

Implementing curriculum reforms in urban Madang schools: issues and challenges

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Abstract

Historical development of education and policies, curriculum reform implementation and interaction processes of education advisors, inspectors, head and classroom teachers including learners in Madang urban school district are issues discussed in this paper. Observed accomplishments, experiences and reflections are narrated in the article reflecting realities in some schools and images about the way we perceive curriculum reform and practices in PNG are discussed. Some challenges are presented for future planning and research.

Introduction

Papua New Guinea is a nation of five and half million people. It occupies the eastern half of the Island of New Guinea with 600 volcanic islands and coral atolls spread over vast expanses of the South West Pacific ocean. Isolated and separated by large expanses of water, massive mountain ranges, rich but dense and impenetrable rainforests--drained by dangerously fast flowing rivers, the country and its government are challenged to provide services to over 800 independent societies, languages and cultures which have evolved through time to the present. The Government has a unique and un-enviably task of providing basic health, education and economic services wholly and severally in diverse contexts.

The nation of multiple languages and cultures has experienced various influences from development ideologies, two world wars, two colonial regimes and many associated reforms since the island's sighting and settlement by European explorers and missionaries in the late eighteenth centuries.

Current progress in the country's development are the sum total of all past experiences to date. A review of past education philosophies, policies and practices provides glimpses of the achievements and challenges of the journey whilst activities associated with outcome-based curriculum implementation are narrated as current issues for future planning, action and research.

Education policies

Formal education was introduced in Papua New Guinea by missionaries. The country's educational philosophy, structure and policy during the colonial period favoured basic literacy with the introduction of the three 'Rs' (Reading, 'wRiting' and 'aRithmetic'). It promulgated emancipation and conversion of

the natives from their primitive savagery to a 'civilized' way of life and Christianity (Smith 1987:1, Solon 1990:14).

Post WWII Australian administration policy reiterated similar sentiments and promoted a 'gradualist approach' to education for all at elementary and primary levels. The then Minister for External Territories, Paul Hasluck 'preferred uniform development... a long, period of universal education and emergence of grass-root politicians who would represent the real feelings of their electorates (Hastings 1969:120).' Hasluck believed that PNG should not be granted early independence; that the period in the sixties and seventies was required 'to establish law and order among the people whose memories are still closely tied with primitive savagery... (Hastings 1969:120).' Hasluck argued: "that the result of the gradualist policy would be justified in the end through establishment of stable and representative political institutions in the country". He preferred a broad primary school based curriculum so that the development of the country rests upon a wide distribution of education reaching the most remote and distant sectors of the community thus avoiding the emergence of an educated elite of Papua New Guineans (p.121).

However, the United Nation's (UN) post-war decolonisation policies for African and Asian territories raised hopes and aspirations of Papua New Guineans and their sympathisers for an independent Papua New Guinea. This forced the Australian territorial administration to 'fast-track' education reforms that would launch a small but adequately trained Papua New Guineans to assume government, administrative, commercial and social service roles for the natives and to meet the manpower need of an aspiring independent people and nation (Solon 1991:15). Consequently, a three-tiered education system of primary, secondary and higher education with associated curricula, was instituted. A small minority of students were chosen (by series of exams at grade six, and ten) to advance to secondary, tertiary and university level education. A small population of Papua New Guineans assumed administrative, executive and political responsibilities from their colonial counterparts and enjoyed associated privileges of paid employment and esteemed status over their fellow citizens.

An elitist approach to education became the education policy for the sixties and early seventies leading to the country's independence in 1975.

The pre-independence elitist-education legacy retained its legitimacy in the post-independence era to the early nineteen nineties. This elitist philosophy not only fulfilled its intended role but shattered the majority's dream of formal employment, a comfortable 'office job' and access to western life style. It decreased 'self-esteem' of many aspiring Papua New Guineans.

Post independence reform

The Matane Committee (1986) on the Philosophy of Education in Papua New Guinea reiterated the national constitutional aim of integral human development and called for an education system that gives values and status

back to the community to support appropriate community attitudes, knowledge and skills relevant to community development and the needs of a fully integrated person in any society.

The Committee highly recommended an education policy that would encourage Papua New Guineans to participate in community decision making at appropriate levels; live healthy and productive lives and value both rural and urban community development activities in the context of national development, whilst developing a system of beliefs and values appropriate to their individual rights and those of the community. The Committee further highlighted the need for a curriculum that promoted relevant rural life skills whilst recognizing the need to promote quality training for those advancing into the formal economy.

The constitutional principle of integral human development, its reiteration by the Matane Committee (1986), the Papua New Guinea signing of the 1990 UN Protocol on 'Education for All' and the millennium goals, inspired the National Department of Education to introduce a 3-6-4-4 structure of education for Papua New Guinea. The reformed structure promulgated: three years of elementary; six years of basic and primary education; four years of secondary, vocational, technical, flexible, open and distance learning, and four years of tertiary and undergraduate education.

This education reform in Papua New Guinea (PNG) has been operational for thirteen years (1992-2005). Many structural changes were incorporated in response to social, cultural, economic, political and intellectual demands of stakeholders. These included provision of: '...relevant and basic education for all Papuan New Guineans; specialist further education and training for those with demonstrated ability for higher educational progression; improvement of educational access for and retention of all students in schools especially women; provision of basic and appropriate knowledge and life skills to the majority of children on completion of primary level education (National Curriculum Statement. 2002: 3).

Curriculum reform 2000

Central to the purpose of reform is the curriculum which outlines the learning framework and directions to set goals and objectives. The National Curriculum Statement (2002:11-13) articulated that students:

continue their growth toward meeting the national goals and directives called in the constitutions, the philosophy of education and related policy documents; value education as a continuing and lifelong process; improve their standard of education at all levels meaningfully; develop an understanding of PNG's many cultures and learn the language of their own communities as well as learning English, which should be reinforced throughout their school experience; acquire knowledge, skills and attitudes important to their communities and participate and cooperate as part of a group in community activities; learn and develop respect for their

people, cultures and communities; develop their intellectual, emotional, cultural, physical, creative, recreational and spiritual potential to live a fulfilling and productive life in communities in which they choose to live and serve, develop their knowledge, appreciation of and respect for the natural environment, physical and human resources and the need to develop these in ways that are sustainable for the benefit of all; develop healthy self concepts and be responsible for their actions and consider health and leisure to be important part of life to become healthy citizens of Papua New Guinea; understand that parenthood is a life long responsibility and forms the foundation of family and community stability and solidarity; learn about the important(sic) of hard work and behave the way their societies expect them; identify and respond to the value system of their culture whilst being appreciative of and respectful of cultures different from their own; have communicative evaluation skills and think creatively in a rational manner and develop better problem solving and decision making skills at appropriate levels; develop a positive sense of social awareness and respond critically to social issues; develop a spirit of enjoyment, appreciation and tolerance; valuing changes taking place in the development of their own cultures and that of others in their areas both rural and urban; develop their own moral and ethical values and standards of personal conduct based on personal integrity, respect and consideration for others, and appreciate their potential as well as their limitations and accept responsibility for themselves.

These are the overarching outcomes of the reform curriculum for Papua New Guinea.

Elementary school curriculum

The elementary school curriculum aimed to: enable students to develop an understanding and identification with local cultural values; prepare students for entry into higher grades; teach integrated community-centred curriculum in an appropriate language of the community; equip students with effective knowledge skills and attitudes for effective communication; resource social and spiritual development to achieve integral human development; value skills education, based on traditional cultural skills and knowledge and transferring them into English; effectively engage communities in the life and activities of the school to ensure relevance, ownership of courses and access by schools to community resources; provide a foundation for students learning in their vernaculars- their first language of education- and encourage teachers to creatively use community resources and improvise their learning strategies.

Primary school curriculum

The aims of primary curriculum are to: help students develop skills and attitudes that will promote learning after grade eight; encourage students to value education as a lifelong process; maintain some education in vernacular for students; assist students transfer their knowledge and skills learnt in the vernacular to English; help students to communicate effectively in oral and

written English in all subjects and to participate in wider national and international community in English; encourage students to express higher appreciation of their cultures and languages through acquisition and practical applicable basic life skills in their daily lives; promote students' confidence and self-esteem by improving living standards of their families; assist students to develop and demonstrate their abilities to actively participate in positive community affairs; enable students to be responsible citizens who are able to gain the necessary qualities and skills in order to happily and productively live and serve in their chosen communities; help student to acquire greater skills and content in all subjects; enable students to understand and explain basic concepts about their world; ensure students become mathematically and scientifically literate in both the physical and social sciences, in ways that are relevant to daily lives; encourage teachers to use local resources that deal with important local and national issues; and encourage teachers to be creative and improvise with resource materials that are around them.

In sum it is decreed that the curriculum aim to promote socialization, participation, liberation and equality amongst citizens and allowing them: to be happy, healthy and useful members of society; develop mentally, socially, emotionally and spiritually and live fulfilling lives. It calls on all students to think sensibly for themselves and to respect the thoughts of others; develop as individual members of their communities; learn and communicate with other people, develop and sustain PNG's natural resources and the environment for the benefit of all. Further the curriculum aims to prepare students who are innovative and flexible in a changing world.

The challenges to translate such ideals into reality are highly daunting for curriculum writers, let alone teachers. Of immediate challenge is the question of our aspirations of for a PNG society and the proper role for education for participation in the life and work of our society and its function for individuals, communities, the nation and the global community. Questions reflecting these challenges include: What kind of educational outcomes does an individual aspire toward? Are they the same as that of the family, the clan, the village or the nation and the global community? It is quite possible that our perceptions and aspirations may differ significantly and implicit in these may arise profound disagreements about what our education is or should be and its function for us individually and as citizens of a nation in a global community.

Is our education curriculum an instrument to prepare us for work? Does it prepare one and all to be semi skilled and skilled labourers with well known and defined competencies or should it prepare us to be professionals and managers with higher levels of general education and abstract, universalised thinking population?

Is our education a preparation for life rather than work? Is our educational aim to educate the 'whole person' with personal values to be developed rather than instruments for use in the work place? Do we see our society as open to and needing reconstruction through the development of a society's future citizen and their participation in its improvement? Should our education curriculum

develop a sense of 'good', 'true' and 'beautiful' in every child by recognizing societal values, and building them through creative and engaging tasks? Should it account for individual liberation of persons by reason through development of reasoning and socially critical faculties and democratic processes of reasonable debate?

Furthermore, should our education encourage us to develop collective approach to address anti-social, unjust and irrational social structures in our societies? Should it engage learners to critically and constructively reflect on and take actions as a group to improve our society? Should our education curriculum assist the learner to understand our current culture through our past development processes as well as take current actions and reflections on our society so that the curriculum becomes a process of negotiation amongst curriculum leaders, facilitators, learners and society members?

Which of the above educational orientation does the current out-come based curricula emphasized? It is evident that the current curriculum reform is like the Bible. It aims to be 'every thing to all'. Its aims attempt to construct knowledge, skill and attitudes relevant for the individual, the community and the society at large. Do we have the resources to meet these aspirations to the satisfaction of all? Answers to these questions will require separate papers to do them justice.

It is sufficient to say that despite the challenges, national curriculum officers with support from the AUSAID Curriculum Reform Implementation Project (CRIP) officers and practicing school teachers, have valiantly attempted to cover them in the new curriculum design.

These are translated to subject syllabuses, incorporating their rationale, aims and principles including: bilingual education; nation building and national unity; sustainability, catering for diversity, developing network and partnerships; teaching and learning; inclusive education; relevance; student centred learning; lifelong learning and integration. A further division into subject strand and sub-stands is applied for effective teaching purposes. Related subject content and teaching input from teachers is gained through a series of workshops and syllabus trials in the schools, culminating in an official reformed curriculum launching in 2000.

The following highlights curriculum implementation processes in Madang Urban inspectorate and reflects on the challenges in light of the above and possible lessons to be learnt from such experiences.

Curriculum implementation processes in elementary and primary schools

Whilst the curriculum reform was officially launched in 2000, effective implementation in Madang schools began in earnest in 2004 (E & M. Solon. 2005). Curriculum advisors, inspectors, heads and classroom teachers, and students participated in the Madang urban district curriculum implementation at varying levels.

Most schools received the new syllabuses with some resources in late 2003 and early 2004. Awareness programs began in March 2004. A team of inspectors, in partnership with the CRIP advisor conducted the first upper primary outcome based curriculum workshop in the province. Topics included: background to education reform in PNG; introduction to outcome based education; curriculum overviews; comparative analysis of the old and new syllabuses; introduction to in-service options for curriculum implementation; study of curriculum contents for each grades and levels in the primary sector; syllabus development strategies of Curriculum Development Division; rationale for curriculum changes; links between structural and curriculum reforms and between national planning documents such as the national curriculum statements and the syllabus.

Head teachers were motivated to carry out awareness with teachers, board of management members, parents and communities. Primary school inspectors were advised to conduct similar awareness about the new curriculum in respective inspectorates. Most schools in the Middle Ramu and Saidor have had some school in-services and were implementing the curriculum reform.

Curriculum implementation activities in the Madang urban inspectorates included the following: Curriculum advice by advisors and inspectors on changes in the curriculum, were provided to participating teachers; teacher professional developments on new units in the curriculum, discussions on teacher-feedback on curriculum implementation activities and provision of curriculum assistance in drafting and trialing subject modules including personal development and social science for upper primary grades. Student's feedback at the various primary grades proved valuable discussion points in professional development meetings and workshops.

Curriculum awareness

Nevertheless, the level of awareness about the curriculum requires further attention, including improved provincial planning for professional development of teachers and resources and materials support to schools, especially those in rural constituencies. The new upper primary curriculum requires the teacher to be a learner as well and learning innovator. Teachers are expected to adopt a self-study approach to learning and understanding of the syllabus and curriculum guidelines and to design and to construct learning outcomes in partnership with the communities' relevant knowledge, skills and learning experiences appropriate to the local context. This is a challenge especially for senior teachers whose national service-period spans over forty years.

Teacher in-service to raise curriculum awareness and address implementation processes should be considered a primary strategy for the province. Future plans may need to incorporate current practice in organizing teachers into cluster groups for curriculum interactions, peer education and training. Cluster groups may consist of teachers in upper primary or elementary sectors. It may incorporate teachers at the lower secondary sector so that bridging learning

strategies are incorporated into the learning pedagogy at upper primary with lower secondary environments.

Some planned activities have begun. The CRIP advisor and primary school inspectors have organized and implemented the provincial in-service training of teachers in the province. Ninety five percent (95%) of teachers were in-serviced in individual units of work, planning and programming. This has sparked interest in teachers. Many are looking forward to implement the curriculum reform. Individual schools through their own initiatives are conducting weekly in-service with colleagues to improve their understanding of the new curriculum.

In-service facilitators have emerged in many schools in Madang. They are willing to assist colleagues in understanding the curriculum in their schools. Some of them have experience as curriculum unit writers, others as trained assessors. Others have participated in the 'train-the-trainers workshops' at provincial levels. Some are self-inspired learners. All provide valuable contributions in schools throughout the province.

However, evidence exist (School inspectors reports 2005) that highlight demonstrated needs for consolidation and further improvements in school and community curriculum awareness, school curriculum leadership, teacher's professional development on curriculum implementation, and pre-service teacher education programs.

The following 'tok pisin' quotations from some teachers summarizes this situation: '*Ol yangpela! I go lang han blong yupela!! Yupela yet nau! Taim blong mi blong go malolo*'. Others would exclaim '*Aiyo-o-o! Het blong mipela i paol.*'

Are these statements reflective of a burnt-out teacher or are they indicative of inadequate professional development for curriculum implementers in schools. School observations and professional development feed-back provide mixed evidences. Responses, uttered above, are frequently cited by teachers with little exposure to the new curriculum workshops.

On the other hand, positive responses including facilitated activities described above provide other perspectives... '*nau mi save liklik*' or '*em i orait mipela yet inap wokim insevis long skul*' are often repeated by confident teachers with repeated experiences of professional curriculum workshops. Does this underline the significance of teacher-focused workshops or professional developments?

Current progress

The 2005 was termed as 'implementation year' for the upper primary reformed curriculum for Madang Province. Eighty five percent (85%) of the schools are utilizing various strategies in implementing the upper primary curriculum.

Three strategies are most evident in the Madang urban schools: An 'incremental' approach; an 'all-up' approach and the traditional high school 'subject specialization' approach. The incremental approach allows schools to introduce the new curricula in grade six (6) and follow through with the same cohort in the following years for grades seven (7) and eight (8). The 'all-up' approach schools are those who launched the grades six, seven and eight curriculum in 2005 and are 'running' with the new project. The traditional approach schools are those whose teachers adhere to the traditional subject specialization philosophy for their implementation of the curricular. It appears that schools in this category base their actions on the aim to maintain a high admission rate of their graduates to secondary schools.

Community support

An underlying requirement of the reformed curriculum is community involvement. Children or learners are to:

value education as a continuing and lifelong process...., develop an understanding of PNG's many cultures and learn the language of their own communities...; acquire knowledge, skills and attitudes important to their communities and participate and cooperate as part of a group in community activities; learn and develop respect for their people, cultures and communities; develop their intellectual, emotional, cultural, physical, creative, recreational and spiritual potential to live a fulfilling and productive life in communities...., develop their knowledge, appreciation of and respect for the natural environment,...develop healthy self concepts and be responsible for their actions and consider health and leisure to be important part of life to become healthy citizens of Papua New Guinea; understand that parenthood is a life long responsibility and forms the foundation of family and community stability and solidarity; learn about the importance of hard work and behave the way their societies expect them; identify and respond to the value system of their culture whilst being appreciative of and respectful of cultures different from their own...'

Achievement of the above aims and aspirations is dependent on communities' awareness of the aims of the new curriculum and their roles and responsibilities in fulfilling such aims. Questions must be raised about the communities' understanding and appreciation of their roles and responsibilities in facilitating the new curricula. For example, their roles in identifying appropriate community learning outcomes, facilitation of relevant learning aid and pedagogy of learning; identification of relevant and appropriate assessment criteria for the learner and participating with educators to promote learning in schools and communities.

School boards of management, parents and citizens have participated in a series of meetings about the new curriculum. Community awareness about the use of community knowledge, customs, traditions, and community practices as significant learning resources for the new syllabus and related outcomes are discussed during the meetings.

Despite these progress, feedback from school officers suggest a desire for higher, strategic and varied approaches to curriculum awareness activities. High level of headmaster/teacher consultations with the CRIP advisor and inspectors (about professional and relevant implementation strategies) suggest a need for schools and teacher input into professional needs of curriculum implementers. A 'bottom-up' approach in identifying professional development needs of teachers may be a strategy toward raising teacher awareness about the new curriculum.

Future challenges

Whilst much has been done to move the curriculum forward, challenges are evident for implementers at the school level. A brief survey was conducted among head teachers, teachers and upper primary school students in the Madang urban inspectorate identified:

- Teachers professional development need for planning and programming of the curriculum outcome into teaching strategies;
- Low level of teacher reading comprehension;
- Lack of resource materials to support learning under the new curriculum;
- Inadequate professional development of teachers through in-service;
- Conservative attitudes of teachers, school leaders;
- Fear of students not performing well in the grade eight examinations;
- Lack of school libraries and resource centres for teacher research and Generalist teaching requirements placed on teachers as likely challenges affecting outcome-based curriculum implementation in Papua New Guinea.

Planning and programming

Teachers are expressing needs to upgrade their knowledge about planning, programming and assessment procedures relating to the introduced curricula. Observations of teachers' professional journals, confirm absences of the same in a number of schools. Of the fourteen observed schools, there is evidence suggesting either an absence of, or poor and incomplete planning and programming schedules by teachers in seven of the schools. Of the total number (78) of teachers teaching upper primary grades in Madang urban inspectorate 35 % of teachers' professional journals demonstrate poor understanding of planning and programming activities.

There is observed and teacher-response evidence, of teacher's needs in understanding and appreciation of the introduced cumulative and skilled based assessment process as outlined in the national assessment and curriculum policy (2003: 5-7) sections five (5) and six (6). Teachers need to be skilled in, and their professional knowledge upgraded to complement the traditional 'end of term' exam approach with the formative assessment of demonstrated skills and outcomes-based behaviour specified in each subject syllabus.

Teachers' understanding about the percentage of assessment weightings distribution amongst specified outcomes--demonstrated skills, and behaviour

throughout the term--requires upgrading. There is evidence of absence of individual school's assessment policies and procedures to guide teachers.

Level of teacher's comprehension

Some teacher's general-reading ability and comprehension is a challenge. The traditional syllabuses up to the eighties, adopted a prescriptive approach to teaching in schools. Detailed teachers guides and lessons plans were designed for quick teacher-reference and instant use in classes. Demands on the teachers reading skills for lesson preparation were low. There was little motivation for additional reading and research prior to lesson presentations. These may be possible causes for negative teacher responses discussed elsewhere in the paper.

Availability of resources

Availability of teacher's guides, syllabus and appropriate materials in schools is either non-existent or inadequate. Material delivery agents contracted to ship resources on a 'door to door' policy assignments failed to meet their contractual obligations. Reliable eyewitnesses established that curriculum materials for designated schools, were delivered to 'halfway-point' destinations, and were assumed to have arrived at the school. For example, materials destined for inland Komindor primary school in Madang were delivered to Megiar primary school and assumed to have reached Komindor. Some schools experience inadequate supply of curriculum materials for students. Investigations into these situations revealed that misleading statistical information on staff appointments and student class enrolments may have contributed to the short supply of resources.

Professional development for teachers

Teachers have expressed opinion that curriculum workshops and teacher in-services funded by CRIP and administered by the advisor are helpful but inadequate. Expressed views, point to the need for shared professional development responsibilities for primary schools teachers, by CRIP, the National Department of Education (NDOE) and its training agencies. Where trainings are provided in teachers colleges, care must be taken to ensure that the presented units of knowledge resemble curriculum contents in the revised curriculum and practical needs of teachers.

School practitioners are cautioning that the sustainability of the project may be at stake when donor assistance is exhausted, unless the majority of current practitioner's professional knowledge is upgraded. Serious reflections must be given to knowledge about curriculum theory, rationale and philosophical foundations of education for modern Papua New Guinea. The long term sustainability of any curriculum can be maintain if its founding principle are rooted in the clearly defined aspirations and vision of a community or nation.

Teacher attitudes

Teacher's attitudes toward revised curriculum project reflect two approaches. Many teachers in Madang have expressed a positive attitude towards the goals and rationale of the new curriculum especially the wider school community involvement and student participation in their own learning processes. Samples of teachers' comments about the reform include: *'We observe that students can now confidently carry out research projects and discuss results of their findings.... There is evidence of student initiative and creativity in presented work...'*

Others are less supportive and display 'withdrawal' attitude and behaviour toward the cause. Such attitudes seem evident from the 'over forty' years of service groups discussed above. Causes for these attitudes need identification and remedial strategies offered to improve such behaviour as discussed elsewhere.

Examination phobia

Some teacher's display an unwillingness to cooperate and implement the new curriculum. This may be motivated by the fear that their students will not perform well in the grade eight exams and not proceed to secondary schools. 'This would reflect badly on us as teachers and create ill feelings between us and the parents.' They aspire towards a higher performance of their students in the traditional grade eight exams in the hope that a higher number will perform well in the exams and progress to secondary schools. They will, therefore, not adopt the revised curriculum until the grade eight exams have been redesigned to examine outcome-based knowledge, skills and attitudes. This approach is encouraged by some school leaders.

Library resources

A majority of Madang urban schools have a space called a 'school library'. However, these spaces are poorly stocked with necessary books and resource materials for teachers and students. The new curricula demands and highlights the need to adequately provide additional research materials for school libraries. These needs are highlighted by the following teacher's comments: *If the school library is equipped with the materials I need, my lessons will be well prepared and taught well.'*

A student added: *'A good library will help me find good information to write my assignments.'* Others commented: *There is more group activity work, we need a good library to get more information so that we can get good marks.'*

Papua New Guinea is a member of a global community given today's technological communications and information over-flows, it may not be unrealistic to equip schools with computer technology that would connect them to communication superhighways. Similarly serious considerations should be afforded to in-service teachers to upgrade their computer technology and communication skills.

Generalist teaching

Teachers are of the opinion that the generalist teaching requirements of the curriculum reform especially for skills, attitudes and behaviours associated with 'Making a Living subject' places high demand on teacher's knowledge and skills of the strands and sub-strands. Future research may uncover the underlying reasons for such opinion. Could it, however, be a further indicator of the expressed need for professional development for curriculum actors and leaders?

Summary

Curriculum implementation activities and challenges outlined in this paper are based on the authors' observation of individual teachers' behaviour in schools, individual and group interviews with teachers and head teachers of schools in urban Madang. Generalizations drawn in this presentation are limited to teachers and schools in urban Madang. Further research may be helpful in determining if similar challenges are experienced by teachers in rural Madang schools and other provinces.

Curriculum implementation activities are progressing in Madang urban schools. Schools are adopting and learning about the new curriculum. Financial and teacher in-service support provided by the CRIP is available to schools in the area. Some positive outcomes including improved participation by children in their own learning are evident.

However numerous challenges have been identified during the implementation process. They include: teachers' needs for planning and programming of the curriculum outcome as part of their teaching strategies; low level of teacher reading comprehension leading to slow acceptance of curriculum changes by some teachers; lack of resource materials to support learning under the new curriculum; inadequate professional development of teachers through in-service; conservative attitudes displayed by some school leaders, and teachers; teachers' fear of students not performing well in the grade eight examinations; need for school libraries and resource centres to support staff and student learning and generalist teaching demand on teachers' preparation time.

Serious attention will be required to address these challenges if progress in the curriculum reform is expected in the future. Further attention may be required to incorporate units on philosophy of education and curriculum development principles in both the pre and in-service teacher education programs. Awareness education for community members on varied purposes of education in a society may be appropriate to improve understanding of their roles in contributing to a practical but comprehensive curriculum for Papua New Guinea.

In addition, a government or donor funded 'Computer Literate Schools' project rural or remote PNG schools may be a novel approach to the challenge of under-resourced and isolated schools in the country.

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