

# WORK-RELATED SKILLING IN PRIMARY AND SECONDARY SCHOOLS IN PAPUA NEW GUINEA

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## ABSTRACT

Vocational education has long been oriented toward the formal employment sector of the economy in Papua New Guinea. That sector is in decline but the informal sector is growing rapidly. There is little evidence of vocational education responding to this significant change in the work place despite extensive efforts to reform all sectors of education over the past five years.

Few school students in Papua New Guinea are able to, or want to, enrol in vocational education institutions. Rather most will withdraw from any form of schooling by grade eight. At present their school experiences hardly equip them for work and life in rural village settings to which most will return.

Primary and secondary schools, in a reform environment, are faced with the task of developing strategies and programs to provide work-related skills for the majority of youth in the country.

One strategy readily adopted by educators is to vocationalise secondary education but finance, necessary facilities and required expertise are known to be in short supply. An alternative strategy seeks to connect primary and secondary schools with local work environments and communities. There are difficulties with this approach but it offers a long-term solution that is socially and culturally consistent with emerging education and work contexts in Papua New Guinea.

## Human capital development in Papua New Guinea

There are some four million people in Papua New Guinea of whom 42% are under the age of 15 years. There is a low level of human capital development in Papua New Guinea.

**Table 1: Human capital development in Papua New Guinea – selected factors**

Country	Life expectancy	Adult Literacy rate	Mean years of schooling	Education attainment	Primary enrolment Ratio (net)	Secondary enrolment ratio (gross)	Education expenditure as % of GNP	Human Development Index
PNG	49.6	52	2.1	0.76	73	11	2.6	0.138
Solomon Is.	60.7	23	2.8	0.09	93	14	6.0	0.191
Vanuatu	62.8	64	4.0	1.33	103	18	4.6	0.424
Fiji	63.1	87	6.8	2.31	94	57	5.1	0.652

Source: UNDP Report, 1994

## Employment Structure

There is a major problem of youth unemployment in PNG. Wage employment opportunities are low and the growth in jobs falls far short of the number of school leavers each year.

**Table 2: Activity status of PNG youth aged 10-24 by gender and place in percentages (1990)**

Labour Force	Non Labour Force
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	Wage	Non-wage	Cash farming	Subsistence farming	Not employed	Sub total	At school	Other	Total
Urban									
Male	23.1	1.6	1.3	1.3	25.8	53.1	38.4	8.5	100.0
Female	10.3	0.8	2.2	1.4	15.9	30.6	36.8	32.6	100.0
Rural									
Male	3.2	3.2	21.5	22.3	5.2	55.5	30.6	13.9	100.0
Female	1.5	1.7	23.8	22.1	3.9	53.0	24.6	22.4	100.0

Source: ADB Study, 1997)

Some 42% of male and female 10-24 year olds in the urban labour force in 1990 were not employed. Rural youth are unlikely to go into wages employment and some 88% of them reported subsistence agriculture and cash farming as their main activity of work.

## Education reform

Education, in Papua New Guinea, has been undergoing reform since 1992 although the introduction of the reforms are not uniform throughout the country.

A three-year elementary program has been introduced using local vernaculars for instruction, primary schools operate from grades 3 to 8 and secondary schools from grades 9 to 12.

**Table 3: Papua New Guinea education enrolment data – all public education institutions - 1998**

	Elementary	Primary	Secondary	Vocational	Technical	Distance	Tertiary
# students	461335	274396	38517	12853	1398	28769	9867
# institutions	4400	2906	146	115	6	2	33

The National Department of Education has responsibility for non-formal education but it is a neglected and marginal sector of education. It is mostly handled by non-government organisations and there is little, if any, co-ordination and participation rates and the kinds of programs offered are unknown.

The education reforms focus on improving access, equity and retention rates at all sectors of schooling. Access and equity issues have shown considerable improvements in the past five years however retention remains a continuing problem. The Department of Education is now turning its attention to matters of quality and relevance at all sectors of education.

## Schooling

The current and projected enrolments are impressive for they indicate the substantial increase in student numbers in all grades. But the enrolment data are also impressive for the number of students who fail to complete a basic education cycle or progress to upper secondary education in Papua New Guinea. For example:

- some 87495 children withdrew from the education system from 1997 to 1998;
- some 31427 students withdrew from the three upper primary years of education (grades 6-8) from 1997 to 1998;
- some 110496 children of the 1994-2004 cohort will withdraw from school; and
- some 110832 children of the 1995-2005 cohort will withdraw from school.

## The Unschoolled

All the time there is the unaccounted number of children who do not enroll in the formal education system at any time. The number of children in this category is unknown although it is generally accepted that some 70% of the cohort enroll in the first year of schooling.

Much stronger links are needed with non-formal education initiatives and with employers and communities in order to reconnect those children and youth who never attended school in the past or were loosely coupled and withdrew before they reach an expected exit point. Strategies are needed to

improve retention rates such as a national awareness program, free education, compulsory education, improve school/community liaison, and flexible school fee policies.

## Post-school opportunities

The education reform targets anticipate that 50% of students completing grade 8 will continue to grade 9, either in a secondary school or a vocational secondary school, and the remaining 50% will go onto vocational centres or withdraw from education. The reform anticipates that some 25% of those students not enrolling in grade 9 will enroll in vocational centres.

**Table 4: First year enrolments in vocational centres 1994-1997**

	1994	1995	1996	1997
Male	3940	4004	3648	4252
Female	1677	1541	1574	1573
Total	5617	5545	5222	5825

The number of grade 8 leavers indicates a steady growth for both sexes. Unless there is considerable expansion of the number of places available in vocational centres or in the number of vocational centres themselves, the percentage of expected grade 8 leavers who will seek to enroll in a centre will exceed first year vocational centre places by the year 2000. Of course this does not include those grade 6 and 7 students who want to go to vocational centres.

Are grade 10 and grade 12 students progressing to higher education? School leaver and selection data does not hold a lot of hope.

In 1997, more than 10,000 grade 10. Grade 10 students are being affected more and in 1998, for instance, Madang Teachers' College, admitted only grade 12 graduates in its first year intake. Other colleges took in an increasing number of grade 12 graduates as well when the official entry requirement continues to be grade 10 education. Technical colleges are also taking increased numbers of grade 12 graduates at the expense of grade 10 leavers.

**Table 5: Number of grade 10 and 12 school leaver forms and selections (1997)**

	Grade 10			Grade 12		
	Male	Female	Total	Male	Female	Total
# applications	8793	5862	14655	1554	801	2355
# to grade 11	1683	874	2557	N/A	N/A	N/A
# to HEI	849	725	1574	729	470	1199
Total selected	2532	1599	4131	729	470	1199
Total not selected	6261	4263	10524	718	438	1156

Source: Office of Higher Education, 1997

More than 1000 grade 12 students were not selected for higher education studies. As little as five years ago some 90% of grade 12 leavers went onto higher education opportunities. The expansion of the number of grade 12 graduates as a result of the reform, and the lack of expansion of the higher education sector, means that as few as 40% of grade 12 students will progress to higher education institutions in 1999.

The expansion of higher education is not keeping pace with the number of graduates from grades 10 and 12, and as a result school leavers are increasingly denied places in further education institutions.

The approach has been to strengthen vocational education in Papua New Guinea. What does this mean in practice?

## Vocational education

Vocational education, for most people in Papua New Guinea, is represented by those educational programs located in the vocational centres spread throughout the country. These centres have traditionally catered for grade 6 school leavers who are at least 15 years of age and offer trade related courses such as carpentry, motor mechanics, home economics and metal fabrication. There have been considerable criticisms of vocational education over the years, which centre on the following issues:

- The lack of a national curriculum, standard assessment systems and certification;
- The lack of a clear, unambiguous role for vocational centres;
- The low priority placed on centres by provincial governments;
- The poor funding base for this sector;
- The lack of adequate teacher training opportunities;
- Wide disparities between the quality and quantity of vocational education from one centre to another; and
- Few, if any, linkages between vocational training, employers and labour market needs.

The education reform anticipates that grade 8 will eventually be the minimum entry requirement for centres. There have been a number of initiatives over the past five years that are aimed at reviving vocational education in Papua New Guinea.

The German Government through GTZ, for instance, is working closely with vocational centres to enhance the quality of vocational training and to contribute to the development of a national policy for this sector of education. The project consists of several initiatives such as upgrading courses; the introduction of competency based training courses in a number of trade related areas such as motor mechanics, plumbing, welding and carpentry; preparing students to sit for level one national trade tests; increased professional development opportunities for staff; and the upgrading of facilities and equipment.

The recent corporate plan for technical and vocational education for 1999-2003, released by the Department of Education (1999), recommends greater control of curriculum, competency based training and credentialism. It points out that a substantial increase in its budget to almost 88 million Kina is required to fund the plan but recommends against the expansion of centres but an increase in student numbers.

The Corporate Plan and the GTZ initiatives strengthen the swing towards formalism in vocational education. This may be a useful strategy to pursue but it poses a number of problems.

Vocational centres are one of the few opportunities for youth and adults to gain education and training even if it is sometimes of a low standard. Short course development offers significant possibilities for married women and other adults and community participation in defining the needs of the informal vocational sector.

The Department of Education, in a rather contradictory move, has accepted a report that recommends a national policy shift for vocational education from formalism to a strong community orientation (Department of Education 1997). It aims at improving and co-ordinating competency training in Papua New Guinea. It conceives vocational education as 'the planned acquisitions of competencies together with the necessary knowledge defined by community, individual, social and economic needs relevant to the development of material well being in the informal economic sector' (p.1-1).

It urges that 'vocational training should increasingly be focused on community-based instruction, for economic opportunities defined either by village and community development projects, or by taking advantage of niche opportunities in the formal economy (p. iii). It suggests that course development should be orientated to:

- Community planning and decision making;
- Competencies for development; and
- Development of village resources.

The management of GTZ have sensed that formalism is effectively disenfranchising a large sector of the population who require the flexibility of non-formal education approaches. Recently, GTZ facilitated the development of short courses in the five pilot centres.

More recently, there has been considerable concern shown by politicians and education decision-makers for those children who do not go to school or withdraw early. There is a move away from a formal orientation to that of non-formal education and the informal economic sector.

The responses have been in terms of supporting the introduction of short courses in vocational centres, the development of vocational secondary schools and the introduction of work-related skilling in upper primary schools and in secondary schools.

## What is work-related skilling?

The term work-related skilling is a new term in education in Papua New Guinea. It does not appear in the literature relating to education in this country. The literature uses terms such as vocational education, skills training, employment skills, informal education, training for employment and, more recently, technical vocational education.

The term most commonly used is vocational education. The literature indicates multiple meanings for this term, but for many in Papua New Guinea, vocational education consists of those activities and experiences that take place in vocational centres.

The notion of work brings to mind the idea of regular, full time, paid activity in the formal employment sector of the economy.

Formal employment often assumes the completion of some kind of training in a post-school environment such as a technical college, nursing college, teachers' college, agriculture college or university. It could also be the kind of training that is provided on-the-job or in an industry training centre. Work skills are developed in these environments but they have a very strong focus to support the anticipated employment outcomes planned for, and by, individuals.

Work is viewed more widely for the purposes of this paper. It is any physical or mental activity or endeavour taken on by an individual or groups to sustain and improve the livelihoods of people. It is an activity that is not necessarily connected with a trade or occupation and not necessarily carried out for monetary gain.

Work-related skills is a broad concept and includes competencies which people need to successfully carry out physical and mental activities and to sustain or improve their livelihoods. Literacy and numeracy skills, problem solving, creativity, ethical behaviour and interpersonal skills are included but so are skills that relate to the uniqueness of village and urban living contexts in Papua New Guinea. Skills such as those required for success in agriculture or fishing; skills related to constructing and sailing a canoe or driving a motor vehicle; and those associated with constructing a village latrine or replacing a leaking tap washer.

## Implications of a work-related skills initiative

### SCHOOL ORIENTATION

The orientation of schools will need to change from a traditional approach involving prescriptive curricula; a high level of control of teachers and students; traditional timetable structures and subject-based staff structures; curricula that is underpinned by inspectors, subject consultants, syllabus advisory committees and national examinations.

The introduction of elementary schools have grown out of a strong village initiated 'tokples priskul' tradition and reflect a very different school orientation. The language of the elementary school is that of the local vernacular, community members have a role in choosing teachers, schools are mostly located in villages, parents assist in the development of the curriculum and the village is an often used, and lively, teaching resource. Elementary schools are oriented to the community and in comparison to other schools, effectively connect themselves to local places, environments and people.

### PARENTS AND COMMUNITY

The majority of parents in Papua New Guinea understand education in terms of an investment that is repaid upon children securing employment in the formal employment sector. Parents are disappointed whenever the return fails to eventuate and there is considerable 'shame' felt by the student. Nonetheless, parents accept children returning home after six, eight or ten years of schooling without useful skills as a natural progression in life. They view their own knowledge and the village as a back-up strategy should children fail to secure formal employment.

Reports and reviews have consistently urged that parents and community participate in school business in order that the nature and requirements of society are well represented in the orientation of

schools and the actual curriculum that is presented. Lawton (1983) refers to this as the 'selection from a culture' of the knowledge, skills and attitudes that the community wants reproduced in its schools.

Communities have been de-skilled in terms of reproducing themselves. Decisions about education are made by others. But of course communities have, in the past, established comprehensive learning and teaching processes that accompanied their own knowledge base and culture. There is value in re-visiting these.

The argument is not about reconstructing tradition. Community people do not live traditional lives. They use modern tools and ideas very successfully. Participating with the community does not imply reconstructing traditional knowledge for learning. Participating with the community refers to the co-construction of the curriculum and re-skilling the community to take responsibility for development.

... there is a set of skills and knowledge which are appropriate to living in Pari such as basic skills for living in the community, small business skills, motor maintenance skills, fishing and agriculture skills, respect, participation and acceptance. Parents felt that Pari school should offer more in the way of practical activities related to fishing and agriculture, typing, poultry, pig farming, handicrafts, vegetables for restaurants and hotels, furniture construction, mechanics and sewing for those students who would not go on to grade ten.

Another group ..... pointed out that little development was likely to come to Megjar and that copra production would be the mainstay in terms of cash income. Young people needed knowledge to support that kind of an activity and other activities that relate to the land. Improved methods of gardening, small agricultural projects such as a piggery, poultry and alternative garden crops, such as tomatoes, needed to be understood. Knowledge about alternative power sources, soap making and clothes making were suggested as forms of knowledge and skills relevant to the primary school curriculum and relevant to a self-sustaining village life. (Guy et al., 1996)

There is much to be learnt from parents by actively engaging them the school and the curriculum.

The development of suitable infrastructure is required so that school teachers, parents and other members of the community, and curriculum developers can ask their questions in the same forum and identify alternatives together as participatory and cohesive steps in the process of developing relevant curricula and a connected school.

## **CURRICULUM**

The upper primary school (grades 6 to 8) is a crucial sector of education for the development of work-related skills because of the large number of students who complete schooling at the end of grade 8.

There is only one anticipated learning area in the upper primary school reform curriculum that focuses on work-related skills at present. It has grown out of the traditional subject areas that make up Basic Technology such as practical skills, home economics, commerce and agriculture. It is yet to be fully developed. It is called Making a Living. But it is not endorsed by all. Some see it as 'watering down' traditional subjects such as commerce, practical skills and agriculture.

There is uncertainty about its place in the curriculum. Some feel it should involve 360 minutes each week. Curriculum Division suggests as much as 500 minutes per week. In comparison, Language would be allocated 240 minutes, and Maths and Science some 200 minutes each. Debates will continue as to the organisation of the upper primary school. Should there be a core of academic subjects and optional work related skills courses? Should some students do more academic study whereas others do more work related skilling?

Vocational secondary schools, situated at the grades 9 to 10 level, are being introduced and are based on the notion of developing a secondary system with the same academic standards as the normal secondary system for the core academic subjects and the provision of vocational subjects. Vocational secondary schools provide access to upper secondary studies for those students who wish to continue with their studies.

Vocational secondary schools are weakly defined at this stage and there is much uncertainty as to what the final shape of vocational secondary schools should look like.

The AusAID funded Education Sector Resources Study (1995) suggests the curriculum mix is likely to be 75% practical subjects and 25% academic subjects. The Department of Education suggests 25 periods for academic subjects and 20 periods for the practical subjects.

Traditional practical subjects such as agriculture, business studies, woodwork, and metal work are suggested together with work-related skill courses such as screen printing, fish net repair, artefacts, appropriate technology, mothercraft, catering, small business management skills, and culture and tourism.

There are compulsory and optional subjects at grades 11 and 12 in the secondary schools. Schools have developed school-based courses that are appropriate for the local contexts. For example, Hoskins Secondary School offers courses such as Applied Technology and Rural Technology and Gordons Secondary School offers a course called Urban Technology. These courses are not written by the Curriculum Division but developed locally by teachers. Advice is available from curriculum specialists and locally developed courses have to be submitted to the Board of Studies for approval.

How do you assess the kind of activities that have just been discussed in a school setting. Papua New Guinea education is dominated by assessment procedures, testing and examinations.

## TEACHERS

In a sense, teachers have been de-skilled from what they know about their own communities. Teachers' colleges effectively socialise teachers into new behaviours and understandings. They become proficient in using and understanding teachers' guides and texts produced elsewhere. They are no longer confident to draw on their own knowledge and experiences to provide interesting and relevant experiences for children.

Two young, articulate and enthusiastic teachers talked to us about the Basic Technology course that they teach in a primary school in Port Moresby. They were annoyed that they treated the course materials from a theoretical viewpoint only. They did not use the large village just across the road or the major city on their doorstep. They wanted to but they were unable to connect the school, their students, their program or themselves to the outside world.

Teachers need to be re-skilled for the activity of teaching in the new millennium in an education system that seeks to be relevant.

Primary school teacher education courses have undergone extensive review in the past three years. A new set of national curriculum guidelines were approved in 1998. These guidelines are based on a new structure known as Program 2000. Five strands are included: Professional Development, Language, Science and Mathematics, Social and Spiritual Development and Community Development.

The Community Development Strand has a particular relevance for teachers working with local communities and in the area of work-related skills. It consists of two areas of study: Community Development which includes Understanding Community Development, Developing Partnerships, Planning and Initiating Development, and Integrated Community Projects, and the second area, Technology, which includes Principles of Technology and Practical Applications.

## STUDENTS AND YOUTH

Many students develop unrealistic expectations of what they will achieve after school. Parents and communities may also have quite unrealistic aspirations for students regarding jobs or higher education opportunities.

Several youth groups were involved in this study. They reported similar experiences. One group was formed as a cultural group and used traditional folklore and dance as a social activity within a village setting but later as an income generating activity. A large number of youth were involved in this group many of whom had less than grade 6 education. An adult established himself as the leader and for several years the group had a lively reputation in Port Moresby for its dance skills and authenticity. Income was good and payments were received from some of the major hotels and tourist activities around town. The group went overseas to perform. The funds were never accounted for and the youth in the group did not receive regular payments but felt that they were exploited and the group broke up. Accusations flew but the problems of the group centred on money and a lack of entrepreneurial understanding of the potential of the group and its earning capacity by the majority of the members. The leader of the group was well aware of the earning potential.

Some of these youth are trying again but with a better understanding of organisational and money matters. There are many activities that youth get involved in. They have access to land, and labour is plentiful, but know how and capital is lacking.

There are many lessons in these stories that can be used in the development of work-related skilling at school. It is not just learning to hit a nail with a hammer. In fact most children are quite good at that.

## Work-related skilling

An integrated work-related skills from Prep to grade 12 will assist children and youth to develop realistic notions of their own abilities and their suitability for a whole range of work contexts. Work-related skilling should challenge students with problem-solving situations in order to encourage participation, leadership and individual responsibility. Work experience outside the classroom is an essential focus for meaningful problem-solving activity for older students. Some primary schools and certainly secondary schools will want to initiate small-scale entrepreneurial activities in collaboration with the community and in this way show students how they can become producers as well as consumers of resources. There should be more emphasis on the teaching of small-scale management skills through group participation and other appropriate techniques and the possibilities for work within the formal and informal sectors of the economy.

The orientation of work-related skilling will be the community and the analysis of local work contexts. What are youth likely to do when they complete their schooling and return to the village? What kind of work will they do and how can the school support the development of the knowledge and skills needed in that context?

It does not mean a new subject separate from others. It requires a review of existing curricula to ensure that work-related skilling, if it is not already part of integrated teaching approaches from elementary school to upper secondary school, is in fact a part of the curriculum. It will require new forms of assessment and inspectors who encourage initiative and a strong community orientation.

It will require teachers, students and the community to work in collaborative and negotiated ways and it will require a school timetable that is flexible and provides extended blocks of time for activities rather than lockstep period allocations. It must allow for some students to do more conventional subject oriented studies and others to do more work-related skills activities.

Work-related skilling remains to be carefully defined and designed. What must remain uppermost in the minds of planners, curriculum developers and teachers is the recognition that what has been done in the past has not worked for the majority of students in Papua New Guinea. The informal sector of the economy is emerging as a powerful social, cultural and economic context and provides direction for a responsive education system.

## Summing up ...

The orientation of education in Papua New Guinea in the past has been an academic one consistent with the needs of the formal employment sector. The growing realisation that there is less formal sector employment available has even parents thinking of alternative approaches to education and schooling.

Politicians and education decision-makers are focussing on work-related skilling to prepare all children for the possibilities of work in the informal sector of the economy.

There is much sense in all students participating in work-related skills education because:

- the largest group of leavers is at grades 6, 8, and 10 and the majority of these students no longer go onto higher education or secure employment in the formal employment sector;
- there is no longer any guarantee that grade 12 leavers will secure formal employment or a place in an institution of higher education;
- the majority of students upon leaving school will return to villages to work in the informal economic sector



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Vocational centres were initially established to 'train for jobs', then to train for 'back to the village' then to train for both; they were first part of the formal education system then included under non-formal education only to return to the formal system. Vocational centres have, from time to time, been committed to adult education, extension programs, the development of workshops, the provision of short courses, village-based training for adults in the centres or in village communities, and the provision of formal and informal skills training for grade 6 school leavers.

## Reforming vocational education

There is a real danger that the development of vocational secondary schools will result in the affirmation of the mediocrity of vocational centres. Vocational centres may need to be reconstructed with a clear community role to facilitate skills developments for adults and youth who have been denied opportunities through the formal education system.

The National Education Plan A (1995:18) states:

This plan aims to give some status to the Vocational Centres. This will both be through the establishment of 'Vocational Secondary Schools', and an improvement in curriculum and teaching standards in 'traditional' style centres.

It is not quite clear just how the development of vocational secondary schools will give status to vocational centres - a 'super' vocational centre to be known as a vocational secondary school and a traditional 'poor relation' vocational centre.

The original plan sought to replace vocational centres with vocational secondary schools to overcome the terminal nature of vocational centre courses.

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