEGRATED STUDIES	INTEGRATED STUDIES	INTEGRATED STUDIES

Source: Overview of the Revised Primary Curriculum, Jamaica Ministry of Education and Culture, n. d., p. 10

Appendix E

REQUESTS INCLUDED IN THE REVISED PRIMARY CURRICULUM



Source: Overview of the Revised Primary Curriculum, Jamaica Ministry of Education and Culture, n. d., p. 2

Appendix F

Current Trends Reflected in the Revised Primary Curriculum

- **Importance of the Aesthetics**
 - These are considered to be the 'heart' of the curriculum, and especially as the vehicles for motivating positive learner behaviour.
- **Holistic**
 - Curriculum written to better reflect the 'real world' situation of the pupil in terms of giving models/appropriate guidance for positive learner behaviours.
- **New aspects incorporated**
 - Drama as a subject in its own right.
 - Assessment as product, performance or both.
 - Common planning time as an important element of curriculum delivery.
- **'Windows'**
 - Special time allocation for the development of literacy/numeracy skills.

Source: Overview of the Revised Primary Curriculum, Jamaica Ministry of Education
and Culture, n. d., p. 6

Appendix G

SCOPE AND SEQUENCE GRADES 1-3

	GRADE 1			GRADE 2			GRADE 3			
THEME	ALL ABOUT ME AND MY ENVIRONMENT									TERM
SUB-THEME	M	Y	S	E	L	F				
Unit 1 Unit 2	- Who am I? - My Body (Part I)		- My Body (Part II) - Care and Safety of Self			- My Body (Part III) - Satisfying Other Needs	1			
SUB-THEME	MY HOME		MY FAMILY			MY COMMUNITY, THE NATION AND THE WIDER WORLD				
Unit 1 Unit 2 Unit 3	- My Family - Things in the Home _____		- Living Together as a Family - Satisfying Other Needs _____			- Providers of Goods and Services - Relating to Others Outside of Jamaica - Aspects of the Jamaican Culture	2			
SUB-THEME	MY SCHOOL		MY COMMUNITY			MY PHYSICAL ENVIRONMENT				
Unit 1 Unit 2 Unit 3	- Myself at School - Together at School _____		- This is My Community - Places of Interest in My Community - Plants and Animals in My Community			- Living and Non-Living Things in My Environment - Caring for My Environment _____	3			

Source: Revised Primary Curriculum (Grades 1-3), Jamaica Ministry of Education and Culture, 1999, p. xv

Appendix H

Terms used with the Revised Primary Curriculum

Focus Questions

- Guides to selection from the content of the unit
- Written in language from the pupil's point of view
- Should generate learning activities spread over a wide range of disciplines and taxonomies

Attainment Targets

- Broad-based, end-of-unit learner outcomes (that are interdisciplinary for grades 1-3)
- Address the appropriate skills, covering the cognitive, affective, and psychomotor domains

Objectives

- Written in measurable terms and aligned to the attainment targets
- Flexible enough to generate more specific objectives, usually general
- Clear in meaning to the teacher and manageable for the relevant grades
- Should show evidence of integration/specific disciplines as required
- Literacy/Numeracy emphases seen

Activities

- Pupil-centred
- Aligned to the objectives (and attainment targets), and particular focus question
- Wide range of performance skills

Appendix H (continued)

- Appropriate to grade level, and ability within grade

Skills

- Appropriate to the grade level
- Stated in specific terms
- Some are interdisciplinary

Assessment

- Aligned to the activities (and objectives, attainment targets, etc.)
- Clearly identified as **products** (e.g. chart, poem, model) or **performance** (e.g. recital, role-play, simulation) or **both**
- Appropriate to grade level, and ability levels within the grade

Evaluation

- Give clear criteria for valuing the assessment product
- Appropriate to the grade level, and ability levels within the grade
- Give adequate guidance to the teacher for determining the performance of the pupil(s)

Source: Overview of the Primary Curriculum, Jamaica Ministry of Education and

Culture, n. d., p. 7

Appendix I

Teacher Directives for Implementing the Curriculum

To Implement the Revised Primary School Curriculum Teachers Should Be Able To:

- Comprehend and explain the foundations of the new curriculum and its relationship to teaching practices.
- Explain the structure of the new curriculum and the purpose and meaning of each one of its dimensions and of their elements.
- Comprehend and apply the meaning of curriculum integration and differentiate the element and levels of integration in the new curriculum: 1-3 and 4-6.
- Plan the integrated teaching-learning activities individually or in groups.
- Interpret and adjust the activity plan included in the curriculum guide for each grade to particular local conditions.
- Articulate the activities interpreted as windows to the integrated ones.
- Arrange teaching-learning scenarios in the classroom or outdoors.
- Master knowledge required to develop the curriculum activities.
- Use efficiently the available teaching –learning resources.
- Construct with students and colleagues, teaching-learning materials with elements from the element.
- Design and apply different strategies for continuous assessment and evaluation of student learning and development.
- Use adequately the results from assessment and evaluation activities.

Appendix I (continued)

- Efficiently relate to parents and community members involving them in school life.
- Participate in meetings with colleagues to share experiences in the implementation of the new curriculum and to learn from them.
- Participate actively, in community activities as part of the implementation of the new curriculum.

Source: Overview of the Revised Primary Curriculum, Jamaica Ministry of Education
and Culture, n. d., pp. 11-13