



LIBRARY Michigan State University

THEOR

This is to certify that the

thesis entitled

A COMPARATIVE ANALYSIS BETWEEN VOCATIONAL AND NONVOCATIONAL GRADUATES FROM A SELECTED NUMBER OF JAMAICAN NEW SECONDARY SCHOOLS

presented by

Patrick S. Bennett

has been accepted towards fulfillment of the requirements for

Ph.D. degree in Education

O. Abriald Major professo

Date \_\_\_\_ July 19, 1979

0.7639



OVERDUE FINES ARE 25¢ PER DAY PER ITEM

Return to book drop to remove this checkout from your record.







# A COMPARATIVE ANALYSIS BETWEEN VOCATIONAL

AND NONVOCATIONAL GRADUATES FROM A SELECTED NUMBER

OF JAMAICAN NEW SECONDARY SCHOOLS

Ву

Patrick Sebastian Bennett

A DISSERTATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

# DOCTOR OF PHILOSOPHY

Department of Secondary Education and Curriculum

## ABSTRACT

## A COMPARATIVE ANALYSIS BETWEEN VOCATIONAL AND NONVOCATIONAL GRADUATES FROM A SELECTED NUMBER OF JAMAICAN NEW SECONDARY SCHOOLS

Ву

### Patrick Sebastian Bennett

<u>Problem</u> - Jamaica is presently investing large amounts of funds for projects and programs of secondary vocational education in the country. The major underlying objective of this expansion program is that the preparation of skilled youth will lead to reduction in youth unemployment. But studies from both developed and developing countries indicate that this is not a direct cause and effect relationship. At present there is a complete absence of any applied studies that have investigated the Jamaican secondary school students subsequent to graduation. Furthermore, even many of the studies conducted in developed countries tend to emphasize only the skill acquisition and utilization aspects in their evaluation of vocational education.

<u>Purpose</u> - To assess the outcomes of secondary vocational graduates through a comparative analysis between vocational and nonvocational graduates from New Secondary schools.

Background - In the United States studies by F. Reid Creech, Jacob Kaufman, Morgan V. Lewis and Max Eninger have concluded that vocational graduates have a higher rate of employment than their nonvocational colleagues. However,

Patrick Sebastian Bennett

William Conroy, Daniel Diamond and John Grasso had opposite conclusions. Studies from developing countries by O. Donald Meaders and William Thuemmel gave support to the effectiveness of secondary agricultural education while Najiti Mohammed Amin Al Bukhari had serious doubts.

<u>Method</u> - A questionnaire consisting mostly of close ended questions was used to collect the data from a random sample of nine hundred and seventy-seven (977) New Secondary school 1977 graduates. The questionnaire was first pilot tested, and the entire questionnaire yielded a correlation coefficient of .74. Eighty-one point thirty-seven percent (81.37%) of the questionnaires were returned.

<u>Analysis</u> - The analysis consisted of two major stages. The first stage consisted of analysis of one dependent and one independent variable using the Chi Square statistic and one-way frequency analysis. Stage two consisted of a multivariable analysis using analysis of covariance and controlling for three nuisance variables.

<u>Conclusions and Recommendations</u> - Most of the variables, including employment, failed to show any statistically significant differences between the responses from vocational and the nonvocational graduates. All the variables that were related to employment had very low correlations. All the four variables with employment (dependent variable) accounted for 15% of the variance. The indications are that factors beyond the control of the school were far more critical than school factors in determining vocational outcomes of the 1977 Jamaican New Secondary graduates. The graduates' replies regarding what factors they thought contributed to their unemployment and an analysis of the Jamiacan GDP and unemployment figures indicated that the state of the economy was probably the most critical factor.

Patrick Sebastian Bennett

Recommendations included (a) adjustments of the numbers of vocational students per subject area by schools; (b) increase in length of work experience program; (c) greater integration and two-way communication with the private and public sectors; (d) greater emphasis on students' job search practice and the development of self-employment interests; (e) search for external funds to establish an experimental skill training center outside the formal schooling system and (f) more comparative and longitudinal research studies of vocational graduates' outcomes by the Ministry of Education.

All of the above recommendations should aid in the improvement of the effectiveness of vocational education in the New Secondary schools. However, ultimate improvement in the status of the vocational graduates' outcomes will likely be heavily dependent on improvement of the Jamaican economy.

To - Myrtle, Pamela, Michael Andreen and Martin

## ACKNOWLEDGMENTS

The researcher wishes to express his sincere gratitude and appreciation to all the individuals who helped in the planning and completion of this study.

The author extends most sincere thanks to Dr. O. Donald Meaders, chairman of his guidance committee for the last three months of the study, and to Dr. John F. Bobbitt, former chairman of the guidance committee who left on special overseas assignment. The friendly advice, scholarly review and dedicated approach of Dr. Meaders have made invaluable contributions to the completion of the study. The researcher wishes to express profound gratitude to Dr. Bobbitt for his willingness to help and his contributions to the development and progress of this study. Appreciation and sincere thanks are extended to Dr. Ruth Hamilton, Dr. Eugene Trotter and Dr. Eddie Moore, other members of the guidance committee, whose suggestions and advice was most helpful; and to Dr. Rex Ray, a former member of the guidance committee who left on overseas assignment.

The author is greatly indebted to the Jamaican Ministry of Education for providing him with a fellowship to pursue graduate studies at Michigan State University, and for partially funding the research. Sincere thanks are also extended to the Jamaican Consulate in New York, the AID Agency in Washington and to the AACTE for administering the fellowship at different periods.

The author also extends his most sincere thanks to Mrs. Ruth Langenbacher for her professional typing of the dissertation, to Mrs. Alma Elliott-Long for her invaluable assistance at critical periods in the preparation of the dissertation and to Mr. and Mrs. Eric King for their kind assistance in editing it.

Finally, profound thanks and grateful appreciation must be extended to my wife Myrtle and to my children -Pamela, Michael, Martin and Andreen who endured the pains and agony of separation for the four years during which the author studied at Michigan State University.

# TABLE OF CONTENTS

Chapter			Page
I	INTRODUCTION	•••	1
	Background		2
	Need For The Study		10
	Purpose		10
	Objectives of Study	• •	11
	General Propositions	• •	11
	Limitations of The Study	• •	12
	Basic Assumptions	• •	12
	Definitions	• •	13
	Overview	• •	15
II	REVIEW OF LITERATURE		17
	Expectations of Secondary Education	a-	
	tion in Jamaica		18
	Some Comparative Vocational		
	Studies of Secondary Graduates	5	
	in the United States		25
	Employment		25
	Wages		28
	Assessment of Secondary School		
	Vocational Graduates in Develo	op-	
	ing Countries	• •	29
	Protagonists of Secondary		
	Vocational Education .	• •	33
	Antagonists of Secondary		
	Vocational Education .	• •	34
	Assessment of the Vocational O	ut-	
	comes of Caribbean and Jamaica	an	
	Secondary Vocational Graduates	з.	37
	Evaluation of Vocational Gradu-	-	
	ates: Need for a New Perspec-	-	
	tive in Developing Countries	• •	39
	Summary	• •	43

Chapter												Page
III	DESIGN	OF T	ΗE	STUD	ч.		•	•	•	•	•	45
	The	e Pop	ıla	tion	and	San	nple	•	•	•	•	45
		Sel	ect	ion	•			•	•	•		46
		Des	cri	ptio	n.		,	•	•	•	•	46
	Sur	vey	Ins	- trum	ents				•	•	•	46
		Con	str	ucti	on .		•	•	•	•	•	46
		Des	cri	ptio	n.			•	•	•	•	50
	Pi]	ot T	est	-						•	•	51
		Val	idi	tv .			-					51
		Rel	iab	ilit	v .			-				52
		Oue	sti	on W	ordi	na .						53
	Cor	stru	cti	on R	efine	emer	it o	f	•	•	•	• •
	01	iesti	onn	aire				_	-	-		54
	Med	hani	cs	of D	ata	Gath	neri	na na		-		54
		Pro	ced	ure	Used	in	Col	lect	ina			54
		Pro	ced	ure	Used	in	Han	dlin	α Da	ta		56
	Des	sign		ur c	obcu			~	9 Du			56
	Tee	stabl	• - н	vnot	hese		•	•	•	•		57
	Ana	lvei	=	1000	nebe.		•	•	•	•	•	58
	Sun	marv		•	•	•	•	•	•	•	•	61
IV	PRESENT		N O	F TH	E FII	NDIN	IGS	•	•	•	•	63
	Int Ana	rodu	cti s o	on . f Da	ta Ba	ased	l on	One	•	•	•	63
	De	epena	ent	and	. One	TUC	lepe	naen	τ			61
	Vč	ariab	re	•	- 17-		. 1	•	•	•	•	04
		Dem	ogr	apnı	c va	riar	ores	•	•	•	•	64 C 4
			Se	х	•			•	•	•	•	64
			. 50	cioe	conoi	nic	Sta	tus	•	•	•	65
		Ina	101	aual	Dec.	LSIC	on v	aria	bles	•	•	65
			AC	niev	emen	t Le	evel	•	•	•	•	65
			Pr	acti	call	rog	gram	•	•	•	•	66
			Sa	tist	actio	on V	Vith	the	New			
			S	econ	dary	Sch	1001	•	•	•	•	67
			De	sire	to	Repe	eat	Prac	tica	1		
			Ρ	rogr	am .		•	•	•	•	•	68
			At	tend	ance	at	Pos	t Se	cond	ary		
			I	nsti	tutio	ons.		•	•	•	•	69
		Cri	tic	al S	choo	l Va	aria	bles	•	•	•	69
			Di	stri	butio	on c	of G	radu	ates	•	•	70
			Ad	equa	cy o	f Fa	acil	itie	s	•	•	70

\_\_\_\_\_

# Chapter

IV (cont'd.)

Employment Variables		71
Employment Rates		71
Reasons for Unemployment .		72
Relatedness of Job to		
Training		73
Salaries		73
Frequency of Efforts to Obta:	in	
Jobs		73
Assistance in Securing		
Employment		74
Employer		75
Work Experience Variables.		76
Relatedness of Work Experience	ce	
to Training		77
Usefulness of Work Experience	э	
Program		77
Multivariate Analysis of Data		78
Procedure used in Eliminating		
Non-Significant Variables .		79
Employment		79
Salaries		90
Job Satisfaction		91
Further Education.		92
V SUMMARY, CONCLUSIONS AND RECOMMENDATIONS		96
Commente		0.0
Our rui or of Drohlom	•	90
Overview of Problem	•	97
Methodological Overview	•	100
Major Findings	•	100
Conclusions	•	105
Discussion	•	107
Recommendations	•	115
Recommendations to the Schools	•	115
Recommendations to the Ministry		
of Education (Jamaica)	•	117
Recommendation to the Government	•	118
Some Implications		119

Page

## Chapter

APPEND	ICES .	•	•	•	•	•	•	•	•	•	121
A:	HISTORIC	AL RE	VIEW	OF	THE	NEW	SECO	NDAI	RY		
	SCHOOLS	AND V	OCAT	IONA	L EI	DUCAI	NOI	•	•	·	121
		Esta	blis	hmen	t.						121
		Curr	icul	um							123
			Core	Cur	ricu	lum					123
			Optio	ons							123
		Eval	uati	on							124
			Cont	inuo	us A	sses	smen	t.			124
			Exte	rna1	Ass	essn	ient				124
	Voca	tiona	1 Ed	ucat	ion						126
		Back	arow	nd							126
		The	Farl	Vo	are	•	·	·	•	•	127
		Drog	ont i	2 10	a13	•	•	•	•	•	120
		Pies	ent :	stru	ccui	e.	•	·	•	•	120
в:	SUPPLEME	NTARY	TAB	LES		•					132
C:	SUPPLEME	NTARY	FIG	URES	•	•	·	•	•	•	155
D:	QUESTION	NAIRE	, LE	TTER	S TO	GRA	DUAT	ES A	AND		157
	CODES FC	A OPE	N-EN	DED	QUES	1101	10.	•	•	•	121
REFERE	NCES .		3	1.0			191			10	166

## LIST OF TABLES

Table		Pa	age
1.	Unemployment Rates for Jamaican Labor Force		3
2.	Changing Age Structure of the Population of Jamaica - 1975-1990 Projections .		4
3.	Students' Responses to Factors Influencing Their Job Choice		20
4.	Disparities Between Vocational Ambitions and Vocational Opportunities		24
5.	Gross Domestic Product at Constant Prices and Unemployment Rates 1969-77		41
6.	Percentage Distribution of Graduates in the Sample in Each of Six Variables		47
7.	Distribution of Graduates According to Practical Subject Taken in Secondary School		49
8.	Chi Square Analyses Between Vocational and Nonvocational Graduates and Demographic Variables.		65
9.	Chi Square Analyses Between Vocational and Nonvocational Graduates and Individual Decision Variables		66
10.	Chi Square Analyses Between Vocational and Nonvocational Graduates and Critical School Variables		70
11.	Percentage Distribution Between Vocational and Nonvocational Graduates		71
12.	Chi Square Analyses Between Vocational and Nonvocational Graduates and Employment Variables.		72

ix

Table		I	Page
13.	Percentage Distribution Between Vocational and Nonvocational Graduates and Frequency of Efforts to Obtain Jobs .	•	74
14.	Distribution Between Vocational and Nonvocational Graduates and Job Attainment	•	75
15.	Distribution of Employers of Graduates .	•	76
16.	Chi Square Analyses Between Vocational and Nonvocational Graduates and Work Experience Variables	•	76
17.	Analysis of Covariance Between Employment and School Option, Geographic Location, and Practical Option	•	81
18.	Multiple Classification Analysis Between Employment and School Option, Geographic Location and Practical Option	•	83
19.	Analysis of Covariance Between Employment and School Attended	•	88
20.	Multiple Classification Analysis Between Employment and School Attended	•	89
21.	Analysis of Covariance Between Salary and School Option.	•	91
22.	Analysis of Covariance Between Further Education and School Option	•	93
23.	Multiple Classification Analyses Between Further Education and School Option	•	94
24.	Distribution of Students by Kind of School in Secondary Stage(1976-1977)	•	122
25.	Grades 10 and 11 Students in New Secondary Schools by Vocational Areas	•	125
26.	Number of Full Time Vocational Students by Type of Institution in the Formal System	•	131

Та	b	1	е
----	---	---	---

able		Page
27.	New Secondary Enrollments by Technical and Vocational Subjects in Grades 10 and 11 for Five Years	. 132
28.	Number and Names of Schools by Geographic Location and Size Categories	. 133
29.	Numbers of Questionnaires Distributed, Number Returned and Percentage Returned by Category and School Name	. 134
30.	The Miller Scale for Ranking Occupations .	. 135
31.	Number and Percentage by Sex for Vocational and Nonvocational Graduates .	. 137
32.	Number and Percentage by Age for Vocational and Nonvocational Graduates .	. 137
33.	Number and Percentage by Geographic Location for Vocational and Nonvoca- tional Graduates	. 137
34.	Number and Percentage by Socioeconomic Status for Vocational and Nonvocational Graduates	. 138
35.	Number and Percentage by Academic Achievement Level for Vocational and Nonvocational Graduates	. 138
36.	Number and Percentage by Selection of Practical Program for Vocational and Nonvocational Graduates	. 139
37.	Number and Percentage by Practical Programs Taken for Vocational and Nonvocational Graduates	. 139
38.	Number and Percentage by Satisfaction with NSS for Vocational and Nonvoca- tional Graduates	. 139
39.	Number and Percentage by Desire to Repeat Practical Program for Vocational and Nonvocational Graduates	. 140

Tal	<b>51</b> 6	Э
-----	-------------	---

40.	Number and Percentage by Post Secondary Attendance for Vocational and Nonvoca- tional Graduates	•	. 140
41.	Number and Percentage Indicating Related- ness of Post-Secondary Study to New Secondary Training of Vocational and Non- vocational Graduates	•	. 140
42.	Number and Percentage by the Adequacy of Preparation for Vocational and Nonvoca- tional Graduates	•	. 141
43.	Number and Percentage by Difficulty of Understanding Practical Instruction for Vocational and Nonvocational Graduates	•	. 141
44.	Number and Percentage by Interest of Practical Instructor for Vocational and Nonvocational Graduates	•	. 141
45.	Number and Percentages Indicating Adequacy of Facilities as Perceived by Vocational Graduates	•	. 142
46.	Number and Percentage by Employment and Unemployment Rates for Vocational and Nonvocational Graduates	•	. 142
47.	Number and Percentage by Reasons for Unemployment for Vocational and Non- vocational Graduates	•	. 143
48.	Number and Percentage by Relatedness of Job to Training for Vocational and Non- vocational Graduates		. 144
49.	Number and Percentage by Salaries for Vocational and Nonvocational Graduates	•	. 144
50.	Number and Percentage by Job Status for Vocational and Nonvocational Graduates	•	. 144
51.	Number and Percentage by Satisfaction		

Page

with Present Job for Vocational and Nonvocational Graduates . . . 145 • • • •

# Table

able		Page
52.	Number and Percentage by Relatedness of Work Experience to Practical Training for Vocational and Nonvocational Graduates .	145
53.	Number and Percentage by Work Experience Participation for Vocational and Non- vocational Graduates	145
54.	Number and Percentage of Vocational and Nonvocational Graduates Responding to Several Categories of Usefulness of Work Experience Program	146
55.	Chi Square Analyses Between Employment and Six Variables	146
56.	Chi Square Analyses Between Salaries and Five Variables	147
57.	Chi Square Analyses Between Job Satisfaction and Ten Variables	147
58.	Chi Square Analyses Between Further Education and Two Variables: Sex and School Attended	148
59.	Means and Standard Deviations for Significant Three-Way Interaction Between Employment with Geographic	1/0
60.	Analysis of Covariance Between Employment	149
	economic Level	150
61.	Multiple Classification Analysis Between Employment and Achievement Level, Sex and Socioeconomic Level	151
62.	Analysis of Covariance Between Further Education and Academic Achievement Level, Sex, and Socioeconomic Level	152

<ul> <li>63. Multiple Classification Analysis Between Further Education and Socioeconomic Level and Achievement</li></ul>	Page
<ul> <li>64. Confidence Intervals for Practical Programs Calculated from Covariance Analyses Between Employment and the Practical Programs</li> </ul>	153
64. Confidence Intervals for Practical Programs Calculated from Covariance Analyses Between Employment and the Practical Programs	100
Practical Programs	
	154

## LIST OF FIGURES

<ol> <li>Interaction Between Employment with Geographic Location Practical Option and School Option</li></ol>	Page
<ol> <li>Organization of Vocational Education in the Formal System</li></ol>	86
3. Map of Jamaica Showing Positions of Sampling Locations	129
	155
<ol> <li>The Vocational Equation: The General Hypothesis is that the Vocational Outcomes Experienced by T &amp; I Graduates is an Inter- action Product of School, Student and</li> </ol>	150

# CHAPTER I

# INTRODUCTION

Along with the achievement of independence by most developing countries between the nineteen fifties and the nineteen sixties, has arisen a corresponding urgency in these countries to produce enough skilled manpower from their own populations to aid the development process. This urgency has resulted in a demand among the politicians and educators of developing countries for increased emphasis on skill-oriented subjects in the curricula of elementary, secondary and post secondary schools. The schools with the greatest concentration of vocational subjects have tended to be the secondary schools. Simultaneous with this emphasis, a discussion has been taking place regarding the practical contributions to development of large scale expansion of vocational education in the secondary schools.

This study seeks to examine the effectiveness of the secondary vocational training but also considers the contributing effects of the society and of the individual in the evaluation of vocational outcomes.

This research is limited to secondary vocational education, which falls under the jurisdiction of the Ministry of Education in Jamaica.

## Background

Developing countries are plagued by high unemployment rates in their total populations--rates which reach crisis proportions among the youth. In 1971 Sri Lanka, formerly Ceylon, reported 70 percent unemployment rate among 15-24 year old secondary school graduates with ordinary level passes in the General School Certificate. In 1975 the unemployment estimate for the Caribbean was over 50 percent for the 15-19 age group. In Jamaica the unemployment rate in the 14-19 age group was approximately 46 percent in 1975 but by 1977 it had increased to over 58 percent (see Table 1).

The enormity of the unemployment problem, as well as the implications for skill-acquisition and attributes for labor market entry, can be more fully appreciated when it is recognized that it is the adolescent group which, in addition to showing the highest rate of unemployment, is also the group in the Jamaican population which registered the fastest growth rate in the period 1970 to 1990 (see Table 2). The 15-29 age group not only represented the fastest growing group, but it was the largest section of the population. In 1975 they represented one quarter of the population, but it is projected that they will represent

Item	1975	1976	1977
Total Population	2,047,000	2,082,000	2,100,800
Labor Force Numbers	865,600	895,500	917,900
Population	42.3	43.0	43.7
Employed Labor Force Numbers Rate	684,300 79.1	679,100 75.8	699,200 76.2
Unemployed Labor Force	20.9	24.2	23.8*
Percentage of Male Labor Force: Employed Unemployed	88.1 11.9	85.3 14.7	85.4 14.6
Percentage of Female Labor Force: Employed Unemployed	68.3 31.2	64.4 35.6	65.4 34.6
Unemployed Labor Force 14-19 Years: Number Rate	52,800 45.9	62,200 54.3	65,500 58.4

Table 1. Unemployment Rates for Jamaican Labor Force

Source: <u>The Labour Force</u>. Kingston, Jamaica: Department of Statistics, 1977.

\* Figures published in the governments recent Five Year Development Plan 1978-82 indicates that in 1978 there was a slight reduction in the unemployment rate. This fell from 24.6 percent in April 1977 to 23.1 percent in April 1978.

Table 2.	Changi	ng Age S	tructure	of the	Population	of Jama:	ica - 1	975-199	0 Proje	ctions
Age		Populat.	ion (tho	usands)			8 D.	istribu	tion	
Interval	Census 1970	1975	1980	1985	1990	Census 1970	1975	1980	1985	1990
0 - 4	294.9	303.6	267.4	260.0	232.4	15.9	14.9	12.5	11.4	9.7
5 - 14	557.6	589.1	571.2	555.5	510.5	30.2	29.0	26.7	24.2	21.2
15 - 29	398.5	512.6	641.5	744.8	808.8	21.5	25.2	29.9	32.5	33.6
30 - 44	243.9	251.5	276.6	338.8	439.4	13.2	12.4	12.9	14.8	18.2
45 - 64	252.7	258.7	258.1	252.4	273.0	13.7	12.7	12.0	11.0	11.3
65+	101.8	117.8	128.6	139.6	145.1	5.5	5.8	6.0	6.1	6.0
Totals	1849.4	2033.3	2143.4	2291.1	2409.2	100.0	100.0	100.0	100.0	100.0
Source:	Five Ye Agency,	ar Devel Ministr	opment P. Y of Fin	lan 1978 ance and	3-82. King <u>1 Pl</u> anning,	ston, Jan 1979.	maica:	Nation	al Plan	ning
Note: S b	ome data orn for	are est 1985 and	imated; ( 1990.	others ;	are project	ed. The	0-4 ag	e group	is not	yet

4

-----

one third of the population by 1983. So what Archibald Calloway has said about Africa is also true of Jamaica: "Unemployment among school leavers, is perhaps the most serious long run socio-political problem facing African countries."<sup>1</sup>

A symposium on employment strategies and programs in the Caribbean concluded that approximately 80 percent of the unemployed are relatively ill equipped because of inadequate education and training.<sup>2</sup> The customary governmental response to lack of skills among adolescents is to inject large doses of vocational education into the formal school system. The underlying assumption usually made is that the lack of vocational skills, including agricultural skills, is the major and overriding factor militating against employment or aiding the rural to urban movement.

The practice of implementing vocational education within formal school systems, especially at the secondary level, has been characteristic of educational planning in developed as well as developing countries. Though such policies may be current, they are nothing new. In British colonial Africa and the Caribbean it was the antidote

<sup>&</sup>lt;sup>1</sup>Archibald Calloway, "Unemployment Among African School Leavers," <u>Journal of Modern African Studies</u>, 1 (September, 1963), 371.

<sup>&</sup>lt;sup>2</sup>Commonwealth Secretariat, <u>The Young Unemployed</u>-A Caribbean Development Problem (London: 1976), p. 5.

recommended by various commissions to reduce unemployment, increase productivity and improve rural life. The intriguing feature about this policy of formal vocational education, is that although it failed<sup>3</sup> to achieve its major objectives in every place where it was tried it continues to be a popular educational recipe for educational planners and politicians.

In Jamaica the expansion of formal secondary vocational education has been making great strides. In 1973 an Education Sector Survey estimated that annually there was a vocational technical training shortage of approximately 20,000 to 25,000 student places in Jamaican schools. The survey further indicated that the shortage was aggravated by the then current large number of 15-19 year olds who were not in school. As a result they recommended the establishment of three secondary vocational technical high schools for agriculture, home and community development. Each

 $<sup>^3</sup>$ Ghana is a prime example where vocational and agricultural schools failed during the latter half of the nineteenth and early part of the twentieth centuries. This happened in spite of the lack of interest in the establishment of British type secondary schools and even though agricultural education was considered as paramount to economic development in the area. This was particularly obvious in the case of the activities of the Basel Mission. The type of agricultural and vocational education attempted at the Basel Mission was probably unrivaled by any other African territory. (See Philip J. Foster, "The Vocational Fallacy in Development Planning," Education and Economic Development, eds. C. Arnold Anderson and Marv Jean Bowman (Chicago: Aldine Publishing Company, 1966), p. 145.

school was to have an enrollment of 500-700 students when its ultimate capacity was achieved.<sup>4</sup>

In 1974 the then existing Junior Secondary Schools were converted to New Secondary schools by the addition of two years to prepare students in grades 10 and 11 with major emphasis upon vocational education and preparation for the world of work. (See Appendix A for a historical review of (a) the New Secondary School, and (b) Vocational Education in Jamaica.) The Prime Minister in his 1974 Budget Speech labeled the decision as "the greatest single educational advance in the history of this country."<sup>5</sup> He further pointed out that the students who would benefit from the grades 10 and 11 programs would "get properly worked out vocational training to fit them for successful careers in the economy."<sup>6</sup>

<sup>6</sup>Ibid.

<sup>&</sup>lt;sup>4</sup>William Houston Miller and Ross M. Murray, eds., Jamaica Education Sector Survey (Kingston, Jamaica: Publi-Cations Branch, Ministry of Education, 1977), p. 83 and Annex C.

Note: One of these schools started operation in January 1979, construction on the second one was due to begin in March 1979. Upgrading work on an existing vocational school has already begun and is projected for completion around the middle of 1980. This one will serve as the third school.

<sup>&</sup>lt;sup>5</sup>P. M. Budget Speech (1974). (Kingston, Jamaica: Agency for Public Information, 1974), p. 37.

Various Ministry of Education publications ' also contain support for the Prime Minister's statement that the objective of vocational education in the New Secondary school is to prepare students with skills to facilitate their employment upon graduation. In addition, both parents and students seem to support the above objective.<sup>8</sup> As far as the provision of resources for the achievement of their wishes is concerned, the government had recognized this need. Their new Five Year Development Plan contained proposals for expansion of vocational training in schools.<sup>9</sup> It was estimated that by 1982 the number of students in grades 10 and 11 participating in vocational training in the New Secondary schools would be 95,000, an increase of over 160 percent over the 1976-77 figures. (See Appendix B, Table 27 for details of projected increase by vocational areas.) Furthermore, plans were made to intensify agricultural training with a target of 2,000 young farmers graduating annually and

<sup>&</sup>lt;sup>7</sup>See Ministry of Education, "The Grade 10-11 Programme" (A backgound paper to discussion between the Ministry of Education and Principals of Teacher Education Institutions in May, 1975), p. 1, and the Ministry of Education, "Annual Report 1974-75" (Kingston: Jamaica), p. 25.

<sup>&</sup>lt;sup>8</sup>See Thelma M. Stewart, "The Attitudes of Parents and Teachers Toward Vocational Education in Jamaica" (Ph.D. thesis, Documentation Centre, Institute of Education, University of the West Indies, 1976), p. 97 and Ministry of Education, "Grade 10," (Kingston: Jamaica, undated), p. 1.

<sup>&</sup>lt;sup>9</sup>Government of Jamaica, <u>Five Year Development Plan</u> <u>1978-82</u> (Kingston, Jamaica: National Planning Agency, Ministry of Finance and Planning, 1978), pp. 4 and 106.

to increase the number of places available in industrial training centers from 3,100 to 6,500 by the end of 1982.

While everywhere in developing countries there has been increased emphasis on formal secondary vocational education, there is a growing school of thought that opposes this emphasis. Its opponents believe that formal vocational education usually has not achieved the objectives which educational planners and politicians had established for it (see Chaper III, pages 33 to 37 for further elaboration and documentation).

One of the major arguments against formal secondary vocational education is that other factors outside and beyond the control of the school are more critical in the vocational outcome of graduates. John Dewey identified three fundamental factors in the educative process: the learner, the society and organized subject matter. He further observed that the tendency is to treat these factors "in their separateness, to insist upon one at the expense of the other, to make antagonists of them."<sup>10</sup> It would therefore seem that the practice of assessing vocational outcomes largely on the basis of a single factor is too narrow a view. This investigation took the view that an adequate evaluation of vocational outcomes should consider

<sup>&</sup>lt;sup>10</sup>John Dewey, <u>The Child and the Curriculum</u> (Chicago: The University of Chicago Press, 1902), pp. 4-8.

the combined effects of the society, the individual and the school.

Need For The Study

The study has been designed to provide information about the effectiveness of the New Secondary schools. Such information regarding the relationship between schooling and employment may be useful in several ways such as:

 Aid in long-range planning for the operation and development of vocational education in Jamaica.

 Aid government institutions and organizations in determining the direction and emphasis of their investments in vocational education.

 Help the Ministry of Education and the New Secondary schools in improving the curricula, courses, programs and evaluation methods of vocational education.

### Purpose

The purpose of this study is:

 To examine the effectiveness of the New Secondary school vocational training program; as seen from graduates' perspective.

 To provide the Ministry of Education and the New Secondary schools with the findings as a basis for reinforcing or modifying the program.

 To provide a stimulus for further research and evaluation of the vocational program in the New Secondary schools. Objectives of Study

The major objectives are:

 To ascertain if vocational education training made any difference in the employment rates, salaries, relatedness of the job, job satisfaction, further training and work experience of vocational and nonvocational graduates.

2. To determine if individual variables (achievement, age, sex, job seeking efforts), societal variables (geographic location, the state of the economy, employer prejudices, occupational status) and school variables (curriculum, instruction, facilities, and work experience) had any significant effects upon (a) employment, (b) job satisfaction and (c) further education.

## General Propositions

 Employment status (employed, unemployed) of the graduate is dependent on the combined effects of the variables: graduate status, level of instruction, geographic location, socioeconomic status, academic achievement, difficulty of obtaining employment, interest of teacher, age, sex, work experience, practical option, curriculum preparation and school attended.

 Salaries are dependent upon the combined effects of the variables: graduate status, practical option, geographic location, achievement levels, sex, and socioeconomic status.

3. Job satisfaction is dependent on the combined effects of the graduate's sex, age, socioeconomic status, older siblings in secondary schools, type of employer, desired work place, practical option, and salary.

4. Further education is dependent on the combined effects of the variables: achievement level, socioeconomic status, sex, school attended and graduate status.

# Limitations of The Study

 The findings of this study are generalized only to the graduates of 21 Jamaican New Secondary schools.

2. The data were collected only at one period as opposed to longitudinal data. The graduates had been in the labor force for approximately 18 months.

3. The study was based on opinion data collected from the sample graduates. Opinions were not sought from either parents <u>or</u> employers. It was based only on student opinions.

4. It was beyond the scope of this study to assess the vocational outcomes at periods representing different stages in the bouyancy of the Jamaican economy.

# Basic Assumptions

This study was based on three basic assumptions. The first two are conditions that related to the validity of the study and the third to the format and structure of the survey instrument.

It was assumed that:

 The respondents gave frank and unbiased replies on the questionnaires.

 The work coordinators or counselors administered the questionnaires to the graduates who were randomly selected by the researcher and the work coordinator or counselor.

 This study was exploratory, and accordinly, it would assist in providing the basis for more indepth and longitudinal studies of the New Secondary school vocational program.

#### Definitions

<u>Academic Achievement Level</u>--the graduate's academic level based on final exams and assessment through the last two years of school.

Community Development--the social, physical and economic improvement of a designated geographic area.

Continuing Education Level--category for students with specific standard of competence, thus qualifying him/her for further education.

Continuing Education Students--the students in the New Secondary schools who only take 5-6 periods of practical subjects and devote the majority of their time to math, English, the physical and social sciences. Ideally they plan to continue their education in a post secondary institution.

<u>Franked Envelope</u>--an envelope marked with an official Jamaican government stamp that allows it to be mailed free of charge.

Functional Education Level--category for students with functional reading level (i.e., with adequate comprehension), and ability to master basic computation in mathematics (addition, subtraction, multiplication and division of whole numbers, fractions, and decimals, percentages, simple equations, elementary geometry, ratio and proportion).
Further Education--specifically higher education and including institutions such as College of Arts, Science and Technology, Jamaica School of Agriculture, University of the West Indies.

<u>Graduate</u>--someone who has completed five years at the New Secondary school and taken the secondary school leaving examination.

Junior Secondary Schools--the previous name of the New Secondary schools prior to 1974. At that time the schools only consisted of grades 7, 8, and 9 and were for students usually between ages of 12-15.

New Secondary School--the most recent type of high school established in Jamaica for students ranging from 12 to 17 or 18 years of age. The last two years concentrate on vocational education for those in the vocational option.

Nonvocational Student--the same as continuing education student.

Ordinary Level--the label used to denote the level of the certificate taken by the fifth formers.

Prefunctional Education Level--category for students who lack the ability to master the educational skills listed under Functional Education Level.

Rural--all non-urban sections of Jamaica (see urban definition).

Societal Factors--economic conditions and the employer expectations of New Secondary school graduates.

Tertiary Institutions--post secondary colleges, but below university level. These include teachers, agricultural, technical and community colleges.

The General School Certificate--an external examination taken by Jamaican high school students at the end of fifth form (equivalent to about 12th grade in the United States) and sixth forms (United States equivalent about first year of university).

<u>Urban--parish</u> capitals as well as other places for which the 1970 pre-census estimate of population was 2,500 or more and in which a number of facilities indicative of some degree of modern living were available. The facilities included banks, electricity, schools, libraries, cinemas, location of markets, shops, post offices, churches, court houses, tax offices, police stations and health facilities: Vocational Education--training in technical and applied areas at levels less than a bachelors degree, but above the pre-vocational levels.

Vocational Education Students--students who took sixteen periods in a specialized practical area and were expected to go into the job market upon graduation.

Work Coordinator--a school staff person who coordinated all the work experience programs of the eleventh grade students.

<u>Work Experience</u>--the work that each eleventh grade student is supposed to do for an average of three weeks at a work station in his/her area of specialization.

### Overview

The foregoing chapter served as an introduction to the study through a background discussion of the problem and a listing of the main issues that were investigated. In Chapter II the related literature is reviewed. The review covers studies and arguments that are both for and against vocational education. It also discusses the lack of an integrated analysis in the evaluation of vocational In Chapter III the design of the study is preoutcomes. sented. It involves the selection of the sample, the construction and administration of the survey instrument, the pilot study, testable hypotheses and the procedures for the collection and analysis of the data. In Chapter IV the analysis of the data and findings are presented under two major sections. The first section analyses the outcomes using only single variables for each analysis while in the second section multiple variables were used. In the final chapter a summary of the study and the findings is presented, conclusions are drawn and recommendations made. Finally, the author discusses some of the implications of the study.

#### CHAPTER II REVIEW OF LITERATURE

The attempt to assess the outcomes of secondary graduates in Jamaica required an understanding of the unspoken motivations for secondary education by a large proportion of that country's population. Therefore, as a background to the study the review first examines Jamaican studies which had looked at the expectations of secondary graduates.

The main section of the review is devoted to studies which had investigated the outcomes of secondary vocational and nonvocational graduates in the United States, and in developing countries including the Caribbean and Jamaica. One of the major shortcomings of the overwhelming number of the studies is their failure to recognize the effects of societal and individual variables in the determination of vocational outcomes. Also included in the review are materials which are based on studies of vocational graduates' outcomes from a holistic approach and/or included discussions of the societal and individual variables.

18

### Expectations of Secondary Education in Jamaica

Social mobility is one of the major expectations of secondary education in Jamaica. This is particularly evident among the middle and lower social strata. Miller<sup>1</sup> studied a small sample of 158 students in two urban senior schools.<sup>2</sup> He found that 88% of the sample considered education as the most important thing to them as a means of achieving social mobility. The implications for the New Secondary schools were therefore obvious. "If these Junior Secondary schools<sup>3</sup> do not enhance social mobility" says Miller, "they will not be accepted as secondary schools."<sup>4</sup>

This purpose of participating in education for social mobility reasons had resulted in student expectations that were often unrealistic, and this in turn influenced the kind of jobs that secondary graduates were willing to accept. Carnegie<sup>5</sup> concluded that either students' work

<sup>3</sup>The previous names for the New Secondary school before they were increased from 3 to 5 years.

<sup>4</sup>Miller, Ambitions, p. 33.

<sup>5</sup>Inez Lucille Carnegie, "School Leavers in the Secondary Schools of Jamaica: The Role of the Schools in Preparing Students for Employment in an Independent Nation" (Ph.D. thesis, Columbia University), 1971.

<sup>&</sup>lt;sup>1</sup>Errol Miller, "Ambitions of Jamaican Adolescents and the School System," <u>Caribbean Quarterly</u> 13 (November, 1967), 29-33. Hereafter referred to as Ambitions.

<sup>&</sup>lt;sup>2</sup>These schools were subsequently converted to Junior Secondary schools then to New Secondary schools.

expectations were unrealistic or that they tended to seek out high prestige jobs. Carnegie found that 78.2% of the students expressed a preference for highly paid professional occupations. She also found that there was a tendency to bypass even prestigious categories where it represented self-employment and agricultural occupations. Richards<sup>6</sup> found that 83% of Jamaican Secondary school students aspired to occupations that were regarded as of high social status. In Harewood's<sup>7</sup> study, he found that persons with middle level education would not accept jobs with low incomes, neither would they accept jobs in certain occupations. McBean<sup>8</sup> concluded that students showed a tendency to opt for occupations which they felt gave them status and economic independence. Miller<sup>9</sup> found that while the girls' preferences were more realistic when compared to their parents'

<sup>9</sup>Miller, Ambitions.

<sup>&</sup>lt;sup>6</sup>Leopold A. Richards, "The Career Aspiration of Secondary School Students in Jamaica in Relation to Educational Programmes and Manpower Needs" (Ph.D. thesis, Rudgers University), 1974.

<sup>&</sup>lt;sup>7</sup>Jack Harewood, "The Impact of Education on the Labor Force" (Caribbean Education Seminar, Department of Sociology, University of the West Indies, July 1968).

<sup>&</sup>lt;sup>8</sup>Theresa McBean, "A Study of the Relationship between the Junior Secondary School Programme for Ninth Graders and Employment Opportunities in an Urban Jamaican Setting (Bachelor of Education thesis, Documentation Centre, Institute of Education, University of the West Indies, 1973).

occupations, the boys' occupational preferences were unrealistic when consideration was given to the type of education they were receiving, their then educational level, and the fact that they were due to graduate at age fifteen. Gooding's<sup>10</sup> study, (which dealt more specifically with the vocational preparation of high school students), found that students were mainly interested in high prestige jobs and this variable also ranked first on the factors which determined principals' and teachers' choices.<sup>\*</sup> The data in Gooding's findings regarding factors influencing students' job choice are summarized in Table 3. It should be noted

Table 3. Students' Responses to Factors Influencing Their Job Choice

	Distr	ibution	in Percentages Rural		
	Url	ban			
Factors	Boys	Girls	Boys	Girls	
Prestige	33	34	55	29	
Rewards	25	26	20	31	
Employment opportunities	23	23	28	26	
Parental influence	4	3	3	2	
Skills being acquired	15	14	14	12	

Source: Velda E. Gooding, "A Study of Certain Factors in Selected Jamaican High Schools of the Vocational Preparation of Students and Their Acceptability to Employers" (Bachelor of Education thesis, Documentation Centre, Institute of Education, University of the West Indies, 1973), p. 38.

The principals and teachers of the schools in Gooding's study were also asked to rate the factors which they thought influenced students' choice of jobs.

<sup>10</sup>Velda E. Gooding, "A Study of Certain Factors in Selected Jamacian High Schools of the Vocational Preparation of Students and Their Acceptability to Employers" (Bachelor of Education thesis, Documentation Centre, Institute of Education, University of the West Indies, 1973). that skills being acquired ranked at fourth place among the five major factors.

McNeil<sup>11</sup> found that the Continuing Education graduates had more realistic job expectations than the vocational graduates. One recent study by the Jamaican Ministry of Education indicated that from a list of 85 vocations the six most popular job preferences expressed by the 1977 New Secondary school leavers were jobs in the service areas.<sup>12</sup> These represented vocational areas that had been traditionally viewed as realistically achievable for the poor man's child, but at the same time enhancing social status for the occupant, as well as providing the basis for "a stepping stone" to higher prestige jobs.

Also related to this issue of participation in education for social mobility reasons was the lower status placed on vocational education. Traditionally the secondary graduates with a general education tended to obtain the more prestigious jobs. Miller has pointed out that

> Although practical and technical subjects have been included in the curriculum of almost all high schools,

<sup>&</sup>lt;sup>11</sup>Hazel McNeil, "An Investigation into the Job Expectations of School Leavers of the New Secondary Schools in the Corporate Area" (Bachelor of Education thesis, Institute of Education, University of the West Indies, 1976).

<sup>&</sup>lt;sup>12</sup>Ministry of Education, "The Job Expectations of the 1977 New Secondary Graduates Related to Their Courses," (Kingston, Jamaica: Research Section - Ministry of Education, 1977), p. 19.

the subjects have emerged as options for the students who have not been able to master the academic options.<sup>13</sup>

Miller found that only five percent preferred any practical subjects over the general ones.<sup>14</sup>

This difference between student expectations and the market place reality has resulted in a mismatch between training and the opportunities in the labor market. Carnegie emphasized this point in her comments when she wrote that

> although many positions requesting technological skills are highly remunerative, the society has not yet accepted these as desirable areas of occupations.<sup>15</sup>

Mark Blaug also lends support to the same view. In his discussion of unemployment among 15-24 year old secondary school leavers in Ceylon, Blaug claimed that "some of those who say they are seeking work are in fact looking only for certain types of work or jobs with certain minimum incomes."<sup>16</sup>

This mismatch between expectations and reality is a phenomenon which is not unique to Jamaica, but rather the

<sup>&</sup>lt;sup>13</sup>Errol Miller, "Education and Society in Jamaica." Savacou 5 (June 1971): p. 68.

<sup>&</sup>lt;sup>14</sup>Miller, Ambitions, p. 30.

<sup>&</sup>lt;sup>15</sup>Carnegie, p. 96.

<sup>&</sup>lt;sup>16</sup>Mark Blaug, <u>Education and the Employment Problem</u> <u>in Developing Countries</u> (Geneva: International Labor Office, 1973), p. 63. Hereafter referred to as <u>Education</u> and Employment.

Jamaican situation mirrors a problem of all developing countries. In a survey of the occupational preferences of Tanzanian secondary school pupils E. L. Klingelhofer of the University of East Africa concluded that -

- Forty-nine percent (49%) of the students aspired to engineering professions while the national needs could only support 1.3%.
- Thirty-eight point eight percent (38.8%) wanted to be medical doctors while the projected need was only for 1.2%.
- Twelve point five percent (12.5%) wanted to be radio announcers while there was only 0.1% support for this group.17

Another study from South East Asia arrived at a similar conclusion:

vocational ambitions bear little relation to the vocational needs of society.18

More than half of the students expressed ambitions for vocational opportunities in the services while nearly two thirds of the vocational opportunities were found to be in production as shown in Table 4.

17<sub>Frank</sub> J. Switz, "Educational Crisis in Developing Countries: Alternatives," <u>Journal of Developing Areas</u> 8 (January, 1974), 173-180.

<sup>18</sup>T. L. Green, "Vocational Problems in Education in South East Asia," <u>Journal of Educational Psychology</u> 26 (April, 1953), 380-391.

## Some Comparative Vocational Studies of Secondary Graduates in the United States

Educators in the United States have made literally thousands of studies of vocational graduates. These have included a representative number of studies that make comparative analyses. However, many of the studies were either locally based, consisting of small samples, had very low response rates, or failed to control for nuisance variables. Accordingly, this review was limited to some nationally recognized studies that contrained more sophisticated approaches to the collection and analysis of data.

Employment Studies by Creech et al.,<sup>20</sup> Kaufman and Lewis,<sup>21</sup> Eninger<sup>22</sup> and Texas University<sup>23</sup> supported the view that secondary vocational education was more effective than

<sup>&</sup>lt;sup>20</sup>F. Reid Creech et al., <u>Comparative Analysis of</u> <u>Post Secondary Occupational and Educational Outcomes for</u> <u>High School Class of 1972</u>, Washington: Office of Education, ERIC Document ED 139 845, 1977.

<sup>&</sup>lt;sup>21</sup>Jacob Kaufman and Morgan V. Lewis, <u>The Potential</u> of Vocational Education, Observations and Conclusions, Washington: Office of Education, ERIC Document ED 023 902, 1968.

<sup>&</sup>lt;sup>22</sup>Max U. Enginger, <u>Report on New York State Data</u> from a National Follow-Up Study of High School Level T and I <u>Research Institute, 1967</u>. Hereafter referred to as <u>New</u> York Report, ERIC Document ED 020 414, 1967.

<sup>&</sup>lt;sup>23</sup>Texas University, Center for International Education, <u>A Comparative Study of the Occupational Achievement</u> of Vocational and Nonvocational High School Graduates in Texas, Austin: Texas Education Agency, ERIC Document 118 944, 1973.

Sector of Economy	Vocational Ambitions	Vocational Opportunities
Production	24.8%	64%
Distribution	23.2%	21%
Services	52.0%	15%
Source: T. L. Green.	"Vocational Problems	in Education in

Table 4. Disparities Between Vocational Ambitions and Vocational Opportunities

ource: T. L. Green, "Vocational Problems in Education in South East Asia," Journal of Educational Psychology 26 (April, 1953), 380-391.

Another study from the Caribbean Island of Trinidad also arrived at the same general conclusion regarding the aspirations and expectations of secondary school leavers. The study concluded that -

> School leavers showed high favorable attitudes towards 'upper class jobs' rather than middle class jobs which are sought only if they fail to acquire an upper class job or if they recognize early that they do not have the capacity to qualify for upper class jobs.<sup>19</sup>

The reported relationships between vocational aspirations and vocational realities, provides one basis for interpretation of data which relate to the assessment of vocational outcomes of secondary graduates in Jamaica or any developing country.

<sup>&</sup>lt;sup>19</sup>A. C. Seuchand, "A Study of the Aspirations and Expectations of Certain Secondary School Leavers in Trinidad within the Age Group 15-19 years" (M.A. thesis, University of the West Indies).

## Some Comparative Vocational Studies of Secondary Graduates in the United States

Educators in the United States have made literally thousands of studies of vocational graduates. These have included a representative number of studies that make comparative analyses. However, many of the studies were either locally based, consisting of small samples, had very low response rates, or failed to control for nuisance variables. Accordingly, this review was limited to some nationally recognized studies that contrained more sophisticated approaches to the collection and analysis of data.

<u>Employment</u> Studies by Creech et al.,<sup>20</sup> Kaufman and Lewis,<sup>21</sup> Eninger<sup>22</sup> and Texas University<sup>23</sup> supported the view that secondary vocational education was more effective than

<sup>&</sup>lt;sup>20</sup>F. Reid Creech et al., <u>Comparative Analysis of</u> <u>Post Secondary Occupational and Educational Outcomes for</u> <u>High School Class of 1972</u>, Washington: Office of Education, ERIC Document ED 139 845, 1977.

<sup>&</sup>lt;sup>21</sup>Jacob Kaufman and Morgan V. Lewis, <u>The Potential</u> of Vocational Education, Observations and Conclusions, Washington: Office of Education, ERIC Document ED 023 902, 1968.

<sup>&</sup>lt;sup>22</sup>Max U. Enginger, <u>Report on New York State Data</u> from a National Follow-Up Study of High School Level T and I <u>Research Institute, 1967</u>. Hereafter referred to as <u>New</u> York Report, ERIC Document ED 020 414, 1967.

<sup>&</sup>lt;sup>23</sup>Texas University, Center for International Education, <u>A Comparative Study of the Occupational Achievement</u> of Vocational and Nonvocational High School Graduates in Texas, Austin: Texas Education Agency, ERIC Document 118 944, 1973.

nonvocational education in leading to employment upon graduation. Creech and others in a national survey of the graduating class of 1972, found that the graduates of the vocational curriculum were employed at higher rates than their nonvocational classmates. Kaufman and Lewis made an indepth study of the graduates in three selected cities in Pennsylvania and they concluded that vocational graduates had greater employment stability. Eninger and his colleagues studied graduates from eight New York high schools, and their finding indicated that vocational graduates obtained jobs more quickly than non college bound academic graduates. The Center for International Education at Texas University made a comparative study of 1,970 graduates of three selected cities in Texas, and they concluded that vocational education was effective as preemployment training for those graduates who went directly from school to work.

Diametrically opposite conclusions were found in studies by Conroy,<sup>24</sup> Eninger<sup>25</sup> and Grasso.<sup>26</sup> They concluded

<sup>&</sup>lt;sup>24</sup>William G. Conroy Jr. and Daniel E. Diamond, <u>The</u> <u>Impact of Secondary School Occupational Education in Massa-</u> <u>chusetts</u>, Boston: Massachusetts State Department of Education, ERIC Document ED 122 095, 1977.

<sup>&</sup>lt;sup>25</sup>Max U. Eninger, <u>The Process and Product of T and I</u> <u>High School Level Vocational Education in the United States</u> (Abstract of the Product variables.) (Pittsburgh: American Institutes for Research, 1965.) Hereafter referred to as <u>Product</u>.

<sup>&</sup>lt;sup>26</sup>John Grasso, "The Contributions of Vocational Education, Training and Work Experience to the Early Career Achievements of Young Men" (Ph.D. thesis, Ohio State University, 1975).

that secondary vocational education did not provide its graduates with any employment advantage over nonvocational Conroy made a six-year study of the 1969 and graduates. 1973 graduates from various secondary school occupational programs in Massachusetts. He concluded among other things that the labor market advantage of vocational graduates was short-lived. In a 1965 study involving 10,000 male graduates from vocational/technical and comprehensive schools in 37 states, Eninger and his fellow researchers at the National Institute for Research at Pittsburg concluded that there was no significant difference in the numbers of fulltime jobs held by vocational and academic graduates. Using longitudinal data collected through 1969 and based on a national sample of 1000 male youths, Grasso emphatically pointed out that

> on none of the measures could we conclude that commercial or other vocational graduates were better prepared for jobs than youths from other tracks.<sup>27</sup>

Grasso's study was a particularly impressive study and it has given more impetus to the debate regarding the effectiveness of secondary vocational training, since it not only used a national sample, but it used multiple regression methodologies to control for nuisance variables such as socioeconomic status and academic aptitudes.

<sup>27</sup><u>Ibid</u>., p. 82.

<u>Wages</u> - With reference to the wages of vocational and nonvocational graduates, Conroy and Diamond<sup>28</sup> and Kaufman and Lewis<sup>29</sup> found that vocational graduates earned higher salaries than nonvocational graduates. Eninger<sup>30</sup> found that there was no significant difference between the hourly starting salary of vocational and academic graduates without college education. However, he found that after two to six years after graduation the vocational graduates with no college education were receiving higher earnings than their academic counterparts, but after eleven years the earnings of the academic graduates caught up with the vocational graduates. In his study Grasso concluded that -

> The wages of commercial and other vocational graduates without additional training do not differ from the wages of graduates of the general track.<sup>31</sup>

The clear interpretation of the above review of studies, was that even in the United States which had

<sup>29</sup>Kaufman and Lewis, <u>The Potential of Vocational</u> Education, Observations and Conclusions.

<sup>30</sup>Eninger, <u>Process and Product</u>, pp. 33-34.
<sup>31</sup>Grasso, p. 84.

<sup>&</sup>lt;sup>28</sup>Conroy and Diamond, <u>The Impact of Secondary School</u> Occupational Education in Massachusetts.

In Conroy and Diamond's study, it was the male Trade and Industrial graduates who were earning significantly higher than nonoccupational students who did not attend post secondary schools. The Trade and Industrial graduates were even earning significantly more than graduates of all programs from two year colleges and state universities.

experimented with and operated various models of secondary vocational training programs, there was no clear conclusion about the effectiveness of secondary vocational training. The subject can be debated effectively by both protagonists as well as antagonists. The measured effectiveness of training in the studies reviewed depended heavily on the variables that were considered when evaluating the vocational outcomes.

## Assessment of Secondary School Vocational Graduates in Developing Countries

There is an abundance of literature about vocational education in various developing countries. The literature includes some studies on vocational graduates, but apart from Meaders' 1968 Taiwan study,<sup>32</sup> there is virtually a complete absence of any analytical comparative studies between vocational and nonvocational graduates.

The majority of the available vocational studies cast some doubt on the effectiveness of secondary vocational training. Two studies<sup>33</sup> carried out by Al Bukhari in

<sup>&</sup>lt;sup>32</sup>O. Donald Meaders, <u>Contributions of Senior Middle</u> <u>School Graduates to Taiwan Agricultural Development</u> (East Lansing, Michigan: Institute for International Studies, 1968).

<sup>&</sup>lt;sup>33</sup>Najiti Mohammed Amin Al Bukhari, <u>Issues in Occupa-</u> tional Education: A Case Study in Tunisia (Standord: 1968) and <u>Issues in Occupational Education: A Case Study in</u> <u>Jordon</u> (Stanford: Stanford International Development Center, Stanford University, 1968).

Tunisia and Jordan found that the more specific the skills which were provided by the educational system the less the likelihood of being relevant to the actual job related needs of the employment system. Newbry and Martin reported that of 109 Nepalese graduates who had received vocational training in a multipurpose high school, one hundred and sixty-one or 95% had continued their study at a higher level and only five students were employed in jobs directly related to their training.<sup>34</sup> This was so even though the vocational program was intended to provide terminal training. Emil R. Rado of Kenya pointed out that prior to 1960 before the educational explosion in Africa began, academic education had paid off. He also drew attention to East Africa where vocational education cost four to five times as much per student as academic education, but showed few signs of delivering even equal benefits.<sup>35</sup> One Ghananian study found that 90% of the graduates of the vocational schools became government clerks, gualifying for such jobs on the basis of the literary component of their craft training.<sup>36</sup> Almost

<sup>&</sup>lt;sup>34</sup>Burton C. Newbry and Kenneth L. Martin, "The Educational Crisis in Lesser Developed Countries," <u>Journal</u> of Developing Areas 6 (January, 1972), 155-162.

<sup>&</sup>lt;sup>35</sup>Emil R. Rado, "The Relevance of Education for Employment," in <u>Education, Society and Development</u>, eds. David Court and Dharam P. Ghan (Nairobi: Oxford University Press, 1974), p. 41.

<sup>&</sup>lt;sup>36</sup>Newbry and Martin, p. 160.

contradictory to the above conclusions was another study from Ghana which surveyed a group of 210 academic middle school Ghananian students who were in their final month of studies before seeking employment or continuing their education. The study found 62% favored artisan employment or farming and 30% favored employment in varying levels of white collar jobs.<sup>37</sup> The problem with this type of comparison is the inconsistencies between the expressed aspirations of in-school youths and what they actually do subsequent to graduation.

Studies conducted in Latin America have raised doubts about the effectiveness of secondary vocational training. The findings indicate that training centers operated by natioanl manpower training organizations were more productive than vocational schools because they were more flexible, less costly, and prepared interested individuals who were trained in relation to the work to be done. The training centers had been funded by the International Labor Organization and operated independently of the Ministries of Labor and/or Education. Recurrent funds for the operation of the centers are available from a special payroll tax. They were run by a director but had a

<sup>&</sup>lt;sup>37</sup>Philip J. Foster, "The Vocational Fallacy in Development Planning" in <u>Education and Economic Development</u>, eds. C. Arnold Anderson and Mary Jean Bowman (Chicago: Aldine Publishing Company, 1965), p. 149.

governing body with representatives from the above Ministries plus private employers and trade unions.<sup>38</sup>

In comparison to the above research findings, studies by Meaders and Thuemmel in Taiwan did lend some support to the effectiveness of vocational agricultural training over general academic training as it related to agricultural jobs or farming. Meaders found that -

One out of three of the vocational agriculture senior graduates and one out of every sixteen academic senior graduates were employed in agricultural type jobs.<sup>39</sup>

Thuemmel who was a member of the Meaders' team concluded in his aspect of the research that

> A greater percentage of vocational agricultural school graduates perceived their kind and level of middle school education as being most appropriate for prospective farmers.<sup>40</sup>

The dilemma faced by developing country planners was reflected in a comment by Rado where he said that

<sup>38</sup>Eugene Staley, <u>Planning Occupational Education and</u> <u>Training for Development</u> (New York: Praeger Publishers, 1971), p. 144.

<sup>39</sup>Meaders, p. 80.

<sup>40</sup>William Leslie Thuemmel, "High Schools and Vocational Agriculture Schools: A Comparison of the Farmer Performances of Senior Graduates in Taiwan" (Ph.D. thesis, College of Education, Michigan State University, 1970), from Abstract. There is an important problem of designing relevant curriculum at the post primary level. It is tempting and dangerour to assume that vocational education is the answer and that it necessarily leads to better employment or earning opportunities.<sup>41</sup>

Because of the uncertainty of the effectiveness of secondary vocational training, two schools of thought have emerged in developing countries. Thomas Balogh, a British economist, and politicians, vocational technical teachers, educators, administrators and some vocational/technical researchers from developing countries are the central figures identified with the prosecondary vocational education school of thought.

The antagonist school is supported mainly by economists and represented by such internationally recognized scholars as Philip Foster, Mark Blang, Frederick Harbison and Phillip Coombs.

Protagonists of Secondary Vocational Education -This group argues that (a) technically and vocationally skilled persons were in short supply in developing nations, (b) the highest rate of youth unemployment was due in large part to the lack of skills, (c) most young people in developing countries had to enter the job market at an early age and in any case places in most secondary institutions were

<sup>41</sup>Rado, p. 41.

only available for a limited number, (d) there was a limited number of large private industries or informal training resources to provide out-of-school skill training, and (e) the most pragmatic solution to the provision of the necessary skills was technical and vocational training at the secondary school level.

Apart from incountry support for formal secondary education by politicians, educators and administrators, support had also been expressed by Thomas Balogh.\* Balogh had recommended the inculcation and integration of agricultural education into all rural African school programs with the objectives of social and economic transformation of those societies.<sup>42</sup>

Antagonists of Secondary Vocational Education -The representatives of this school either expressed doubts about the preparation of skilled manpower through the formal

The researcher particularly investigated Balogh's views on the topic because Phillip Foster, who was the first international scholar who emphatically came out against formal secondary vocational education in developing countries, was motivated to publish his views based on Balogh's support for and recommendations for such education at the education conference held at Addis Ababa, Ethiopia. Balogh is a British scholar, who has had wide experience with education in developing countries, particularly Africa and South East Asia.

<sup>&</sup>lt;sup>42</sup>Thomas Balogh, "A Proposal to Relate Education Directly to Production" in <u>Education and the Development of</u> <u>Nations</u>, eds. John W. Hanson and Cole S. Brembeck (New York): Holt, Rinehart and Winston (1966), pp. 160-167.

secondary system (Coombs and Ahmed) or argued that the whole formal secondary vocational preparation in schools was a "fallacy" (Foster and Blaug). Writing in 1966, Foster argued that

> no amount of formal, technical, vocational or agricultural instruction alone was going to check the movement from the rural areas, reduce the volume of unemployment or indeed necessarily have any effect on the rate of economic development.<sup>43</sup>

Foster believed that graduates will always respond to real and perceived opportunities in the economy such as the availability of jobs, and the competitiveness of salaries. He considered the intermediate technical and vocational education more critical.

Blaug writing about the same topic six years later, also supported Foster's views. He argued that

> . . . vocational education in formal education institutions makes little sense on either educational or economic grounds. It is impossible to accurately foresee the requirements for specific skills in an economy two or three years hence, and for that reason vocational training on a full time basis must necessarily impart general skills at which point it ceases to be vocational in the sense in which that term is usually used. 44

<sup>43</sup>Foster, p. 153.

<sup>44</sup>Mark Blaug, "Economics and Educational Planning in Developing Countries," Prospects 11 (Winter, 1972), p. 437. Hereafter referred to as Economics and Educational Planning. Blaug believed that the responsibility of schools was to provide the technical foundation for the on-the-job training in specific skills.

Newbry and Martin pointed out that Frederick Harbison viewed the overemphasis on vocational training in formal institutions as wasteful. He expressed the opinion that the same kind of training could be provided by on-thejob training in less time, and in the technical and vocational occupations, experience was more important than theoretical knowledge. He further claimed that the vocational training provided by vocational schools was often not used.<sup>45</sup>

Staley, (while skeptical of the effectiveness of formal secondary vocational education), was more concerned with innovations that would improve the effectiveness of the program. He disagreed with Blaug's view that manpower projections for specific skills were unrealistic as a basis for the content of vocational training programs and the number of graduates proposed. Instead, he suggested some recommendations for improvement of the system of preparation of vocational graduates, since there were obvious short comings inherent in the manpower projection. His main suggestions were:

<sup>45</sup>Newbry and Martin, p. 160.

- The establishment of a quick and continual feedback from the employment system to the occupational education and training system.
- 2. The preparation of reasonably versatile persons who could acquire new skills quickly and with some retraining, be able to transfer from one specific job to another over a fairly broad range of jobs.
- The provision of opportunities for retraining and further education of the individual throughout his working life.<sup>46</sup>

The question of the effectiveness of formal secondary vocational education remained a wide open issue for debate in developing countries in almost the same way that it remained a debatable issue in the United States.

# Assessment of the Vocational Outcomes of Caribbean and Jamaican Secondary Vocational Graduates

With the exception of one recent tracer study by the Jamaican Ministry of Education, there is a complete absence of any research studies that survey secondary graduates subsequent to their graduation. Even the Jamaican Ministry of Education's recent tracer study only surveyed the graduates for one year\* and at three and six months

New Secondary Graduates of 1976.

<sup>&</sup>lt;sup>46</sup>Staley, p. 28.

after graduation. This was obviously too early to make an objective assessment of the graduates, because studies from other developing countries have shown that some graduates had to wait as long as 18 months to two years to obtain a job. 47 But even the one tracer study was not very helpful to the investigator, because it did not make a comparative analysis between the outcomes of the vocational and nonvocational graduates. The Ministry's study showed twenty-two percent (22%) of all graduates were employed and fifty-nine percent (59%) of them were working in areas related to the vocational subject they had studied. 48 There was no shortage of studies that surveyed the senior students before they graduated. So the only available research information was based on their expectations and aspirations prior to graduation. The actual occupational experiences of graduates may vary considerably from their expectations and aspirations.

<sup>&</sup>lt;sup>47</sup>See Mark Blaug, <u>Education and Employment</u>, p. 1, and S. G. Weeks, "Education and Employment," <u>Journal of</u> Papau New Guinea Teachers Association, 1 (1976): 10.

<sup>&</sup>lt;sup>48</sup>Ministry of Education, "Employment, Unemployment and Further Education of the 1976 Graduates," (Kingston, Jamaica: undated), p. 1.

## Evaluation of Vocational Graduates: Need for a New Perspective in Developing Countries

Apart from Grasso's research, all the studies reviewed in the preceding pages had tended to assess vocational outcomes within too narrow a framework or used questionable methodological approaches. They approached their assessment by evaluating only the graduates' acquisition of a job, the wages, post secondary training and the job's relatedness to training and without making provision for adequate control of confounding variables. Whether the researchers reported for or against vocational education, the studies basically made an assessment of school variables, without concurrently attempting to assess combined outcomes related to society and individual variables. The researcher found only one study which hypothesized that vocational outcomes experienced by T & I graduates was an interaction product of school, student and occupational opportunity variables.<sup>49</sup> (See Appendix C, Figure 4 for details.) But even though that research project collected an enormous amount of data, the methodological approach to the analysis did not allow for the testing of the combined effect of the variables. The use of multiple regression analysis would

<sup>&</sup>lt;sup>49</sup>M. U. Eninger, <u>The Process and Product of T & I</u> <u>High School Level Vocational Education in the United States</u> (The Process Variables) (Pittsburgh: American Institutes for Research, April 1968), p. 5.

have achieved that goal.

It is recognized that societal and individual variables are more difficult to assess compared with school variables. This, however, should not preclude attempts to make such analysis, so as to objectively evaluate the effectiveness of the secondary vocational training.

An examination of the Jamaican Gross Domestic Product (GDP) and employment data between 1969 and 1977 illustrates how the bouyancy of the economy would affect employment of the school graduates. It indicates, for example, that as the growth in the GDP decreased, the employment rate increased as shown in Table 5. From 1969-70, the GDP grew 12.7% and the unemployment rate in October 1969 was calculated at 17.2%. By 1972-73, the growth rate for the GDP decreased to a negative growth of -.07% and the unemployment rate increased to 22.9% in October 1972. By 1976-77 the negative growth rate of the GDP decreased to -4.0% and even though the government sponsored many large public works programs, the unemployment rate increased to 24.2% in October 1976.

A practical example that illustrated the close relationship between school and societal variables upon vocational outcomes was recently reported in the <u>Gleaner</u>, a Jamaican weekly newspaper. The article reported on the commendable work being done at the St. Bonifice Industrial

Table 5.	Gross Dom	estic Produ	ict at Consta	nt Prices a	and Unemploy	yment Rates	1969–77		
Factors	1969	1970	1971	1972	YEARS 1973	1974	1975	1976	1977
GDP (\$)	1,791,968	2,019,494	2,068,857	2,260,408	2,258,897	2,265,369	2,243,660	2,094,174	2,011,072
GDP Growth Rate	12.	7% 2.4	-8 -3%	0.1	% .2	6°0- %6	968 –6	.78 -4	•08
Uhem- ploy- ment Rate (Octobel	17.2%	N/A	N/A	22.9%	22.5%	20.7%	20.9%	24.2%	23.8%
N/A: Not	. Available								

Department of Statistics, National Income and Product 1977 (Kingston, Jamaica: 1978), p. 23 and Department of Statistics, The Labour Force 1977 (Kingston, Jamaica: 1978), p. 2. Sources:

Training Centre.\* The article emphasized that no longer will the children of the area be "condemned to a life of limited education, unskilled labor and subsistence farming."<sup>50</sup> However, in the same paragraph the writer raised a very poignant question "Where will these youngsters find employment?" "We can only hope and pray" said the director, "that the economic situation will improve."<sup>51</sup>

Another commentary from researchers in Ghana helped to illustrate the interrelationship between school and individual variables. Sarah French and T. Boyd in "An Enquiry Concerning Employment for Secondary School Leavers in Ghana," pointed out that -

> It is not lack of jobs or opportunities but the unemployability of the school leavers that is the crux of the problem. . . There is a need for education of attitudes as well as skills.<sup>52</sup>

<sup>51</sup>Ibid.

<sup>52</sup>T. L. Green, "Comments on the Implications of Vocational Problems in Education," <u>West African Journal of</u> Education, 17 (February, 1973), 161.

The St. Bonifice Training Centre is a gift from the German Catholics and Government to the people of Jamaica. Students receive training in masonry, woodwork, machinery, welding, plumbing and electrical installation.

<sup>&</sup>lt;sup>50</sup>Joe Brown, "German Gift School in Seaford Town," The Jamaican Weekly Gleaner (March 19, 1979), pp. 20-21.

#### Summary

The research data indicated that a large proportion of Jamaican secondary students are interested in education for social mobility reasons, accordingly, they tend to seek jobs that are more prestigous. Research studies in both developed countries and developing countries countries indicated that vocational education had been assessed as more effective than academic education for helping graduates secure employment, while other studies indicated that it did not make any difference. In the United States studies by F. Reid Creech et al., Jacob Kaufman and Morgan V. Lewis, Max U. Eninger, and Texas University supported the view that secondary vocational education was more effective than nonvocational education in leading to employment upon graduation. Opposite views were derived from studies by William Conroy, Max U. Eninger, and John Grasso. Differences in amount of wages were also found between vocational and nonvocational graduates in some of the above studies. In developing countries studies by Meaders and Thuemmel found that more agricultural vocational graduates were involved in farming than their nonvocational colleagues. However, studies by Al Bukhari in Tunisia and Jordan, and other studies from Nepal and Ghana questioned either the effectiveness of vocational education or its contribution to manpower supply in the areas in which students were prepared. However, the results were largely conditioned by

the specificity of the comparisons and the appropriateness of the methodological approaches.

In developing countries two distinct schools of thought have arisen. One school supported by politicians, educators, administrators, teachers, and Thomas Balogh, recommends vocational education at the secondary level. With opposite views are economists like Mark Blaug, Philip Foster, Frederick Harbison, Phillip Coombs and Manzoor Ahmed.

A short-coming noted in an overwhelming majority of the studies was their neglect of the combined effects of societal, school and individual variables upon the outcome of the graduate. The researcher found only one study that hypothesized that vocational outcome experienced by T & I graduates is an interaction product of school, student and occupational opportunity variables. The review of literature emphasized the need for studies to be done that recognized the combined effects of the three sets of variables mentioned above.

### CHAPTER III

## DESIGN OF THE STUDY

The design of the study included the major areas of population and sample, instruments for collection of data, collecting and processing data, and analysis of the data.

### The Population and Sample

The population consisted of 3,908 nineteen seventy seven New Secondary graduates from twenty one (21) schools. The twenty one (21) schools were selected from a larger universe of 62<sup>1</sup> New Secondary schools that had 12,767 graduates in 1977. The twenty one (21) locations were selected after consideration of two major factors: school size and geographic location (see design in Appendix B, Table 28) so as to obtain a population that was most likely to be representative of the island. The names of the twenty one (21) locations were submitted for review by three members from the Research and Technical and Vocational divisions of the Ministry of Education. They recommended the change of one urban location, because the new location represented a greater

<sup>&</sup>lt;sup>1</sup>The total number of New Secondary schools in 1978 was 71, but in 1977 only 62 had graduates.

diversity of urban students.

Selection - A 25% sample randomly selected through the utilization of a table of random numbers resulted in the selection of 977 subjects. The random sample for each location was taken from a Ministry of Education computer print out which listed in alphabetical order all the 1977 graduates by schools. Those individuals who did not complete five years of school and/or take the national final examinations were eliminated from the list before the random sample was drawn. (See Appendix B, Table 29 for size of sample at each location, and Appendix C, Figure 3 for the positions of the locations.)

<u>Description</u> - A description of the sample is provided in Table 6 according to six variables and Table 7 according to the practical subjects taken in secondary school. In Table 6, the information for academic achievement level was calculated from data in the Ministry of Education print out, while the data for the other variables came from the questionnaires answered by the graduates.

The two sets of data in Table 7 represented percentages calculated from a government publication and from responses on the questionnaires.

### Survey Instruments

<u>Construction</u> - A questionnaire was designed to collect from the graduates all pertinent information as it related to their vocational outcomes. Specifically the

Variables	Subgroups	N	Adjusted Frequencies (Percentages)
Sex	Female Male	427 358	54.4 45.6
Ages	17 18 19 20	41 409 291 27	5.3 53.3 37.9 3.5
Achievement Levels	Unsatisfactory Poor Satisfactory High Very High	171 370 208 25 5	22.1 47.7 26.8 3.2 0.1
Geographic Location	Deep Rural and Rural (Rural) Urban and Semi-urban (Urban)	523 254	67.3 32.7
Socioeconomic Status	Professional and Man- agerial Higher (upper class) Lower (upper middle class) Highly Skilled (upper	 6	0.0 0.8
	middle class) Skilled (lower middle class) Semi-skilled (lower class) Unskilled (lower class)	41 247 374 93	5.4 32.5 49.1 12.2
Levels of Graduates	Prefunctional Functional Continuing	104 474 208	13.2 60.3 26.5

Table 6.	Percentage	Distribution	of	Graduates	in	the	Sample
	in Each of	Six Variables					

Note: 1. Ages--based on information supplied by the graduates.

 Achievement Levels--based on information obtained from the Ministry of Education records. It is questionnaire was designed to collect information and

opinions regarding the following areas:

 To obtain from each graduate information regarding his/her -

Education and employment

- a. Preparation in school
- b. Socioeconomic characteristics
- c. Achievement levels
- d. Present employment
- e. Job satisfaction
- f. Further education

based on a scale of 1 to 5 where unsatisfactory = 1, poor = 2, satisfactory = 3, high = 4 and very high = 5. Each graduate's ranking was obtained by adding the school ranking and the rank from the national exams and finding the average.

- 3. Geographic Location--the information was supplied by the graduates. It is based on size of population and availability of certain facilities which in Jamaica is indicative of modern living (see the definitions of urban and rural on page 14 of Chapter I).
- Socioeconomic Status--the socioeconomic status 4. was based on the occupation of the graduates' fathers. The six classifications were assigned to the four levels of status according to the work of Errol Miller. The classification of occupation was based on six criteria (a) prestige and status derived from the job, (b) income derived from the job, (c) responsibility required by the job, (d) educational standard needed for the job, (e) competence required on the job, and (f) the size of the establishment where this was relevant. Miller's scale was only used with urban students and he acknowledged that the classification of occupations is a very crude measure of socioeconomic status (see E. Miller, "Self Evaluation Among Jamaican High School Girls," Social and Economic Studies 22 (December, 1973), 407-426.

A list of the major occupations in each classification is shown in Appendix B, Table 30. Although this study included both urban and rural graduates, Miller's scale was selected because it was the most appropriate scale for Jamaica.

5. Levels of Graduates--based on information supplied by the respondents.
|                  |     | Sample                                | Population               |
|------------------|-----|---------------------------------------|--------------------------|
| Practical option | N   | Adjusted Frequencies<br>(Percentages) | Percentages <sup>a</sup> |
| Agriculture      | 43  | 5.7                                   | 4.6                      |
| Business         | 173 | 22.9                                  | 21.9                     |
| Crafts           | 35  | 4.7                                   | 5.2                      |
| Home Economics   | 237 | 31.4                                  | 30.3                     |
| Industrial       | 260 | 34.5                                  | 38.0                     |
| Other            | 6   | 0.8                                   |                          |
| Total            | 754 | 100.0                                 | 100.0                    |

Table 7. Distribution of Graduates According to Practical Subject Taken in Secondary School

<sup>a</sup>Source: <u>Economic and Social Survey Jamaica 1977</u>. Kingston, Jamaica: National Planning Agency.

Note: The small differences between the percentages for the sample and the population could have been due to one or a combination of any number of four different factors (1) sampling error, (2) level of response rates, (3) Ministry figures were collected before graduation, (4) the Ministry's projection procedures to compensate for unavailable information from the schools.

2. Opinions about ways to improve the vocational education program.

A review was made of questionnaires from previous research projects.<sup>2</sup>

<sup>2</sup>The following questionnaires were studied. a) Questionnaire for the Vocational Follow up System used The review included objectives, format and content of the questionnaires. The practice of reviewing previous questionnaires is recommended by other researchers,<sup>3</sup> because such practice saves time and provides models for new items.

Each item was constructed so that it did not exceed twenty one (21) words. The questionnaire was also constructed and coded so that key punching was done directly from it.

<u>Description</u> - The majority of questions were of the closed-ended<sup>4</sup> types with a few open-ended ones. The closedended questions were either of the checklist types or rating items. The checklist types represented the four major groups of checklist questions namely self report checklist, dichotomous response, simple descriptive phrases and list of the standard five point Likert scale or three point modified Likert scale. The questionnaire which consisted of 63 items was designed so that the maximum time to administer it would not exceed thirty minutes. The language was made

c) Questionnaire used by the American Institutes for Research to do a comprehensive follow up of 1953, 1958 and 1962 U.S. secondary graduates.

by the Department of Vocational and Technical Education, University of Minnesota.

b) Follow up Survey Form for 1977 graduates in Michigan used by the Michigan Department of Education.

<sup>&</sup>lt;sup>3</sup>Richard C. Erickson and Tim L. Wentling, <u>Measuring</u> <u>Student Growth</u>. (Boston: Allyn and Bacon, Inc., 1976), p. 224. Hereafter referred to as <u>Student Growth</u>.

<sup>&</sup>lt;sup>4</sup>A close-ended question is one in which the individual is offered a choice of alternatives while the open-ended question does not provide any choice.

simple so that all of the graduates could be expected to be able to read and comprehend it. Blue paper was used so as to make it more attractive<sup>5</sup> to the subjects. Precise but adequate instructions for answering the questionnaire were printed at the beginning of the instrument. In order to ensure anonymity, respondents were not required to record their names or addresses on the questionnaires. However, each questionnaire was assigned a code number for identification of each respondent as well as each school (see Appendix D, section 1 for a sample of the questionnaire).

## Pilot Test

Three critical variables were considered in an attempt to insure minimum error and bias: validity, reliability and question wording.

<u>Validity</u> - Content validity, specifically face validity was used to insure that the instrument would measure what it purported to measure. An initial type

<sup>&</sup>lt;sup>5</sup>There is conflict of opinion whether the color of the paper helps to elicit higher response rates. Erickson and Wentling claimed that research has indicated the use of colored paper produced a difference in response rate of over 15 percent. See Tim L. Wentling and Tom E. Lawson, <u>Evaluating Occupational Education and Training Programs</u>. (Boston: Allyn and Bacon, Inc., 1975), pp. 131-132. On the other hand Christopher Scott of the British Government Social Survey reported that the use of colored paper is one factor that did not make any difference in response rates. See A. N. Oppenheim, <u>Questionnaire Design and Attitude Measure-</u> ment. (New York: Basic Books, Inc., 1966.)

written set of questionnaires were sent to a group of nine Jamaicans representing one New Secondary principal, four vocational teachers, two vocational graduates and two nonvocational graduates.

They were required to read through the questionnaires and indicate if they understood the questions. They were further asked to make suggestions for clarification of any unclear items. Eight of the questionnaires were returned and based on their suggestions some minor changes were made.

<u>Reliability</u> - The questionnaires that were used in the reliability testing were printed in the same format and on the same color paper, as that which was later used in the main study. Eighty four (84) 1977 New Secondary vocational and nonvocational graduates were selected from one school\* and the questionnaires were administered to them in a test/ retest approach. The test/retest approach was utilized because the objective was to obtain the coefficient of stability which is a "quantitative expression of the correlation between scores obtained from a test/retest with some significant time period between each administration."<sup>6</sup>

The following procedure was followed in administering the test/retest. 1. Permission was requested of the New Secondary principal for his work experience coordinator or

> <sup>\*</sup>Trinityville Secondary School in St. Thomas. <sup>6</sup>Erickson and Wentling, Student Growth, p. 35.

counselor to organize and administer the questionnaires, activate the necessary follow up activities, and tabulate the returns. 2. The work experince coordinator or counselor was instructed in the administration of the questionnaire. 3. Subsequent to the return of the questionnaires, the researcher had a thorough discussion with the work experience coordinator regarding changes in any procedures that would be helpful in improving the response rates and increasing the comprehension of the questionnaire by the graduates. 4. The work experience coordinator was given an honorarium of one Jamaican dollar per returned questionnaire as an appreciation for the extra work and time that was required.

In the pilot test sixty seven (67) questionnaires or 80% were returned. The retest, which was administered two weeks after the first administration, yielded sixty three completed questionnaires or a 75% response rate.

A correlation of .74 for the entire questionnaire resulted from a calculation of the Pearson Product moment Correlation Coefficient.

<u>Question Wording</u> - An examination of the correlation coefficient for each question revealed that the correlation coefficient for some items were medium or low, ranging from .5 to -.03. Wherever this occurred, the wording of the question was restructured so that it would be more easily understood. For example variable 31 was originally stated

as "potential for advancement" but it yielded a correlation of only .19. It was therefore simplified to read "chances for promotion."

#### Construction Refinement of Questionnaire

In addition to the restructuring mentioned in the previous section, other reorganization and refinement of the questionnaire was carried out. This included changing section three of Employment Information from "unavailable for employment" to "do not need employment." Some instructions at the beginning of major sections were modified, and in the case of section VII, the instructions were reorganized on the questionnaire so that they appeared directly before the questions to which they applied. The work experience section (section X) was removed from the vocational subdivision and placed in the final section, which applied to all students. The address of the employer was removed from the end of the questionnaire and placed in section IV dealing with job information.

#### Mechanics of Data Gathering

Procedure Used in Collecting - The researcher visited the twenty one locations where each work experience coordinator or counselor was instructed in the selection of the random sample,\* the procedure for administering the

Subsequent to the instructions, the researcher assisted each work experience coordinator or counselor in the selection of the random sample.

questionnaires, the tabulation of returns and the recording of achievement ranks for each graduate.

The administration of the questionnaires involved the following sequence: (1) The instrument was sent out in a franked envelope with return-address and covering letter (see Appendix D, section 2) explaining the purpose and objectives of the research. The questionnaire and letter were sent by hand with a relative or friend of the graduate who was still at school and a limited number was sent by mail. (2) A second copy of the instrument in a self-addressed franked envelope with a reminder letter (see Appendix D, section 3) was sent to the nonrespondents whose questionnaires had not been returned in two weeks. (3) Personal efforts by the work experience coordinator or counselor or other staff members or senior students or even parents or guardians were made to contact the nonrespondents who failed to reply through the first and second efforts. This third attempt was terminated at the end of two weeks.

The first response yielded an average of 60%, the second 15% and the third roughly 6%, producing an overall average of 81.37%. In the rural areas the average response rate was 85.04% and in the urban areas it was 73.65%. The individual locations ranged from a high of 95.45% to a low of 42.42% (see Appendix B, Table 29 for the detailed response rates).

The response rate obtained in the study was within levels suggested by the experts for making valid generalizations. Kerlinger<sup>7</sup> recommended a response rate of at least 80 to 90% and Wiersma<sup>8</sup> suggested that generally 75% should be the minimum rate of return.

Procedure Used in Handling Data - The data were punched directly from the questionnaires<sup>9</sup> on FORTRAM computer cards by the use of an IBM 026 key punch. The data were then placed on a 9 track magnetic tape and stored. Analysis of the data was done by the Michigan State University Control Data Corporation 3600 computer.

# Design

The study was regarded as causal comparative research, therefore the design was "ex post facto" in nature. The objective was to investigate any possible cause and effect relationships between the dependent variables of employment, job satisfaction, salary, further education and a set of independent societal, school and individual variables. The basic diagramatic formulation for this design was what Campbell and Stanley expressed as

<sup>&</sup>lt;sup>7</sup>Fred Kerlinger, <u>Foundations of Behavioral Research</u> (New York: Holt, Rinehart and Winston, Inc., 1973), p. 414. <sup>8</sup>William Wiersma, <u>Research Methods in Education</u> (Itasca, Illinois: F. E. Peacock Publishers, Inc., 1975), p. 144.

<sup>&</sup>lt;sup>9</sup>All the open-ended questions were coded subsequent to their return, thus direct key punching from the questionnaire was possible (see Appendix D, section 4 for the codes that were used in coding the open-ended questions).



For example in the hypothesis where employment was the independent variable, X represented the vocational training and  $0_1$  represented the graduates who received vocational training and were employed and  $0_2$  the graduates who did not receive vocational training and were employed. Campbell and Stanley pointed out that in instances of these designs there is "no formal means of certifying that the groups would have been equivalent had it not been for the X."<sup>10</sup> Therefore, an attempt was made to arrive at an answer, which could be interpreted as the most accurate effect or noneffect of X. This involved the use of a multivariate analysis in which sex, academic achievement level, and socioeconomic level were controlled.

## Testable Hypotheses

Seven hypotheses were anlayzed and for each hypothesis, sex, academic achievement level, and socioeconomic status were used as control variables.

- H<sub>0</sub>: There were no significant differences between the variances of employed vocational and nonvocational graduates.
- H<sub>0</sub>: There were no significant differences between the variances of employed

<sup>&</sup>lt;sup>10</sup>Donald T. Campbell and Julian C. Stanley, <u>Experi-</u> mental and <u>Quasi-Experimental Designs for Research</u> (Chicago: Rand McNally College Publishing Company, 1963), p. 12.

graduates from different geographic locations.

- H<sub>0</sub>: There were no significant differences between the variances of employed graduates from various vocational areas.
- H<sub>0</sub>: There was no interaction effect between option taken in secondary school, geographic location and vocational subject studied.
- H<sub>0</sub>: The population means for the employed graduates from the 21 schools were all equal to each other and to the grand mean.
- H<sub>0</sub>: The population means for the salaries of the vocational graduates were equal to that of the nonvocational and were equal to the grand mean.
- H<sub>0</sub>: The population means for vocational graduates who furthered their education were equal to that of the nonvocational and were equal to the grand mean.

## Analysis

All of the data were analyzed through the use of the SPSS (Statistical Package for the Social Sciences) computer program. The first stage in the analysis involved cross tabulation analysis on most of the data for vocational and nonvocational graduates. One-way frequency analysis was used with the data, which could not be analyzed with the cross tabulation. Secondly, single analyses were carried out between employment, salaries, further education and all the independent variables listed in propositions one, two and four (see Chapter I, pages 11 and 12). The above single analyses utilized the cross tabulation program. Thirdly, single analyses was also carried out between job satisfaction and the independent variables listed in proposition three (see Chapter I, page 12). The breakdown program, which does an analysis of variance was used. The purpose of stages two and three was to determine if any statistical significance existed between the dependent variables employment, salaries, job satisfaction, further education and the independent school, societal, and individual variables when analyzed singly. The researcher made the decision to eliminate from the multivariate analysis any independent variable that failed to register any statistical significance when analyzed singly. This was based on the assumption that if it failed to show statistical significance when analyzed singly, it would not make any difference when analyzed jointly. Fourthly, the analysis of covariance was used to determine if any statistically significant differences existed between dependent variables employment, salaries, further education and the statistically significant independent variables, (from those listed in proposals one, two and four), when analyzed jointly. The SPSS program ANOVA was used because it was able to process all the factors and covariates in one design<sup>11</sup> where that was required.

<sup>&</sup>lt;sup>11</sup>The ANOVA program can perform the analysis of variance for up to five factors in each design and has provisions for adjusting for the analysis of up to five covariates in the analysis of covariance. The maximum numbers of factors and covariates that were present in any one design in the study were three of each.

According to Jae-on Kim and Frank Kohout the ANOVA program is -

. . . basically a stepwise multiple regression with the added feature that it creates the necessary dummy variables for the user--it can cope with unequal cell sizes and usually copes with empty cells . . . it is generally useful for social science data analysis.<sup>12</sup>

The ANOVA program also has provisions for a multiple classification analysis table which was utilized to display the grand mean, the multiple correlation coefficient, the R squared and the relationships with the dependent variable, before and after adjustment for the effect of the covariates.

The analysis made provisions for the control of achievement level, sex and socioeconomic status because these variables can contribute confounding effects to the results. John T. Grasso has pointed out that American secondary students in the different curricula (vocational, commercial, general) differ on a number of important dimensions, particularly with respect to socioeconomic background of family and scholastic aptitude scores. He therefore suggested that any analysis which aimed at deriving the net effects of the

<sup>&</sup>lt;sup>12</sup>Jae-on Kim and Frank Kohout, "Analysis of Variance and Covariance: Subprograms ANOVA and Oneway," <u>Statis-</u> <u>tical Package for the Social Sciences</u>, edited by Norman H. Nie et al. (New York: McGraw-Hill Book Company, 1975).

different curricula should control for those factors.<sup>13</sup>

#### Summary

The study was designed to collect information on the societal, individual, and school variables that it was hypothesized affected the vocational outcomes of the 1977 New Secondary school graduates. The random approach was used to select the sample which was 977 graduates from 21 locations. The measuring instrument used was a questionnaire consisting mostly of close-ended questions and answered by the graduates. The work experience coordinator or counselor at each location (school) was responsible for administering the questionnaires and tabulating the returns. The returns yielded an average response rate of 81.37% after three attempts to have graduates return their questionnaires.

The analysis was divided into two major sections. Firstly, a single variable analysis was carried out between vocational and nonvocational graduates under five major areas: demographic, individual, school, employment and work experience. The cross tabulation and one way frequency analysis SPSS programs were used.

Secondly, a multiple variable analysis was processed. This enabled the control of the variables sex, achievement,

<sup>&</sup>lt;sup>13</sup>John T. Grasso, "The Contributions of Vocational Education, Training and Work Experience to the Early Career Achievement of Young Men" (Ph.D. thesis, Ohio State University, 1975), pp. 33-34.

socioeconomic status, while examining the influence of the correlation between specific combined independent variables upon three dependent variables: employment, salaries, further education. The analysis of covariance was used for this analysis.

## CHAPTER IV

## PRESENTATION OF THE FINDINGS

# Introduction

The data collected from a sample of the 1977 New Secondary school graduates provided some bases for comparing the opinions and achievements of the vocational graduates with those of the nonvocational graduates. The first major section of this chapter provides a comparison between vocational and nonvocational graduates based on an analysis between one dependent and one independent variable. The second major section examines the vocational outcomes of vocational and nonvocational graduates through the analysis of one dependent and one or more independent variables with simultaneous control for three nuisance variables.<sup>1</sup> This section also provides information on other areas related to the vocational outcomes of the graduates vis-a-vis employment rates for graduates from different geographic locations, schools and practical programs.

<sup>&</sup>lt;sup>1</sup>Nuisance variables are variables which are usually controlled so as not to affect the outcome of the experiment. In this study the nuisance variables are academic achievement level, sex and socioeconomic status.

# Analysis of Data Based on One Dependent and One Independent Variable

The data that are analyzed in this section encompass five major sets of variables: demographic, individual, school, employment and work experience. The chi square statistic was applied to the majority of the comparisons between the vocational and nonvocational graduates. Wherever the chi square analysis was used only the variables which show statistically significant differences will be elaborated upon. For additional information on the nonstatistically significant variables the reader is referred to the appropriate tables in Appendix B.

## Demographic Variables

The four demographic variables analyzed were sex, age, geographic location and socioeconomic status. The results indicated that only sex and socioeconomic status showed statistically significant differences between vocational and nonvocational graduates at the .05 level or less when chi square statistics is used (see Table 8 and Appendix B, Tables 31-34).

Sex. The proportions of males and females were different in the two groups. The vocational group had the higher proportion of males, 49% compared to 36.6% for the females. However, females were in the majority in both groups: 63.4% of the nonvocational group and 51% of the vocational group (see Appendix B, Table 31).

Socioeconomic Status. While 4.3% of the vocational graduates came from the middle class, the proportion of nonvocational graduates who came from that socioeconomic group was 11.5 percent or almost three times the proportion of vocational graduates (see Appendix B, Table 34).

Table 8. Chi Square Analyses Between Vocational and Nonvocational Graduates and Demographic Variables

	Vocational	nvocational		
Demographic Variables	N	df	x²	
Sex <sup>a</sup>	777	1	8.808*	
Age <sup>a</sup>	761	3	4.782	
Geographic Location <sup>a</sup>	769	2	.405	
Socioeconomic status <sup>a</sup>	752	3	15.512*	

\*p < .01.

<sup>a</sup>See Appendix B, Tables 31 to 34 for percentage distributions between vocational and nonvocational and subgroups of the variables.

## Individual Decision Variables

Seven variables were analyzed in this section and the results showed that five of the group were statistically significant at the .05 level or less with the use of the chi square statistic (see Table 9 and Appendix B, Tables 35-41).

Academic Achievement Level. The majority (90.2%) of graduates from the vocational group received grades that placed them in the lower end of the ranking scale while nearly two thirds (60%) of the nonvocational group received

grades that placed them in the upper end of the scale. However, roughly one third (34%) of the nonvocational group also received grades which were classified as poor (see Appendix B, Table 35).

Table 9. Chi Square Analyses Between Vocational and Nonvocational Graduates and Individual Decision Variables

	Vocational	and Nor	vocational
Individual Decision Variables	N	df	x <sup>2</sup>
Academic Achievement Levels	766	3	123.66*
Selection of Practical Course <sup>a</sup>	271	3	2.61
Practical Course Taken <sup>a</sup>	742	4	36.918*
Satisfaction with NSS <sup>a</sup>	742	1	12.61*
Desire to Repeat Course <sup>a</sup>	761	1	9.27*
Attendance at PS <sup>b</sup> Institution <sup>a</sup>	65	1	20.17*
Relatedness of PS Study to NSS <sup>C</sup> Training <sup>a</sup>	60	1	.075

\*<u>p</u> < .01.

<sup>a</sup>See Appendix B, Tables 35 to 41 for percentage distributions by vocational and nonvocational areas and subgroups of the variables.

<sup>b</sup>Post Secondary

<sup>C</sup>New Secondary School.

<u>Practical Program</u>. There were only minor differences between vocational and nonvocational graduates in agriculture and craft, but major differences were noted for the areas of business, home economics and industrial education. The proportion of vocational students who took business education was only half the proportion of nonvocational graduates who had taken the subject, 18% compared to 36.9%. Home economics and industrial education accounted for almost three quarters (72.4%) of the vocational graduates' practical studies whereas both subjects only accounted for approximately half (49.8%) of the practical programs pursued by the nonvocational graduates. The three areas that showed the greatest divergencies between both groups were also the same areas that had attracted large enrollment of students (see Appendix B, Table 37).

Satisfaction With the New Secondary School. A larger proportion of vocational graduates (66.0%) were satisfied with the New Secondary education than nonvocational graduates (51.3%). The technical high school was the school selected by the majority of both vocational and nonvocational graduates who would have preferred to have attended a different type of secondary school. However, this desire was less evident among the vocational than the nonvocational graduates. Twenty-four point one percent (24.1%) of the vocational group would have preferred to have attended a technical high school as against 36.9% of the nonvocational (see Appendix B, Table 38).

Graduates were asked to explain why they preferred the secondary school they had selected. An analysis of the answers to the open-ended question revealed 18 different

reasons by those who expressed preference for the New Secondary school. The most frequently reported ones are listed below in descending order of frequency of replies:

- Acquisition of wide experience in the practical subjects and opportunity to learn a trade.
- Provision of the only opportunity to attend a secondary school.
- Provision of secondary education at the least expensive cost.
- The training facilitated the procurement of a job.
- The education was equal to the training that could be acquired at any other secondary school.

The three reasons most frequently given by those who would have preferred to have attended a technical high school were:

- Acquisition of more skill, trade trading or a higher and better standard of education.
- 2. Available opportunities to take the General Certificate of Examination (GCE).
- More opportunities for either obtaining a job or a better job upon graduation.

Desire to Repeat Practical Program. A larger proportion of the vocational graduates than the nonvocational graduates would repeat the same practical program if they had the opportunity. Over four-fifths (81.3%) of the vocational group expressed that view as compared to less than three quarters (70.7%) of the nonvocational group (see Appendix B, Table 39). In response to an open-ended question to provide reasons for their choice, 40% indicated that they were interested in the subject and would like to acquire more skills and expertise in that discipline. Twenty-nine percent (29%) expressed the view that the course was beneficial and career related. Fifteen percent (15%) said that they enjoyed the course and they were satisfied with it. Of those who provided reasons why they would not be interested in repeating the course, 25% said they did not get to study the area in which they were interested, 20% indicated that the training did not help them to obtain employment and 17% were now interested in pursuing studies in another area.

Attendance at Post Secondary Institutions. The proportion of vocational graduates who were studying at post secondary institutions was approximately one third (5.5%) the proportion of nonvocational graduates (15.9%). However, it should be noted that only 8.3% of all the new secondary graduates were studying in post-secondary institutions (see Appendix B, Table 40).

## Critical School Variables

Five variables were analyzed in this section. The first and last ones--the distribution of graduates and the adequacy of facilities were subjected to a one-way frequency analysis while the chi square was employed on the other three namely: adequacy of preparation, difficulty of understanding instruction in the practical areas and the interest of the practical instructors. None of these three variables revealed any statistically significant differences between the vocation and nonvocational graduates at the .05 level (see

Table 10 and Appendix B, Tables 42 to 44).

Table	10.	Chi Square	Analyses	Between	Vocati	lonal	and	Non-
		vocational	Graduates	s and Cr.	itical	Schoo	ol 🛛	
		Variables						

	Vocationa	1 and Nony	vocational
Critical School Variables <sup>a</sup>	N	df	$\chi^2$
Adequacy of Preparation <sup>b</sup>	271	4	6.5
Difficulty of Understanding Instruction	758	4	.628
Interest in Practical Areas of Instructors in Practical Areas <sup>b</sup>	742	4	2.063

None of the above variables were significant at  $\underline{p} \leq .05$  level.

<sup>a</sup>Information provided by graduates.

<sup>b</sup>See Appendix B, Tables 42 to 44 for percentage distributions by vocational and nonvocational areas and subgroups of the variables.

Distribution of Graduates. The proportion of vocational graduates was three times (73.5%) that of the nonvocational graduates (26.5%) (see Table 11). When compared with the proportions in the population, \* (74.76% vocational and 25.24% nonvocational), the distribution reflects a highly accurate sample.

Adequacy of Facilities. This question was only answered by vocational graduates due to the way the

<sup>\*</sup> See Appendix A, Table 25 which shows 9,545 (74.76%) vocational students and 3,222 (25.24%) nonvocational students in 1977.

		Graduates
School Option	N	(Percentages
Vocational	578	73.5
Nonvocational	208	26.5
Totals	786	100.0

Table 11. Percentage Distribution Between Vocational and Nonvocational Graduates

questionnaire was structured. However, the analysis showed that while slightly more than half (52.8%) of them perceived that they had sufficient facilities and equipment, almost two fifths (39.3%) were of the opinion that the facilities were insufficient (see Appendix B, Table 45).

## Employment Variables

Eight variables were analyzed in this category. The first six were analyzed by the chi square statistic and only three of the group showed any statistically significant differences between the vocational and nonvocational groups (see Table 12 and Appendix B, Tables 46-51). The other two variables were analyzed by the use of a one-way frequency analysis (see Tables 13 and 14).

Employment Rates. This variable failed to show any statistically significant differences between the two groups, but it is necessary to elaborate on it since it is one of the most critical variables in the entire analysis. The analysis indicated that employment rates for both vocational and nonvocational groups were very low and even lower than

	Vocational	and No	nvocational
Employment Variables <sup>a</sup>	N	đf	x <sup>2</sup>
Employment and Unemployment Rates <sup>b</sup>	694	1	2.41
Reasons for Unemployment <sup>b</sup>	398	5	10.619*
Job Status <sup>b</sup>	214	2	.262
Relatedness of Job to Training	g <sup>b</sup> 213	1	4.00*
Salaries <sup>b</sup>	272	2	6.906*
Satisfaction with Present Job	D 123	4	7.389

Table 12. Chi Square Analyses Between Vocational and Nonvocational Graduates and Employment Variables

"<u>p</u> ≤ .05.

<sup>a</sup>Information provided by graduates.

<sup>b</sup>See Appendix B, Tables 46 to 51 for percentage distributions by vocational and nonvocational areas and subgroups of the variables.

the employment rates for the entire 14-19 age group in the Jamaican population (see Table 1). The employment rate for the vocational group was proportionately smaller than that for the nonvocational group. Sixteen point nine percent (16.9%) of the vocational group were employed compared to 22.5% of the nonvocational group (see Appendix B, Table 46).

Reasons for Unemployment. Job shortage was the major reason given for unemployment; but whereas more than two thirds (69.9%) of the vocational group gave that as their reason, only half (50.6%) of the nonvocational group supported that view. Only a small proportion thought that their unemployment plight was due to inadequate skill preparation. The proportion of the vocational group who gave that answer was slightly less than their nonvocational colleagues, 13% as compared to 18.1% (see Appendix B, Table 47).

Relatedness of Job to Training. Over two thirds (67.9%) of the vocational graduates said that their jobs were related to their training, but only slightly more than half (53.2%) of the vocational graduates held that view (see Appendix B, Table 48).

Salaries. There were only slight differences between the proportions of vocational and nonvocational graduates who were receiving less than 30 dollars per week. However, in the 30 to 49 dollars per week range the proportion of employed vocational graduates was approximately two-thirds the proportion of employed nonvocational graduates (16.5% to 26.3%). In the highest salary range of over 50 dollars per week, the proportion of employed vocational graduates was less than half the proportion of nonvocational graduates. In this group 5.1% of the vocational graduates were employed as compared to 12.4% of the nonvocational group (see Appendix B, Table 49).

Frequency of Efforts to Obtain Jobs. The major difference between the vocational and nonvocational graduates was between those who made only one effort as compared to those who made four tries. Sixty point four percent (60.4%) of the vocational group made only one effort as compared to 52.4% of the nonvocational group. But the vocational group, those who made

as many as four efforts was only one third (5.9%) of the nonvocational group (15.9%) who made four tries (see Table 13).

Frequency of Efforts	N	Vocational Percentages	N	Nonvocational Percentages
One	194	60.4	43	52.4
Тwo	55	17.1	14	17.1
Three	45	14.0	11	13.4
Four	19	5.9	13	15.9
Five	7	2.2	1	1.2
Six Totals	<u> </u>	<u>.3</u> 100.0	82	100.0
Totals	321	100.0	82	100.0

Table 13. Percentage Distribution Between Vocational and Nonvocational Graduates and Frequency of Efforts to Obtain Jobs

Assistance in Securing Employment. The work experience coordinator was the most helpful, although he/she was more helpful to the nonvocational graduate. Thirty-five point four (35.4) percent of vocational graduates said the work experience coordinator was most helpful while 43.5 percent of the nonvocational group credited her/him with helping in finding employment. Parent, relative or friend was more helpful to vocational graduates than the nonvocational graduate (23% to 10.9%). The results indicated that not only the work experience coordinator, but also the teacher and the principal were more helpful to the nonvocational graduate than they were to the vocational ones. Seventeen point four percent (17.4%) of the vocational graduates compared to 23.9% of the nonvocational group identified their teacher as the person who was most helpful in helping them to secure a job. Eleven point eight percent (11.8%) of the vocational compared to 16.3% of the nonvocational said it was the principal who was most helpful to them (see Table 14).

Nonvocational Vocational Percentages<sup>a</sup> Ν Percentages<sup>a</sup> Job Attainment Ν 31 17.4 18 19.6 By Self By Help of Others Work Experience 43.5 Coordinator 35.4 40 63 31 17.4 22 23.9 Teacher Parent, Relative, or Friend 41 23.0 10 10.9 11.8 16.3 21 15 Principal Counselor 3 1.7 1 1.1 Other 3 1.7 4.3 4

Table 14. Distribution Between Vocational and Nonvocational Graduates and Job Attainment

<sup>a</sup>The percentages totaled more than 100 because graduates were asked to respond to all of the above factors that were applicable to them.

Employer. Of all the graduates who were presently employed, the proportion hired by private industry, was approximately twice the proportion employed by the public sector (see Table 15).

Employer	N	Percentages
Private Industry	56	60.2
Quasi Government	7	7.5
Government Total	30	<u> </u>

Table 15. Distribution of Employers of Graduates

# Work Experience Variables

Two variables were analyzed in this section with the chi square statistic. Only one (the relationship of the work experience program to the practical program training), showed any statistically significant difference at the .05 level or less (see Table 16 and Appendix B, Tables 52 and 53). The usefulness of the work experience program was analyzed using a one-way frequency analysis.

Table 16. Chi Square Analyses Between Vocational and Nonvocational Graduates and Work Experience Variables

	Vocational	and Non	vocational
Work Experience Variables <sup>a</sup>	N	df	χ <sup>2</sup>
Participation	770	l	.001
Relatedness to Training	600	l	67.886*

\*<u>p\_</u> < .01.

<sup>a</sup>See Appendix <sup>B</sup>, Table 52 to 53 for percentage distribution of vocational and nonvocational areas and subgroups of the variables.

Relatedness of Work Experience to Training. Almost all the vocational graduates (94.2%) who participated in the work experience program thought that it was related to their training as compared to only approximately two thirds (68.6%) of the nonvocational groups (see Appendix B, Table 52).

Usefulness of Work Experience Program. Both vocational and nonvocational graduates were very positive about the usefulness of the program. The analyses indicated that the proportions of both groups who thought the program did not make any difference or was a waste of time were very small. Improvement of skills and provision of an idea of the work place were the two variables that registered the highest proportions for both groups. The only difference was the category on which either group lay the greatest emphasis. Sixty-six point six percent (66.6%) of the vocational group as compared to 42.6% of the nonvocational group thought that it improved their skills. On the other hand, nearly three quarters (71.0%) of the nonvocational group thought it improved their idea of the work place, as compared roughly to half (57.7%) of the vocational group (see Appendix B, Table 54).

In summary, this section has provided a large amount of data comparing the opinions and achievements of vocational and nonvocational graduates. In doing this it went beyond the requirements of objective one. However, in relation

to the variables listed in that objective,\* the conclusion is that with the exception of the relationship of the job to the practical program, vocational training did not demonstrate any greater effectiveness than nonvocational training. But the approach used in this section has the shortcoming of many of the studies that have assessed the effectiveness of vocational education. Such analyses, in which only single variables are analyzed, fail to evaluate the combined effects of several variables. Thus the finding that vocational education was not more effective than the nonvocational education, is only a limited one due to the methodological approach. Accordingly, an approach using a number of the variables in combined or integrated analysis provided new insights into the interpretation of the assessment of the vocational outcomes of the 1977 New Secondary graduates.

## Multivariate Analysis of Data

This section of the analysis addresses the concerns of objective number two vis-a-vis to determine if the combined effects of individual, societal and school variables had any significant effects upon (a) employment, (b) job satisfaction, (c) further education, and (d) salaries.

Employment rates, salaries, relatedness of the job to the practical training, job satisfaction, further training and work experience.

# <u>Procedure used in Eliminating</u> Non-Significant Variables

Prior to the integrated analyses, the chi square statistic was used to determine if statistical significance existed between the responses for each dependent variable (employment, job satisfaction, further education, salaries) and the independent variables listed in propositions one to four on pages ll-l2 of Chapter I. As previously stated in Chapter 2, the researcher assumed that if no statistically significant differences existed between the dependent variable and an independent variable when analyzed individually it was not likely that it would have any effect when analyzed jointly. Therefore, any such variables were eliminated from inclusion in the integrated analysis, if it failed to show any statistical significance at the .05 level or below.

The first five hypotheses dealt with employment, the sixth with salaries and the 7th with further education.

## Employment

Based upon the above procedure, age, adequacy of facilities, adequacy of preparation, difficulty of instruction, interest of instructor and work experience participation were eliminated from the integrated analyses with <u>employment as criterion variable</u>. School option (vocational and nonvocational) also failed to show any significance; however, the researcher decided to include it in the joint analysis, since it involved the two groups that were being

studied (see Appendix B, Table 55 for results of chi square analyses). The variables in the first four hypotheses were analyzed in one program with employment as the dependent variable and school option (vocational and nonvocational), geographic location and practical programs as the independent variable and with achievement level, sex and socioeconomic status as control variables. The analysis of covariance was used to determine if there were any statistically significant differences at the .05 level or less.

Hypothesis 1

H<sub>0</sub>: There were no significant differences between the variances of employed vocational and nonvocational graduates.

For one (1) and 570 degrees of freedom Hypothesis 1 required an F value of 3.84 to be significant at the .05 level. Therefore, the null hypothesis could not be rejected since the F ratio was only .292 (see Table 17). So even when the vocational and nonvocational groups (school option) were analyzed jointly with other variables and with provision for control of confounding variables, the differences still lacked any statistical significance. There is only a slight difference between the employment rates of the vocational and nonvocational graduates before and after adjustments for other independent variables and the covariates. The employment proportions for the vocational and nonvocational groups before adjustment was 17% and 22%, respectively and after

Source of Variation	Sum of Squares	DF	Mean Square	F
Covariates	3.040	3	1.013	7.295*
Achievement Level	.428	1	.428	3.084
Sex	1.167	1	1.167	8.405*
Socioeconomic Level	1.491	1	1.491	10.735*
Main Effects	3.652	6	.609	4.383*
School Option	.041	1	.041	.292
Geographic Location	.466	1	.466	3.357
Practical Option	3.059	4	.765	5.507*
2-Way Interactions	.797	9	.089	.638
School Option - Geographic Location	.035	1	.035	.252
School Option - Practical Option	.163	4	.041	.294
Geographic Location - Practical Option	.575	4	.144	1.034
3-Way Interactions				
School Option - Geogra Location - Practical Op	phic p-			
tion	1.677	4	.419	3.019*
Explained	9.167	22	.417	3.000
Residual	79.164	570	.139	
Total	88.331	592	.149	

Table 17. Analysis of Covariance Between Employment and School Option,<sup>a</sup> Geographic Location, and Practical Option<sup>b</sup>

\*<u>p <</u> .05.

<sup>a</sup>Consists of Vocational and Nonvocational groups.

<sup>b</sup>Consists of Agriculture, Business, Crafts, Home Economics, and Industrial Education.

Note: The above analysis controlled for academic achievement level, sex and socioeconomic status.

adjustment it showed 19% and 20%, respectively (see Table 18). The information from the data in the classification analysis table showed that the relationship of school option (vocational and nonvocational) to employment was very low (.06) see Table 18.

#### Hypothesis 2

H<sub>0</sub>: There were no significant differences between the variances of employed graduates from different geographic areas.

For one (1) and 570 degrees Hypothesis 2 required an F ratio of 3.84 to be significant at the .05 level. Accordingly, the null hypothesis could not be rejected since the F ratio was 3.36 (Table 17). But even though there was no statistical significance between rural and urban employment, proportionately the urban areas showed a higher rate (23%) of employment than the rural area (16%). Adjustments for the other independent variables and the covariates made only slight differences, with the urban employment rate falling by one percent (22%) and rural employment remaining at the same level at 16%. The information from the data in the multiple classification analysis table showed that the relationship of geographic location to employment was very low (.08).

Hypothesis 3

H<sub>0</sub>: There were no significant differences between the variances of employed graduates from the various vocational areas.

	•						
	Unadju		Unadjusted				ed for idents riates
Variable + Category	Ν	Dev.Nª	Eta	Dev.N <sup>a</sup>	Beta		
School Opiton Vocational Nonvocational	445 148	01 .04	.06	01 .02	.02		
Geographic Location <sup>b</sup> Rural Urban	404 189	02 .05	.08	02 .04	.07		
Practical Option Agriculture Business Crafts Home Economics Industrial	36 124 29 186 218	.01 .05 .13 06 .00		10 .15 .19 .08 0.16			
			.13		.35		
Grand mean = .18 Multiple R = .275 $R^2$ = .076							

Table 18. Multiple Classification Analysis Between Employment and School Option, Geographic Location and Practical Option

# <sup>a</sup>Deviation

<sup>b</sup>This variable was recoded from the original four categories (deep rural, rural, semi - urban, urban) into two.

Note: The above analysis controlled for academic achievement level, sex and socioeconomic level. The reported value from the F table for 4 and 570 degrees of freedom was 2.37 at the 95th percentile. The computed F was 5.50 (see Table 17), therefore, the null hypothesis was rejected, since the computed F was larger than the value reported in the F table.

Although the practical programs showed statistically significant differences with employment, like school option and geographic location, it also registered a low positive relationship of .13 with the dependent variable. Crafts had an employment rate (31%) two and a half times higher than home economics which was the program with the lowest employment rate (12%). Business had the second highest rate with 23% while industrial and agriculture had approximately the same rate - 18% and 19%, respectively.

The joint analysis of all three variables (school option, geographic location and practical program) produced a multiple R of .275, still indicating a low positive relationship of all three variables to employment. Furthermore, the  $R^2$  was only .076, indicating that all three variables only accounted for 8% of the variance.

Hypothesis 4

H<sub>0</sub>: There was no interaction effect between option taken in secondary school, geographic location and vocational subject studies.

For 4 and 570 degrees of freedom Hypothesis 4 required an F ratio of 2.37 to be significant at the .05 level.
The null hypothesis was rejected because the computed F value of 3.019 (see Table 18) was larger than the value reported in the F table.

The information from the graphs in Figure 1 showed that among rural vocational graduates crafts and home economics had the highest and lowest employment rates respectively, while among the rural nonvocational graduates agriculture and industrial had the highest and lowest rates respectively. The urban vocational group had their highest\* and lowest employment rates in the same practical programs as in the rural area. However, the highest and lowest employment areas among the urban nonvocational graduates differed not only from urban vocational but from the rural nonvocational as well. Business education and agriculture had the highest and lowest employment rates, respectively in the urban nonvocational group. The rural employment pattern among the different vocational areas showed more consistency than in the urban area (see Appendix B, Table 59 for means that were used in plotting the graphs in Figure 1).

The data in Table 17 indicated that significant differences existed between the variances of two of the covariates--sex and socioeconomic level and the dependent variable (employment). An analysis of covariance using

In Figure 1, urban vocational agriculture had the highest mean, but it had only one (1) subject in the cell, so it was eliminated from consideration.



academic achievement level, sex and socioeconomic level as independent variables also confirmed the same results. However, it also showed that none of the interaction effects of the above three variables were significant at the .05 level or below (see Appendix B, Table 60). A multiple classification analysis of the above data indicated that the employment rates of the graduates with the lowest academic achievement levels were lower than those at the higher levels. The proportion of males who were employed was almost double the proportion of females: 23% to 14%. The gap between the employment rates for the upper middle class and the unskilled category of the lower middle class was very wide, ranging from 40% for the upper middle to 14% for the lowest category in the lower class (see Appendix B, Table 61).

Hypothesis 5

H<sub>0</sub>: The population means for the employed graduates from the twenty one schools were all equal to each other and to the grand mean.

The data in Table 19 showed the result of an analysis of covariance between employment and school attended with controls for academic achievement level, sex and socioeconomic status. With 20 and 627 degrees of freedom, Hypothesis 5 required an F value of 1.57 to be significant at the .05 level. Therefore, with a calculated F of 1.72 the null hypothesis that the population means were equal was rejected.

	Sum of		Mean	
Source of variation	Squares	ai	Square	F'
Covariates	3.478	3	1.159	8.122*
Achievement	.385	1	.385	2.698
Sex	1.933	1	1.933	13.545*
Socioeconomic Level	1.435	1	1.435	10.052*
Main Effects				
Schools	4.910	20	.245	1.720*
Explained	8.388	23	.365	2.555
Residual	89.493	627	.143	
Total	97.880	650	.151	

Table 19. Analysis of Covariance Between Employment and School Attended

p < .05.

Note: The above analysis controlled for achievement level, sex and socioeconomic level.

Even with adjustments for the covariates, the differences in the employment rates of the graduates from different schools showed wide divergencies ranging from a low of 5% to a high of 49% (see Table 20). The analysis also indicated there was a low positive relationship between the school attended and the graduates' employment rates. The coefficient of multiple determination for the school variable showed a slightly higher relationship to employment than the relationship for the combined variables of school option (vocational and nonvocational), geographic location and practical programs. However, the school attended only accounted for 9% of the variation between employment and unemployment rates.

		Unadjusted	Adjusted for Independents + Covariates		
Variable + Category	N	Dev. N Eta	Dev. N Beta		
Schools <sup>a</sup> 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	16 17 20 22 21 41 24 8 30 48 38 22 26 18 64 46 51 28 27 35 48	.07 01 08 14 09 .06 .11 .32 02 02 08 03 05 11 07 09 .14 .03 01 .19 .02 .02	.04 01 06 13 07 .06 .11 .31 01 08 03 02 09 04 11 .13 .04 02 .19 .01 .01		
Grand mean = .18 Multiple R = .293 $R^2$ = .086					

Table	20.	Multiple Classification Analysis Between
		Employment and School Attended

<sup>a</sup>l - 21 are the codes for the schools from which graduates were randomly selected. For the names of the schools see Appendix B, Table 29.

.

Salaries

Practical course taken and geographic location were eliminated from the analysis with <u>salaries as the criterion</u> <u>variable</u> (see Appendix B, Table 57). Academic achievement level, sex or socioeconomic status did not show any statistically significant differences, but they were used in the analysis as control variables to be consistent with the decision taken to control for these three variables in the design of the study (see Chapter III, pages 60-61).

Hypothesis 6

H<sub>0</sub>: The population mean for the salaries of the vocational graduates was equal to that of the nonvocational which was equal to the grand mean.

The data in Table 21 showed the results of the analysis of covariance between salary and school option (vocational and nonvocational) with academic achievement level, sex and socioeconomic level status as covariates. For 1 and 251 degrees of freedom, Hypothesis 6 required an F value of 3.84 to be significant at the .05 level. Since the computed F was less than the value in the F table, the null hypothesis could not be rejected. So when academic achievement level, sex and socioeconomic status are controlled, the difference that was present in the single analysis disappears (see page 72). The data in Table 22 reveals that the variable that contributed to the difference was sex.

Source of Variation	Sum of Squares	df	Mean Square	F
Covariates Achievement Sex Socioeconomic Level	2.587 1.322 1.523 .180	3 1 1 1	.862 1.322 1.523 .180	2.275 3.487 4.019* .474
Main Effects School Option <sup>a</sup>	.017	l	.017	.044
Explained	2.604	4	.651	1.717
Residual Total	95.142 97.746	<u>251</u> 255	<u>.379</u> .383	

Table 21. Analysis of Covariance Between Salary and School Option

\_́p\_ < .05.

<sup>a</sup>Includes both vocational and nonvocational graduates.

Note: The above analysis controlled for achievement, sex, and socioeconomic level.

# Job Satisfaction

The independent variables--sex, age, socioeconomic status, siblings attending secondary school, practical course taken, salaries, desired work location, type of employer, satisfaction with New Secondary School and school option were all eliminated from the analysis with job satisfaction as the proposed criterion variable because they failed to show any statistical significance when analyzed singly (see Appendix B, Table 57 for results of the chi square analyses).

#### Further Education

School attended was eliminated as an independent variable from the analysis with further education (see Appendix B, Table 58 for chi square results). Sex also failed to show any significance, but it was included with the other two control variables (academic achievement level, socioeconomic status) based on the previous decision to use them as control variables.

Hypothesis 7

H<sub>0</sub>: The population mean for vocational graduates who furthered their education was equal to that of the nonvocational which was equal to the grand mean.

The data in Table 22 resulted from the analysis of covariance between vocational and nonvocational graduates who furthered their education, with academic achievement level, sex and socioeconomic status as covariates (control variables). With 1 and 719 degrees of freedom, an F value of 3.84 was required for the null hypothesis to be significant at the .05 level. Since the computed F was larger than the value reported in the F table the null hypothesis that the means are equal was rejected.

The information from the analysis further showed that whereas only 6% of the vocational graduates were in further education, the nonvocational group had 15 percent. The adjustment for the covariates made only minor differences, with the nonvocational group moving down one percent to 14%

Source of Variation	Sum of Squares	df	Mean Square	F
Covariates Academic Achievement	1.521	3	.507	7.248*
Level	.454	1	.454	6.486*
Sex	.003	1	.003	.044
Socioeconomic Status	.743	1	.743	10.624*
Main Effects School Option <sup>a</sup>	.693	1	.693	9.910*
Explained	2.214	4	.554	7.913
Residual	50.298	719	.070	
Total	52.512	723	.073	

Table 22. Analysis of Covariance Between Further Education and School Option

<sup>\*</sup>p < .05.

<sup>a</sup>Includes vocational and nonvocational.

Note: The above analysis controlled for achievement and socioeconomic level.

(see Table 23). The coefficient of multiple determination indicated a low positive relationship of only .20. School option (vocational and nonvocational) only accounted for 4% of the divergencies between those who were furthering their education as against those who failed to do so.

Further analysis of the covariates with the criterion variable reaffirmed that statistically significant differences existed between further education, academic achievement level and socioeconomic status (Appendix B, Table 62). The multiple classification analysis indicated what was expected--namely, that the more academic students would have a higher proportion of graduates in further education. This

		Unadjusted		Adjuste Indepen + Covar	Adjusted for Independents + Covariates	
Variable + Category	N	Dev. N	a Eta	Dev. N	Beta	
School of Option Vocational Nonvocational	535 189	02 .07	.15	02 .06	.12	
Grand mean = $.08$ Multiple R = $.205$ R <sup>2</sup> = $.042$						

Table 23. Multiple Classification Analyses Between Further Education and School Option

<sup>a</sup>Deviation

Note: The above analysis controlled for achievement level, sex and socioeconomic status.

ranged from a low of 5% for the "poor" academic group, to a high of 17% for the "good" academic group. Analysis of the socioeconomic status indicated that whereas only 3% of the graduates from the semi-skilled group of the lower class were in further education, the proportion of upper middle class graduates was over five times higher (16%) (see Appendix B, Table 63). All three covariates indicated a low positive relationship with the dependent variable (multiple R = .19) and they only accounted for 3% of the variance (see Appendix B, Table 63).

In summary the findings in this section indicated that when academic achievement level, sex and socioeconomic status were controlled, vocational education graduates failed to do any better than nonvocational graduates as far as employment, salaries and further education were concerned. However, the amount of variance accounted for was so low, that it was obvious that other factors not measured in this analysis were affecting the outcomes. The joint analysis revealed that a combination of individual variable (achievement level), school variable (practical program), and the location of the school\* (societal variable) were the ones that showed statistically significant differences with employment.

The difference in employment rates of graduates from the different schools is so diverse that it cannot be explained as urban versus rural, or progressive schools versus nonprogressive schools or agricultural community versus industrial community, etc. Rather it may be hypothesized that the employment of the graduates from any one school is closely correlated with the present level of economic activity in that area.

### CHAPTER V

#### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## Summary

The study used a comparative approach to assess the vocational outcomes of a sample of 1977 Jamaican New Secondary graduates. The purpose of the study was to determine whether vocational education made any difference to outcomes, for New Secondary school graduates. Two major objectives were established as a basis for the study:

1. To ascertain whether vocational education training made any difference, through the examination of employment rates, salaries, relatedness of the job, job satisfaction, further training and work experience of vocational and nonvocational graduates.

2. To determine whether individual variables (achievement, age, sex, job-seeking efforts), societal variables (geographic location, the state of the economy, employer prejudices, occupational status) and school variables (curriculum, instruction, facilities, and work experience) had any significant effects upon (a) employment, (b) job satisfaction and (c) further education.

#### Overview of Problem

Most developing countries are plagued by very high rates of youth unemployment. Some countries have registered very high rates such as 70% in Shri Lanka (Ceylon) in 1971, and 58% in Jamaica in 1977. In the majority of developing countries today there is an urgency among politicians, planners, and educators to find quick solutions to their unemployment problems, which seem to worsen from year to year. Vocational skill training in secondary schools has been accepted as one of the chief means of providing young people with necessary skills. The underlying assumption here is that the major deterrent to employment is the lack of skills. But the failure of secondary vocational education programs has led to the questioning of the validity of this very assumption.

In the United States, studies by such researchers as F. Reid Creech and company, Jacob Kaufman and Morgan V. Lewis and Max Eninger have concluded that vocational education is more effective than nonvocational education as it relates to employment rates. However, William G. Conroy, Jr. and Daniel E. Diamond, John Grasso and Max U. Eninger in their studies arrived at opposite conclusions.

In developing countries, Najiti Mohammed Amin Al Bukhari and studies from Nepal and Ghana also questioned the effectiveness of vocational education. On the other hand, studies by O. Donald Meaders, William Thuemmel and one

Ghananian study have supported vocational education.

The conflicting views reported in the studies have themselves contributed to the two schools of thought regarding secondary vocational education that are currently the most favored by leaders of developing countries.

The pro-secondary vocational education group is represented by Thomas Balogh, a British economist, and politicians, administrators, planners, vocational teachers and some vocational researchers of developing countries. Opposed to this view is a group of international scholars represented by Philip Foster, Mark Blaug, Frederick Harbison, Phillip Coombs and Manzoor Ahmed. These scholars have either expressed doubts about the preparation of skilled manpower through the formal secondary system (Coombs and Ahmed) or have argued that the whole formal secondary vocational preparation in schools is a "fallacy" (Foster and Blaug).

John Dewey postulated that the education of the student is dependent upon what he describes as three fundamental factors: the learner, the society and organized subjectmatter. Using these three factors as a base in a theoretical framework, it is possible to extend this theory from what Dewey called the "educative process" to the evaluation of the products of that process. The present writer postulates therefore, that the three factors which should be considered in evaluating the products of the educative process should be the learner, the society and organized subject-

matter. Max U. Eninger, in hypothesizing that the vocational outcomes experienced by vocational graduates is an interaction product of school, student and occupational opportunity variables, appears to agree with the present writer in advocating such an extension.

In the light of the foregoing findings and arguments, this study endeavored to achieve an integrated assessment of vocational outcomes of a sample of 1977 Jamaican New Secondary school graduates.

#### Methodological Overview

A survey questionnaire was used to collect information from a random sample of 977 graduates of the class of 1977. The questionnaire, which consisted of 58 closed-ended and five open-ended questions, was pilot tested with 84 graduates from the 1977 class of one New Secondary school. The test-retest results yielded a correlation coefficient of .74. The individual items that yielded low coefficients were restructured to make them more comprehensible to the graduates.

The random sample of 1977 Jamaican New Secondary graduates was selected from a population of 3,908 representing the graduates from 21 schools. The 21 schools were previously selected from a larger universe of 62 schools that had 12,767 graduates. The selection of the 21 schools was based on geographic location and school size.

The work-experience coordinator or counselor in each school acted as the local organizer for the distribution of questionnaires and the tabulation of returns. This was done subsequent to both oral and written instructions by the researcher, who visited each location twice during the data collection period.

The response-rate yielded an overall average of 81.37% with 85.04% for the rural area and 73.65% for the urban areas. The rate of returns from individual schools ranged from 95.45% to 42.42%.

The data were analyzed in two stages. Stage one involved the use of the chi square to analyze one dependent and one independent variable in each attempt. Stage two involved the use of the analysis of covariance, and the SPSS ANOVA program to analyze a multiple set of variables with simultaneous control for academic achievement level, sex and socioeconomic status.

#### Major Findings

The following findings resulted from the analyses of the independent variables individually.

- Approximately four-fifths of both vocational and nonvocational graduates were unemployed.
- 2. There were no significant\* differences between

All references to significant in the findings means statistical significance.

the rates of employment, job satisfaction and work experience participation of vocational and nonvocational graduates.

- 3. A significantly higher proportion of vocational graduates than of nonvocational graduates thought their jobs were related to their training.
- 4. A significantly higher proportion of vocational graduates than of nonvocational graduates were receiving salaries in the \$30 to \$49 per week range; whereas a significantly higher proportion of nonvocational graduates than of vocational graduates were receiving salaries in the \$50 per week, and over, range.
- 5. The proportion of graduates employed by the private sector was almost twice the proportion hired by the public sector.
- Over half of both vocational and nonvocational graduates made only one effort to obtain a job.
- 7. The work-experience coordinator provided the most help to graduates in their search for jobs. The second most important person in providing help in this direction for the vocational graduates was the parent, relative or friend; but in the case of the nonvocational graduate it was the teacher.

- 8. The proportion of vocational graduates who were attending post secondary institutions was significantly lower than the proportion of nonvocational graduates.
- The majority of the employed graduates said they were satisfied with the training they had received.
- 10. The overwhelming majority (95.8%) of students indicated preference for a school that emphasizes technical and vocational skill training rather than high schools which emphasize academic preparation.
- 11. Almost four-fifths of the unemployed graduates attributed their unemployment to lack of jobs (64.3%) or employer preferences for other high school graduates (15.3%). Only 14% thought it was due to inadequate skill preparation.

The following findings resulted from the multivariate analysis of four dependent variables and several statistically significant independent variables, with controls for academic achievement level, sex and socioeconomic status.

- There were no significant differences between the proportions of vocational and nonvocational graduates who were employed.
- 2. The employment rates between urban and rural graduates did not differ significantly.

- 3. Significant differences were found between the graduates of the various practical programs. Graduates in crafts<sup>1</sup> and business education had the highest employment rates, agriculture and industrial education were in the middle and home economics had the lowest rate.
- There was a significant interaction effect between vocational and nonvocational graduates, geographic location and the practical program studied.
- 5. Significant differences were found between the employment rates for graduates from different schools ranging from 50% to 4%.
- 6. The combination of school option (vocational and nonvocational), geographic location, practical program studied and school attended only accounted for 18% of the variation between the employment and unemployment rates of the graduates.

Although crafts registered the highest employment rate, the researcher recommends cautions interpretation of this finding, because the sample size for the category was very small. The data in Appendix B, Table 65 showed that the probability is .95 that the true value will fall between 15 and 47 percent.

- 7. The control variables, sex and socioeconomic status, were also significantly related to employment although they only accounted for a meagre 3% of the variance. The proportion of males employed was almost twice the proportion of females. Secondly, the proportion of graduates from the upper middle class who were employed was almost three times that of the unskilled category of the lower class.
- There were no significant differences between the salaries of vocational and nonvocational graduates.
- 9. The proportion of vocational graduates in post secondary education was significantly lower than the nonvocational graduates.
- 10. Those who were in post secondary education were three times more likely to come from the upper middle class (lower professional managerial and highly skilled) than they were from the semi-skilled group of the lower class.

The following findings came from an analysis of graduates' suggestions for improvement of the program. The graduates offered approximately 50 suggestions, but the two that were most frequent were:

> An increase in the amount of materials and number of items of equipment for practical programs.

 An increase in the length of the work experience program.

## Conclusions

Subject to the conditions and limitations of this study, the following conclusions appear warranted:

- Acquisition of technical and vocational skills by the 1977 New Secondary graduates did not improve their chances of obtaining employment as was intended by the government and the Ministry of Education.
- 2. Although the shape of the distribution might have contributed to the low levels of variance<sup>2</sup> accounted for between the dependent and independent variables, the explained variances are so low that it must be concluded that other critical variables were influencing the vocational outcomes.
- 3. The opinions of the graduates regarding the reasons for unemployment, the state of the Jamaican economy as evidenced by the negative

<sup>&</sup>lt;sup>2</sup>One factor that might have contributed to the low variance was the shape of the distribution. The variance of single items is greatest at the point where the distribution is equally divided, but it decreases as it moves to the extremes of either side of the distribution. With 82 percent unemployed and 18 percent employed, the variance would tend to be lower.

growth rate of the Gross Domestic Product (GDP) and the high unemployment figures all point to the state of the economy as one of the critical variables in assessing vocational outcomes of New Secondary graduates in Jamaica.

- 4. The graduates were interested in occupational skill oriented education rather than the traditional grammar type education which was once the most sought after type of education.
- 5. Although the graduates' answers on the structured questions indicate their overwhelming satisfaction with the work experience program, many suggestions in the comments section of the questionnaire indicate the need for increasing the length of the program.
- 6. Of the variables that can be manipulated by the school, the training in the practical areas provides the greatest potential for the school to contribute to increased employment of its graduates.
- 7. There is an urgent need for more research projects that assess secondary vocational education outcomes from an integrated approach rather than from an approach which assesses only the outcomes of skill acquisition.

## Discussion

The astronomically high unemployment rate of the New Secondary school graduates must be of grave concern to both Jamaican educators and politicians because one of the major objectives behind the establishment of these schools was to achieve the very opposite result--that is the lowering of youth unemployment. The seriousness of the crisis may be illustrated by noting that the 82% unemployment rate for the 1977 New Secondary graduates was 25% higher than the unemployment rate for that general age group in the nation in 1977. Apart from those factors already listed in the findings and the conclusions, two other factors may have contributed to the crisis, namely the job expectations of secondary or high school graduates in Jamaica and the lack of opportunities for, and/or negative attitudes of young people towards, self-employment.

The information from the literature review has shown that secondary students, particularly those in the lower socioeconomic levels, perceived education as a medium of social mobility. Many recent graduates have not been willing to seek out jobs at the lower ends of the career ladder. Such jobs have not been considered prestigious nor have they been perceived as avenues of social mobility. Since the vocational graduates were the majority in both the lower academic achievement levels and the lower socioeconomic

levels, it was logical to suggest that a larger proportion of vocational graduates were unwilling to accept jobs at the lower end of the career ladder. In discussing the distaste by both boys and girls for jobs at the lower ends of the career ladder, M. G. Smith points out that:

> Until economic pressures override distaste, these young people can hardly show much interest in work which they dislike and still seek to escape.<sup>3</sup>

As secondary graduates their expectations are higher than those of their nonsecondary colleagues in the population, but when considered with graduates from the other three types of secondary schools their chances of obtaining employment are the lowest, since they are yet to establish their credibility\* based on their performance as secondary graduates. When the above factors are coupled with the depressed state of the economy, it highlights the severity of the employment crisis facing New Secondary graduates.

It might also be argued that this research was not designed to measure the extent to which the graduates were self-employed. However, the researcher would speculate that

<sup>&</sup>lt;sup>3</sup>M. G. Smith, "Education and Occupational Choice in Rural Jamaica," <u>Social and Economic Studies</u>, 9 (September, 1960), 332-354.

The 1977 graduates were only the second group of graduates from the New Secondary schools. Furthermore, the New Secondary students represent a group from which the so called "cream" had already been taken out at the 11+ and 13+ exams to attend High and Technical high schools respectively.

the number of graduates engaged in self-employment was minimal. A follow-up study of secondary school graduates in Kenya found that in a sample of 3,179 graduates only .3 percent were self-employed. The reasons Kabiru Kinyanjui gave for the very low rate of self-employment among Kenyan secondary-school graduates were considered applicable to Jamaica. Kinyanjui gave two major reasons for the minimal self-employment rate.

- The secondary graduates lack capital, skill and confidence.
- The traditional concept that secondary education is preparation for wage employment still remains.<sup>4</sup>

Emmit B. Evans Jr. emphasized another aspect which is also applicable to Jamaica. He pointed out that:

Although the opportunities for self-employment in a developing economy would seem to be quite intensive, it is unlikely that entreprenuership among secondary school leavers (graduates) will prove to be particularly successful in relieving the employment situation. Apart from the traditional lack of interest in such activities, there seems to be little official support for small scale entrepreneurs.<sup>5</sup>

<sup>&</sup>lt;sup>4</sup>Kabiru Kinyanjui, "Education, Training and Employment of Secondary School Leavers in Kenya," <u>Education in</u> Eastern Africa, 11 (1971), 20.

<sup>&</sup>lt;sup>5</sup>Emmit B. Evans Jr., "Secondary Education, Unemployment and Crime in Kenya," <u>Journal of Modern African Studies</u>, 13 (March, 1975), p. 58.

In addition, David C. McClelland has pointed out that self-employment needs what is called 'achievement motivation' "which is a built-in desire to excel for its own sake, requiring no external pressure."<sup>6</sup> He claims that 'achievement motivation' is something that is fostered by early upbringing, and is already ingrained in the child even before 6 or 7 years old. Blaug believes that achievement motivation is not only instilled by child-rearing practices but is something that the child absorbs from the entire culture unconsciously.<sup>7</sup> But Robert K. Kirton in quoting from Madelaine Kerr points out that:

> early family life in Jamaica encourages a pattern of dependence rather than initiative. . . There is a suspicion that, for cultural reasons, that achievement motivation may be lower than elsewhere.<sup>8</sup>

Three other interesting findings associated with employment need further discussion.

(a) The higher employment rates of graduates from the higher socioeconomic group seems to be the result of a number of factors.(1) The proportion of nonvocational

<sup>7</sup>Blaug, Education and Employment, p. 55.

<sup>8</sup>Robert K. Kirton, "The Unemployability Hypothesis and the Effective Supply of Effort," <u>Social and Economic</u> Studies, 20 (June, 1971), 134-150.

<sup>&</sup>lt;sup>6</sup>David C. McClelland, <u>The Achieving Society</u>. (Princeton: D. Van Nostrand, 1961), p. 54.

graduates from the middle class was almost three times the proportion of vocational graduates in that group. The majority (60%) of nonvocational graduates were classified as 'satisfactory' or 'good' academic students. Therefore, the more brilliant students would be likely to obtain jobs more easily than the 'poor' or unsatisfactory ones, especially in a depressed economic situation. (2) the children of middleclass parents generally have more contacts either through their parents or friends whereby, they can gain access to jobs, especially if those jobs are limited. Adam Kuper points out that "neat stratification models of Jamaica tell one little about the social realities."<sup>9</sup> However, he further explains that:

> while channels of social mobility are open, they are structured in such a way that parental social class remains the best guide of a child.<sup>10</sup>

(b) The higher employment rate of male graduates over female graduates is probably explained by the scarcity of jobs and probable willingness of some male graduates to accept the more casual kinds of work not available or not acceptable to female graduates. The distribution of male and female in the population shows that they are almost

<sup>&</sup>lt;sup>9</sup>Adam Kuper, <u>Changing Jamaica</u>. (London: Routledge and Kegan Paul, 1976), p. 61.

<sup>&</sup>lt;sup>10</sup><u>Ibid</u>., p. 74.

equally divided (48.8% male and 51.2% female). However, the unemployment rate for females was almost two and half times that of males (34.6% to 14.6%). The higher percentage of unemployed female labor force can be attributed to a number of factors such as the level of education of many women, the traditional attitude of the Jamaican male and the societal attitude of both men and women which perceives the woman's role as home maker.<sup>11</sup>

Powell's study showed that "there is a stronger tendency for younger women (15-19 years) to enter the labour force than young men of the same age group,"<sup>12</sup> but that this trend is reversed after the age of 20. It is indeed difficult to understand why in this sample more males are employed than are females especially when it is recalled that females were in the majority in the sample, as well as in the higher academic groups.

Furthermore, only 1% was kept out of the labor market due to pregnancy. An objective answer to the problem might be found through a detailed analysis of the type of jobs in which both sexes are working.

(c) The finding that a higher proportion of graduates is employed by the private than by the public sector is

<sup>&</sup>lt;sup>11</sup>Dorian L. Powell, "Female Labor Force Participation and Fertility. An Exploratory Study of Jamaican Women," Social and Economic Studies 25(March, 1976), 234-258.

<sup>&</sup>lt;sup>12</sup>Ibid., p. 239.

interesting since the opposite was expected. The likely hypothesis is that employment by the private sector has not increased but rather that the employment by the government has decreased. On the major employment areas of the economy, such as bauxite, sugar and tourism, private and public ownership are almost equally divided. So the greater proportion of graduates employed by the private sector cannot be attributed to the fact that private ownership of the means of production is bigger in the private than in the public sector. However, it does suggest the possibility that the schools might increase their efforts to place their graduates in private as well as public sector enterprizes.

It is obvious from the findings that the possession of vocational and technical skills by vocational graduates did not give them an advantage in securing jobs. There were limited numbers of jobs available. In the limited job market situation, it was non-practical skill factors that gave the graduate the edge. A larger proportion of nonvocational graduates were willing to make extra efforts to obtain jobs--they had socioeconomic advantages, they received more assistance from the school in obtaining jobs, and they were more likely to have taken practicals in business education. But above everything else, the state of the economy seemed to have been the most critical factor contributing to the very high unemployment rate among the New Secondary graduates.

In Jamaica the effectiveness of the New Secondary school is often questioned, but this research has indicated that the vocational graduates have vindicated the usefulness of the school's establishment. A greater percentage of them were more satisfied that they attended the New Secondary school than their nonvocational colleagues. Seventyfive point four percent (75.4%) of them thought they were either very well or well prepared compared to 62.5 percent of the nonvocational group. The vocational graduates were also more desirous of repeating their practical study than their nonvocational colleagues (81.3% to 70.7%).

More vocational graduates found jobs related to their training so it might be hypothesized that vocational graduates were either better trained to command jobs in their vocational area or more jobs related to their training were available in the lower paying occupations.

Since there were no significant differences between the job satisfaction of the vocational and nonvocational group, it seemed either that those who were working obtained the jobs they liked or, because of the scarcity of jobs, the graduates were satisfied that they were fortunate to have jobs. It is difficult to assess, because with such a low employment rate (18 percent) and the state of the economy, those who are more difficult to satisfy probably would still be among the 82 percent unemployed. Among the graduates who were dissatisfied, inadequate salary was the most frequent

complaint. It therefore follows that the vocational graduates would be more dissatisfied with their salaries since they had a larger proportion in the lower salary scales.

Even when academic achievement level, sex and socioeconomic level were controlled there was still a significant difference between the vocational and nonvocational graduates who continued in further education. Therefore, one can only hypothesize that a combination of subjective factors such as attitudes to further education, peer group pressure and parental influence may have resulted in a greater proportion of nonvocational graduates entering further education.

What is very obvious from this study, the findings and this discussion is a reconfirmation of Eninger's hypothesis that vocational outcomes experienced by graduates is an interaction product of school, student and occupational opportunity variables.

# Recommendations

The findings and conclusions already reported have provided the basis for several recommendations. These recommendations are submitted under three major headings-school, the Ministry of Education and the Government.

# Recommendations to the Schools

 The enrollments of students in the different occupational areas should be selectively adjusted upwards or downwards by each school

according to employment opportunities and students' interests.

- The work experience program should be extended beyond the present maximum training period of three weeks.
- 3. All New Secondary schools should establish a well defined relationship with the community including both the public and private sectors. Representatives from the private sector should be encouraged to participate in activities of the school, by giving talks or demonstrations about the operation of their businesses. Through the development of active links of communication with the private sector, the school may exploit the opportunities that the private sector presents for work experience training, for informal education of the students and for employment after graduation.
- 4. More occupational information on available careers and/or career ladders as well as the employment opportunities should be made available by each school to all grade 10 and 11 students. This occupational information should include information on the potentials and resources for self-employment careers. The occupational information dissemination should go

beyond the cognitive to include acquisition of information through such activities as interviews of employers by students and employers visiting schools to discuss careers with students.

- 5. The practical instructors, the counselors and the work experience coordinators in the New Secondary schools should increase the instructional emphasis on (a) importance of aggressive and persistent job search by students; (b) the benefits of pursuing self-employment opportunities instead of waiting for paid jobs that may never materialize; (c) the benefits from employment in whatever jobs are available until the desired job is obtainable.
- Greater flexibility be provided for student involvement in selection of the practical area of their studies.
- Each school should administer an annual, a three year and eight or 10 year follow-up study of their graduates.

# Recommendations to the Ministry of Education (Jamaica)

 The research section of the Ministry in consultation with the technical vocational division should plan and initiate a longitudinal followup study to assess the outcomes of New Secondary

graduates based on an integrated approach similar to the one used in this study.

- 2. External assistance should be sought to do a longitudinal follow-up study at an appropriate interval of time of the 1977 graduates, using the data accumulated in this study as baseline data.
- 3. Other related areas that need to be researched are:
  - A comparative analysis between outcomes of vocational graduates of different secondary schools.
  - A comparative analysis between a sample of schools with low, medium and high employment rates to identify the factors that contribute to the higher rates of employment.
  - c. A longitudinal study of graduates to determine changes over time between occupational choice before graduation and the occupations graduates eventually enter with provisions to relate the employment trends to socioeconomic and government policy trends.

## Recommendation to the Government

Based on the review of the literature it is recommended that the government seek financial assistance and expertise from an external agency to study, plan and establish

an experimental skill training center that would be operated outside the formal guidelines of the Ministries of Education and Labor. The center would plan and operate its program in response to changes in the market place. Management would be under a director advised by a committee with representatives from the Ministries of Labor, Education, Agriculture, Private industry, labor unions and community interest groups. Recurrent costs should be met from a payroll tax. Establishment of additional centers would be incumbent on the success of the experimental one.

## Some Implications

Many factors have contributed to the high unemployment rate of both vocational and nonvocational graduates, but it seems the most critical of those factors is beyond the control of the school--namely, the unhealthy state of the Jamaican economy. Thus, any significant improvement of the employment rates of the graduates will probably depend on vast improvements in the state of the Jamaican economy.

If the new secondary school is to become more than a symbol of egalitarian education in Jamaica it will have to pursue a total program that ensures all students, regardless of socioeconomic class, the equal chances of further education and employment.

The high unemployment rate among the New Secondary graduates could lead to serious social and political repercussions. Currently, the graduates' expectations of

obtaining employment upon graduation are continually being frustrated.

The Ministry of Education should enunciate a philosophy for New Secondary schools that emphasizes the importance of all types of work in helping the individual to achieve his own life-long goals as well as contributing to the productivity of the country.

There is a need for the government to plan for and pursue a positive policy to ensure that information, resources, technical help and markets are available to all secondary graduates who are desirous of pursuing selfemployment projects.
## APPENDIX A

## HISTORICAL REVIEW OF NEW SECONDARY SCHOOLS AND VOCATIONAL EDUCATION

#### APPENDIX A

## HISTORICAL REVIEW OF NEW SECONDARY SCHOOLS AND VOCATIONAL EDUCATION

#### Establishment

The New Secondary schools were started in September 1974. Previously the schools were known as Junior Secondary schools, but with the commencement of the 1974 school year they were changed to New Secondary schools by provision for 5 years of secondary education instead of three as previously. They consist of five grades (7-11). Before entry into grade 10 each student is tested and classified into one of three levels:\*

- (1) Prefunctional
- (2) Functional
- (3) Continuing Education

Levels one and two consist of the vocational students.

The New Secondary school is only one of several types of secondary schools<sup>1</sup> in Jamaica and curricula and

\*See definitions in Chapter I, pages 13-15.

<sup>&</sup>lt;sup>1</sup>The others are High Schools, Technical Schools, Comprehensive Schools and Vocational Schools. Entry to all these schools is selective either through an examination or an examination and interview. Entry to the New Secondary school is nonselective and based on geographic location. The New Secondary school also differs from the other high schools in its emphasis upon vocational training to provide entry level employment skills; the participation of the majority of students in work experience and production programs and projects; and its philosophical rationale of

objectives vary widely (see Table 24 for New Secondary enrollment in relation to other schools). However, according to the recently published Five Year Education Plan (1978-1983) it is intended to rationalize the system of secondary education. One major objective of the plan at the secondary level is to achieve a "common programme in grades 7, 8 and 9 and a common core with appropriate options in grades 10 and 11."<sup>2</sup> It is hoped that this objective will be achieved by 1983.

Table 24. Distribution of Students by Kind of School in Secondary Stage--(1976-1977)

Schools	Number of	Schools	Enrollment	Percentages
New Secondary	71		94,190	44.96
All Age (4-9 Grade	es) 520		67,410	32.18
High	44		36,446	17.40
Comprehensive	5		5,984	2.85
Technical	6		5,175	2.47
Vocational	2		290	0.14
Totals			209,495	100.00

Source: <u>Secondary Education</u> (General). Kingston, Jamaica: Ministry of Education, undated, p. 1.

providing an education appropriate for a society striving for egalitarianism.

<sup>2</sup>Ministry of Education, Five Year Education Plan, 1978-1983, p. 70.

### Curriculum

The common core of learnings in grades 7, 8, 9 consists of English, maths, a second language, science, social studies and physical education. Prevocational training is provided in agriculture, art and craft, industrial arts and home economics. Music, drama and other optional subjects are also offered.

In grades 10 and 11 the curriculum consists of a core curriculum and several options.

<u>Core Curriculum</u> - Consists of language communication, practical mathematics, and life skills (family life education, related science, prevocational work, consumer education and Caribbean studies).

Options - All students choose from a list of options largely in vocational and technical areas. However, students who possess the necessary aptitudes and achievement levels can further their studies in the academic areas. This will help to insure that they are eligible for entry into tertiary institutions. Students who choose the vocational option may also choose to pursue further courses in the academic areas, which will prepare them for pursuing vocational technical areas in the appropriate tertiary institutions.

The vocational programs include auto mechanics, agriculture, carpentry and cabinet making, child care, clerk and merchandising, crafts, dress making, electrical

123

installation, food and nutrition, hotel services, machine shop and welding, plumbing, typing and office practice. (See Table 25 for enrollment by vocational majors.)

#### Evaluation

The students of the New Secondary schools are evaluated through:

1. Continuous Assessment

2. External Assessment

According to a Ministry of education document, the objective of the evaluation is to determine "how much each student achieved from his starting point, rather than what he has failed to do."<sup>3</sup>

<u>Continuous Assessment</u> - Each program (core of option) has a series of individual tasks which are intended to test the student's skill and understanding. No student should proceed to a new task until satisfactorily completing the present one. Because of the basic objective for the evaluation it is important that the students are provided with regular opportunities to discuss and understand their ongoing evaluation.

External Assessment - The purpose of this assessment is to ensure common standards that post secondary institutions and employees can understand and interpret. The

<sup>&</sup>lt;sup>3</sup>Ministry of Education, "Evaluation of Grade 10 and 11 Students" Kingston, Jamaica: undated, p. 3.

Table 20. Grades 10 and 11	students	s in New	secondar	Y SCHOOLS	by vocatio	onal Area	S	
		15	975-76			.6T	76–77	
Course	Grade 10	Grade 11	Total	Percent- age	Grade 10	Grade 11	Total	Percent- age
Continuing Education* Twning and Office	3,203	3,129	6,332	19	:	:	•	•
Practice	2 <b>,</b> 355	1,706	4,061	12.0	12,031	2,304	4,335	14.3
Clerk and Salesmanship	970	629	1,629	5.0	1 686 	485	1,171	0°0'
Food and Nutrition	2,140	1,706	3 <b>,</b> 846	11.5	1 2,330	1,505 1,100	3,835	12.6
Clothing and Textiles	1,529	1.2780	2, 809	0.0		1,215	3,023	0.01
Crafts	968	822	1,790	5.3	1 356	- 7667	1,523	5.0
Auto-Mechanics	888	220	1,108	3.3	1 852	614	1,466	4.8
Carpentry and Cabinet Makir	1, 387	1,191	2,578	7.7	1,800	1,132	2,932	9.7
Electrical Installation	2,155	1,541	3,696	11.0	1 2,317	1,768	4,085	13.5
Machine Shop and Welding	1,173	910	2,083	6.2	1,653	1,026	2,679	8.8
Plumbing	15	•	15	.04	1 405	203	608	2.0
Agriculture	720	792	1,512	4.5	<b>1</b> 866	585	1,451	4.8
Beauty Culture	•	:	:	•	• 47	42	68	0.3
Drafting	68	28	96	0.3	<b>1</b> 95	112	207	0.7
ı					-			
Total	18,867	14,721	33,588	100	17,577	12,767	30,344	100
Total (Vocational only)	15,664	11,592	27 <b>,</b> 256	81	14,061	9,545	23,636	78
* In 1976-77, the informati each student to take a pr tical for skill preparati Note: The total vocationa the 1977 grade 11 f Sources: <u>Social and Econo</u> 399; and <u>Job Expect</u> Kingston, Jamaica:	on was pro actical a on, the 0 igures. mic Surve Research	vided of trea. B Continuii S for gra s for gra	nly by pr ut wherea ng group ade 10, 1 ca 1977. ca 1977. n, Minist	actical ar s the voca did 6 peri 977 was ca Kingston condary Gr ry of Educ	eas, becau tional stu ods to ins lculated 1 Jamaica: aduates Ra	use of th dents di sure a ro from 1976 from 1976 National blated to 77, p. 2.	e decisic d 16 peri unded pre grades 1 Planning Their Co	n requiring ods of prac- paration. 0 and 11 and 1 Agency, p. urses.

F -1 17. . ť г Ċ ż ٢ ( r ц С .

125

exams are set by the Ministry of Education and are administered at the end of grade 11. They are intended to test the student's mastery of the skills acquired and student ability to apply the knowledge from different programs.

Both the continuous and external assessment are graded on a five-point ranking scale as follows--unsatisfactory (1), poor (2), satisfactory (3), good (4), outstanding (5).

At the termination of secondary school each student receives a school leaving certificate which records the individual's level of achievement. The certificate is granted for one of three levels,<sup>4</sup> namely Functional Education, Continued Education or Further Education.

### Vocational Education

### Background

An examination of the first attempts at establishing "industrial training" or agricultral education in Jamaica in the middle nineteenth century shows that the intent was primarily to achieve the following objectives<sup>5</sup> rather than provide the youths with useful agricultural skills:

<sup>&</sup>lt;sup>4</sup>See Ministry of Education, "Evaluation of Grade 10 and 11 Students," p. 1 and/or definitions in Chapter I, pages 13-14.

<sup>&</sup>lt;sup>5</sup>Carl Campbell, "The Development of Vocational Training in Jamaica: First Steps," <u>Caribbean Quarterly</u> 11 (March-June 1965): 13-35.

- (a) to provide laborers for the estates that had lost the services of the ex-slaves;
- (b) to inculcate a disciplined attitude in the freed youths; and
- (c) to provide food for some residential church schools.

Institutional training in vocational education did not begin until almost the end of the nineteenth century and the early part of the twentieth century. The first school for preparation in technical and vocational education was the Kingston Technical school which was established in 1896. It was then labeled as a model Senior school, later the name was changed to Trade and Continuation school and in 1960 it became the Kingston Technical High school. In its early years it provided training in building construction, engineering, domestic science and commercial subjects. The government Farm school (now Jamaica School of Agriculture) which was established in 1910, was the only other institution providing early vocational training.

#### The Early Years

In 1936 the first practical training center was established. Subsequently, two more were opened. Two of the centers served boys and the third one catered for girls. They were post primary institutions for students between 15-20 years. The major emphasis of the institutions was on practical training with the boys concentrating on agriculture and related crafts such as carpentry, building

127

construction, masonry, farm mechanics, shoe making and cottage industries. The girls concentrated on such areas as domestic science and home making.

#### Present Structure

The central administration of vocational and technical education emanates from the Ministry. Prior to 1975 responsibility for the program was under the direction of the secondary and/or tertiary sections of the Ministry depending on whether the vocational institution was at the secondary or post secondary level.

In July 1975 a technical and vocational division was established in the Ministry. This new division incorporated the specialist areas of agriculture, business, industrial, home economics education and arts and crafts. The division is responsible for the central administration, policy recommendations, budgeting and supervision of the programs as well as inservice training of vocational teachers.

Vocational and technical programs are available at both the secondary and post secondary levels. (See Figure 2 for organizational structure.)

Post secondary training is available in agriculture and household sciences, (Jamaica School of Agriculture), building, electrical, mechanical and laboratory technology, institutional management and pharmacology, (College of Arts, Science and Technology). Some post secondary vocational and technical education is also available at the community

128



Organization of Vocational Education in the Formal System Figure  $\hat{2}$ .

At the New Secondary, Technical High, Vocational and Comprehensive schools the objective is to produce vocational and technically trained graduates while high schools only offer vocational subjects as an option. NOTE:

colleges, but most of these institutions are only in their infancy, and most of the programs are in the establishment stages. The teachers colleges, the Jamaica School of Agriculture and the College of Arts, Science and Technology prepare technical and vocational teachers.

Secondary training is provided at technical, vocational, comprehensive, bilateral, new secondary and vocational schools. The vocational training at the bilateral schools is more of an optional nature, while the other schools provide more indepth training. However, the intensity of the training varies very widely, with the technical schools producing the most highly marketable graduates.

Training in the secondary vocational and technical schools covers a wide variety of technical and vocational subjects such as mechanical engineering, building construction, mechanics, electronics, welding, electrical installation, machine work shop, agriculture, home economics, crafts and business education.

The overwhelming majority of the vocational students in the formal Jamaican educational system are enrolled in the New Secondary schools (see Table 26). Therefore, the quality and direction of vocational program that develops in these fairly recent institutions will be critical in the evolution of large scale secondary vocational education in Jamaica.

130

Type of Institution	1975-76	Per- centage	1976-77	Per- centage
New Secondary Schools	27,256	75.5	23,636	68.45
Technical High Schools	2,233	6.2	2,334	6.76
Vocational Schools and Training Centers	134	.37	2,490	7.2
Comprehensive High Schools	2,519	6.97	2,359	6.84
Jamaica School of Agriculture	408	1.13	507	1.47
College of Arts, Science and Technology	3,547	9.83	3,202	9.28
Totals	36,097	100.00	34,528	100.00

Table 26. Number of Full Time Vocational Students by Type of Institution in the Formal System

Note: At the secondary level the vocational students are those in grades 10 and 11.

Source: Economic and Social Survey Jamaica 1977 and 1976. Kingston, Jamaica: National Planning Agency and Educational Statistics 1975-76 and 1976-77. Kingston, Jamaica: Ministry of Education.

APPENDIX B

SUPPLEMENTARY TABLES

		b. <sup>F</sup>	760	960	336	188	188
		Plum	L	6	13	14	14
	ଟ	Draft. <sup>6</sup>	95	200	500	750	1050
e lears	Educati	Elec. <sup>d</sup>	4940	6240	8684	9672	9672
T TOT L	ndustrial	carpen. <sup>c</sup>	4180	5236	7348	8184	8184
	н	hop Auto	1900	2400	3340	3720	3720
		Mach. <sup>b</sup> S	3420	4320	6112	<b>6696</b>	6696
and and a		Food Nu- trition	4940	6188	8684	9672	9672
And a maile	Home Economics	с. Тех. <sup>а</sup>	4180	5236	7348	8184	8184
		Child Care (	4180	5236	7348	8184	8184
זברווודר	ess tion	Sales	1520	1904	2672	2976	2976
	Busin Educa	Typing	4180	5236	7348	8184	8184
		ulture fts	1900	2400	3340	3720	3720
		Agric	1900	2400	3340	3720	3720
	Voca-	Total	<u>38000</u> <u>95000</u>	<b>4</b> 8000 <u>119000</u>	<u>66800</u> <u>167000</u>	74400 186000	74400 186000
1 - ATOM		Year	1978-79	1979-80	1980-81	1981-82	1982-83

and Worstional Subjects in Grades 10 and 11 for Five Years Table 27. New Secondary Enrollments by Technical

<sup>a</sup>clothes and Textiles

b<sub>Machine</sub>

<sup>c</sup>carpentry

d<sub>Electricity</sub>

<sup>e</sup>Drafting

<sup>f</sup> plumbing

	000				(2240) () (2524) (2380)
ries	Over 20	0 <sup>a</sup> None	0 <sup>a</sup> None	2 <sup>a</sup> Sav-la-mar	11 <sup>a</sup> Denham Town Papine (2528 Montego Bay Spanish Town
cation and Size Catego	1501-2000	0 <sup>a</sup> None	8 <sup>a</sup> Seaforth (1745) Grange Hill (1600) Junction (1525)	3 <sup>a</sup> Christiana (1980)	1 <sup>a</sup> None
hools by Geographic Lo	1001-1500	3 <sup>a</sup> Richmond (1200)	15 <sup>a</sup> Alexandria (1300) Albert Town (1052) Knockalva (1020) Bog Walk (1020) Kemps Hill (1360)	7 <sup>a</sup> Ocho Rios (1417) Black River (1020)	1 <sup>a</sup> None
Number and Names of Sc	500-1000	3 <sup>a</sup> Alston (984) Glengoffe (947)	7 <sup>a</sup> Fair Prospect (720) Kellits (880)	1 <sup>a</sup> None	0 <sup>a</sup> None
Table 28.	Geographic Location	Deep Rural	Rural	Semi Urban	Urban

Note: a denotes the total number of schools in that subgroup.

Category	Location	Number of Question- naires Distributed	Numbers Returned	Percentage
1	Albert Town	22	21	95.45
2	Alexandria	25	19	76.00
3	Alston	26	23	88.46
4	Black River	35	28	80.00
5	Bog Walk	35	28	80.00
6	Christiana	60	54	90.00
7	Denham Town	66	28	42.42
8	Fair Prospect	12	11	91.66
9	Glengoffe	37	34	91.89
10	Grange Hill	55	51	92.72
11	Junction	54	46	85.18
12	Kellits	33	28	84.85
13	Kemps Hill	31	29	93.54
14	Knockalva	28	21	75.00
15	Montego Bay	89	75	84.27
16	Ocho Rios	70	60	85.71
17	Papine	85	63	74.12
18	Richmond	44	33	75.00
19	Savannala-mar	48	33	68.75
20	Seaforth	47	44	93.61
21	Spanish Town	75	66	88.00
	Totals	977	795	81.37

Table 29. Numbers of Questionnaires Distributed, Number Returned and Percentage Returned by Category and School Name

Average response rate for Rural Locations = 85.04 Average response rate for Urban Locations = 73.65 Table 30. The Miller Scale for Ranking Occupations

Categories	Examples of Occupations				
HIGHER PROFESSIONAL & MANAGERIAL	Accountants, Architects, Veterinarians, Physicians, Dentists, University Professors & Senior Lecturers, Solicitors, Judges, Chief of Police & Army, Owners or Managers of large Commerical & Industrial enterprises Heads & Asst. Heads of large Govt. Depts. Ministers of Cabinet Farmers and Landed Proprietors of more than 500 acres				
LOWER PROFESSIONAL & MANAGERIAL	Accountants (Certified), Managers and Asst. Managers, Engineers. Senior Executives (Govt. or Non-Govt.) of medium size enterprises Senior Officers of Army and Police Magistrates University lecturers, Heads of large Secondary Schools Heads of large Denominations Commercial Pilots (aircraft) Farmers (100 - 499 acres) Supervisors of Clerical, Sales, Craftsmen, Technicians, Agricultural workers, Service workers, etc. of large enterprises etc. Other supervisory occupations Leaders of large Trade Unions Members of Parliament (Large) contractors				
HIGHLY SKILLED	Clerical workers: Bookkeepers, typists, secretaries, stenographers, clerks (office and banks), other Civil Servants, Telegraph, Telephone, Radio communications Operators, etc. Sales Workers: Salesmen, Underwriters, shop assts., shop keepers, owners of small enterprises Technicians: Photographers, pharmacists, medical technicians, Public Health Dept. Pilots (ship), Service: Heads of Primary & Jnr. Sec. & Deputies and Senior Assistants, Graduate Teachers, Librarians, Artists, Social workers, Police (Supt.) Army - Pilots, aircraft & ship Extension workers, Farmers (50 - 99 acres)				

Table 30 (cont'd.)

Categories	Examples of Occupations
SKILLED	Service: Police, Soldiers, Prison officers, Desk officers, Teachers (Primary) DriversRailway, car and taxi, bus, truck Tailors, Dressmakers, Hairdressers, Carpenters, Cabinet makers, painters, masons, printers, bookbinders, plumbers. Photographers (Polaroids) Craftsmen: Jewellers, Precision Instrument makers. Toolmakers, garage mechanics, welders, machine operators in factory, electricians Lifting and equipment operators Construction workers Farmers (10+ acres) Bakers, Cooks, Butchers, Waiters
SEMI-SKILLED	Helpers of Highly Skilled and Skilled: Factory workers Office maids Postmen and Messengers Porters Caretakers
UNSKILLED	Farm laborers, cane cutters, gardeners Domestic workers, fish venders, pedlars, etc. Watchmen, Wrappers, port workers, truck and van sidemen, cartmen, casual workers.
Source: Errol L	. Miller, "Self Evaluation Among Jamaican High Schoo

Source: Errol L. Miller, "Self Evaluation Among Jamaican High School Girls," <u>Social and Economic Studies</u>, 22 (December, 1973): 412.

		 Se	
School option	Ν	Male	Female
ande te beginnet beginne ander og er de beder gegene og e		Ş	96
Vocational	572	49.0	51.0
Nonvocational	202	36.6	63.4
Total	774	45.7	54.3

# Table 31. Number and Percentage by Sex for Vocational and Nonvocational Graduates

# Table 32. Number and Percentage by Age for Vocational and Non-vocational Graduates

			Ag	es	
School option	Ν	17	18	19	20
		Qo	00	olo	olo
Vocational	560	5.7	51.8	38.2	4.3
Nonvocational	201	4.0	56.7	37.8	1.5
Total	761	5.3	53.1	38.1	3.5

Table 33.	Number and Percentage by Geographic Location for Vocation	al
	and Nonvocational Graduates	

School option	N	<u>Geographic</u> Urban	C Location Rural	
		96	Q	
Vocational	563	33.2	66.6	
Nonvocational	206	32.5	67.5	
Total	769	33.0	66.8	

		Socioeconomic Status					
School option N		LPM <sup>a</sup> and Highly Skilled	Skilled	Semi- skilled	Un- skilled		
		9 6	ę	90	ę		
Vocation	552	4.3	31.7	51.4	12.5		
Nonvocational	200	11.5	35.0	41.5	12.0		
Total	752	6.3	32.6	48.8	12.4		

Table 34.	Number and Percentage by Socioeconomic Status for Vocational
	and Nonvocational Graduates

a Lower Professional Managerial

Note: LPM and highly skilled represents traditional or upper-middle class Skilled represents the lower-middle class Semi-skilled and unskilled represents the lower class

Table 35.	Number and Percentage by Academic Achievement Level for	C
	Vocational and Nonvocational Graduates	

		Academic Achievement Levels					
School option	Ν	Unsatisfactory	Poor	Satisfactory	Good		
		Ş	00	9 O	00		
Vocational	566	27.4	52.8	18.2	1.6		
Nonvocational	200	6.0	34.0	51.5	8.5		
Total	766	21.8	47.9	26.9	3.4		

Note: There was one column for outstanding, but it had only one subject so it was recoded with those in the column for "good"

School option	N	By Teacher or Counselor	By Student	Only Avail- able Area	Other
••••••••••••••••••••••••••••••••••••••		8	ę	Ŷ	æ
Vocational	175	25.1	62.3	11.4	1.1
Nonvocational	96	34.4	54.2	10.4	1.0
Total	271	28.4	59.4	11.1	1.1

Table 36. Number and Percentage by Selection of Practical Program for Vocational and Nonvocational Graduates

Table 37. Number and Percentage by Practical Programs Taken for Vocational and Nonvocational Graduates

School option	N	Agricul- ture	Busi- ness	Crafts	Home Economics	Indus- trial
	<u>-</u>	00	90	0,0	Q.	ş
Vocational	547	5.1	18.1	4.4	33.1	39.3
Nonvocational	195	7.7	36.9	5.6	26.7	23.1
Total	742	5.8	23.0	4.7	31.4	35.0

Table 38. Number and Percentage by Satisfaction with NSS<sup>a</sup> for Vocational and Nonvocational Graduates

		Satisfaction				
		With		Pre	eferred	
School option	N	NSS	Compb	THSC	GAHSa	PSSe
		00	<u>Ş</u>	olo	Qo	ę
Vocational	547	66.0	6.4	24.1	2.6	.9
Nonvocational	195	51.3	5.6	36.9	5.6	.5
Total	742	62.1	6.2	27.5	3.4	.8

a New Secondary School Comprehensive High School

C<sub>Technical</sub> High School <sup>d</sup>Grant Aided High School

e Private Secondary School

		Desire	to Repeat
School option	N	Yes	No
		90	00
Vocational	556	81.3	18.7
Nonvocational	205	70.7	29.3
Total	761	78.4	21.6

Table 39.	Number and Percentage by Desire	to Repeat Practical Program
	for Vocational and Nonvocational	Graduates

Table 40. Number and Percentage by Post Secondary Attendance for Vocational and Nonvocational Graduates

School option	Ν	Post Secondary Attendance Percentages
		8 8
Vocational	32	5.5
Nonvocational	33	15.9
Total	65	8.3

Table 41.	Number and Percentage Indicating Relatedness of Post-
	Secondary Study to New Secondary Training of Vocational
	and Nonvocational Graduates

School option	N	Relatedness of Related %	Post Secondary Study Unrelated %
		9	8
Vocational	30	66.7	33.3
Nonvocational	30	66.7	33.3
Total	60	66.7	33.3

			Adequacy of Preparation					
School option	N	Very Well Prepared	Prepared	Moderately Prepared	Not Well Prepared	Not at All Prepared		
		90	00	00	ę	90		
Voca- tion	175	34.3	41.1	16.6	5.1	2.9		
Nonvo- cation-								
al	96	25.0	37.5	26.0	5.2	6.3		
Total	271	31.0	39.9	19.9	5.2	4.1		

Table 42.	Number and Percentage by the Adequacy of Preparation for	r
	Vocational and Nonvocational Graduates	

Table 43. Number and Percentage by Difficulty of Understanding Practical Instruction for Vocational and Nonvocational Graduates

		Understanding Practical Instruction						
School option	Ν	Difficult	Difficult	Fair	Easy	Easy		
		Q	90	9g	ò	ş		
Vocation	555	1.8	5.6	39.8	31.2	21.6		
Nonvocational	203	2.0	4.4	40.4	30.0	23.2		
Total	758	1.8	5.3	40.0	30.9	22.0		

Table 44. Number and Percentage by Interest of Practical Instructor for Vocational and Nonvocational Graduates

			Interest	of Practic	al Instruc	tor
School option	N	Very Little Interest	Little Interest	Some Interest	Much Interest	Very Much Interest
		olo	QQ	0;0	Qo	98
Vocational	539	1.3	2.0	13.7	37.3	45.6
Nonvocational	203	2.5	3.0	14.3	27.4	42.9
Total	742	1.6	2.3	13.9	37.3	44.9

		2	
Perceptions	Ν	Percentages	
More than enough to use	7	7.9	
Enough to use	47	52.8	
Note enough to use	35	39.3	
None to use			
Total	89	100.00	

Table 45.	Number and Percentages Indicating Adequacy of Facilities
	as Perceived by Vocational Graduates

Table 46.	Number and Percentage by Employment and Unemployment Rates
	for Vocational and Nonvocational Graduates

		]	Rates
School option	Ν	Employment	Unemployment
		Q	8
Vocational	521	16.9	83.1
Nonvocational	173	22.5	77.5
Total	694	18.3	71.7

Graduat	des tes	tot ennear la phone			ocartoliat alia	MULTOCALLY	тріг
			Reasons fc	or Unemplo	yment		
School option	N	Inadequate Skill Preparation	Job Shortage	Jobs Far Àway	Employer Preferred H.S. Grad. <sup>a</sup>	Dislike Av.b Job	Other
		0/0	9/0	0/0	0/0	0/0	0/0
Vocational	315	13.0	69.9	3.2	14.0	1.3	•
Nonvocational	83	18.1	50.6	8.4	20.5	1.2	1.2
Total	398	14.1	64.3	4.3	15.3	1.3	8.

Number and Percentage by Reasons for Unemployment for Vocational and Nonvocational Table 47.

<sup>a</sup>High School Graduate

b<sub>Available</sub>

School option	N	Relatedness of Related	Job to Training Not Related
		ę	ę
Vocational	134	67.9	32.1
Nonvocational	79	53.2	46.8
Total	213	62.4	37.6

Table 48.	Number and Percentage by Relatedness of Job to Training
	for Vocational and Nonvocational Graduates

# Table 49. Number and Percentage by Salaries for Vocational and Nonvocational Graduates

			Salaries	
School option	N	Under \$30 per Week	\$30-49 per Week	Over \$50 per Week
		90 00	Ş	Ş
Vocational	175	68.6	26.3	5.1
Nonvocational	97	71.1	16.5	12.4
Total	272	69.5	22.8	7.7

# Table 50. Number and Percentage by Job Status for Vocational and Nonvocational Graduates

			Job Status	
School option	Ν	Full Time	Part-Time	Seasonal
		ę	Q	Ş
Vocational	178	75.3	20.8	3.9
Nonvocational	96	75.0	19.8	5.2
Total	274	75.2	20.4	4.4

		Satisfact	ion With P	resent Job	)
N	Like Very Much	Like Somewhat	Like nor Dislike	Dislike Somewhat	Dislike Very Much
	ę	00	ę	ક	ę
86	54.7	29.1	8.1	4.7	3.5
37	64.9	8.1	13.5	5.4	8.1
123	57.7	22.8	8.8	4.9	4.9
	N 86 37 123	Like Very Much88654.73764.912357.7	Satisfact   Like Very Much Somewhat   % %   86 54.7 29.1   37 64.9 8.1   123 57.7 22.8	Satisfaction With PLike Very MuchLike SomewhatLike nor Dislike%%%8654.729.13764.98.112357.722.88.8	Satisfaction With Present JobLike Very MuchLike SomewhatLike nor DislikeDislike Somewhat%%%8654.729.18.14.73764.98.113.55.412357.722.88.84.9

Table 51. Number and Percentage by Satisfaction with Present Job for Vocational and Nonvocational Graduates

Table 52. Number and Percentage by Relatedness of Work Experience to Practical Training for Vocational and Nonvocational Graduates

School option	N	Relatedness Related	of Work Experience to Training Not Related
		0 0	8
Vocational	431	94.2	5.8
Nonvocational	169	68.6	31.4
Total	600	87.0	13.0

Table 53. Number and Percentage by Work Experience Participation for Vocational and Nonvocational Graduates

		Work Experience Pa	articipation
School option	N	Participated	Did Not
		ę	ę
Vocational	564	88.1	11.9
Nonvocational	206	88.3	11.7
Total	770	88.2	11.8

Usefulness	N	Vocational Percentages <sup>a</sup>	N	Nonvocational Percentages <sup>a</sup>
Improved Skills	335	66.6	78	42.6
Made no Difference	23	4.6	15	8.2
Facilitated Employment	39	7.8	11	6.0
Improved Idea of the Workplace	260	51.7	130	71.0
Waste of Time	5	1.0	4	2.2
Increased Practical Area Interest	195	38.8	65	35.5
Other	3	.6	3	1.6

Table 54.	Number and Percentage of Vocational and Nonvocational
	Graduates Responding to Several Categories of Usefulness
	of Work Experience Program

<sup>a</sup>The percentages totaled more than 100 because graduates were asked to respond to all of the above factors that were applicable to them.

Variables <sup>a</sup>	N	df	x <b>2</b>
Age	684	3	4.672
Adequacy of Facilities	87	2	1.257
Adequacy of Preparation	261	4	2.716
Difficulty of Instruction	676	4	4.738
Interest of Instructor	663	4	2.839
Work Experience Participation	687	1	.0003

Table 55. Chi Square Analyses Between Employment and Six Variables

None of the above variables were significant at  $\underline{p} \leq .05$ .

<sup>a</sup>Information provided by Graduates.

Note: The above variables were eliminated from inclusion in the multivariate analysis with employment as the criterion variable, since they failed to show any significant differences at the .05 level when analyzed individually.

Variables <sup>a</sup>	N	df	$\chi^2$
Practical Course Taken	253	8	10.820
Geographic Location	271	4	7 <b>.9</b> 88
Achievement Level	268	6	4.890
Sex	272	2	2.923
Socioeconomic Status	266	6	4.459

Table 56. Chi Square Analyses Between Salaries and Five Variables

None of the above variables were significant at  $p \leq .05$ .

<sup>a</sup>Information for all the above variables (with the exception of achievement level), were provided by the graduates. Achievement level information was obtained from the Ministry of Education records. Note: The above variables were eliminated from inclusion in the multivariate analysis with salaries as the criterion variable, since they failed to show any significant differences at the .05 level when analyzed individually.

Table 57. Chi Square Analyses Between Job Satisfaction and Ten Variables

Variables <sup>a</sup>	N	df	χ <sup>2</sup>
Sex	76	16	14.521
Age	73	32	23.609
Socioeconomic Status	75	64	68.383
Siblings Attending or Attended Secondary or			
High School	76	16	19.369
Practical Course Taken	73	64	63.111
Salaries	75	48	<b>44.9</b> 13
Desired Work Location	62	32	25.911
Type of Employer	60	32	42.573
New Secondary School Satisfied	73	16	17.798
Vocational or Nonvocational	77	16	17.699

None of the above variables were significant at  $p \leq .05$ .

<sup>a</sup>Information provided by graduates.

Note: Since none of the above variables failed to show any significant differences with the criterion variable (job satisfaction) at the .05 level when analyzed individually, there was no need to do a multivariate analysis with them as was implied in proposition 3 in Chapter I.

Variables <sup>a</sup>	N	df	χ <sup>2</sup>
Sex	785	1	1.507
School Attended	795	20	20.213

Table 58. Chi Square Analyses Between Further Education and Two Variables: Sex and School Attended

Both variables were not significant at  $\underline{p} \leq .05$ .

<sup>a</sup>Information provided by graduates.

Note: Both sex and school attended were eliminated from inclusion in the multivariate analysis with further education as the criterion variable, since they failed to show any significant differences at the .05 level when analyzed individually.

Variables and Categories	N	$\overline{\mathbf{x}}$	SD
Entire Population	636	.1837	.3875
Rural	434	.1567	.3639
Agriculture	34	.1765	.3870
Vocational	24	.1250	.3378
Nonvocational	10	.3000	.4830
Business	92	.1957	.3989
Vocational	53	.1887	.3950
Nonvocational	39	.2051	.4091
Crafts	18	.2778	.4609
Vocational	13	.0377	.4804
Nonvocational	5	.2000	.4472
Home Economcis	132	.1061	.3091
Vocational	103	.0777	.2690
Nonvocational	29	.2069	.4123
Industrial	158	.1582	.3661
Vocational	132	.1591	.3672
Nonvocational	26	.1538	.3679
Urban	202	.2376	.4267
Agriculture	3	.3333	.5774
Vocational	2	.5000	.7071
Nonvocational	1	0	0
Business	40	.3500	.4830
Vocational	29	.2759	.4549
Nonvocational	11	.5455	.5222
Crafts	14	.3571	.4972
Vocational	10	.4000	.5164
Nonvocational	4	.2500	.5000
Home Economics	70	.1714	.3796
Vocational	53	.1698	.3791
Nonvocational	17	.1765	.3930
Industrial	75	.2133	.4124
Vocational	58	.2069	.4086
Nonvocational	17	.2353	.4372

Table 59. Means and Standard Deviations for Significant Three-Way Interaction Between Employment with Geographic Location, Practical Option,<sup>a</sup> and School Option<sup>b</sup>

<sup>a</sup>Includes Agriculture, Business, Crafts, Home Economics and Industrial <sup>b</sup>Vocational and Nonvocational

Table 60. Analysis Level	s of Co	variance Between Emplo	yment and Achi	evement Level,	Sex and Soc	rioeconamic
Source of Variation	c		Sum of Squares	đf	Mean Square	Гч
Main Effe <del>ct</del> s			4.414	7	.631	4.363*
Achievement Lé Sex Socioeconomic	evel Level		.441 2.214 2.311	ωΗω	.147 2.214 .770	1.017 15.321* 5.329*
2-Way Interactions			2.522	15	.168	1.163
Achievement Achievement Sex	Sex Socio Socio	economic Level economic Level	.340 .865 .915	ო თ ო	.113 .096 .305	.785 .665 2.109
3-Way Interactions						
Achievement	Sex	Socioeconomic Level	1.185	7	.169	1.172
Explained			8.121	29	.280	1.938
Residual		I	89.759	621	.145	
Total			97.880	650	.151	
* P < .05						

150

.

Variable + Cat	egory	N	Unadju Dev.N <sup>°</sup>	isted Eta	Adjuste Indeper Dev.N	ed for ndents Beta
Academic Achie	vement Level <sup>b</sup>					
Unsatisfa Poor Satisfact Good	ory	147 323 164 17	03 00 .03 .05	.06	.05 01 02 04	.07
Sex						
Male Female		310 341	.05 04	.12	06 .06	.16
Socioeconomic :	Status <sup>C</sup>					
LPM <sup>d</sup> + Hid M Skilled ( Semi-skil Unskilled	ghly Skilled (Upper iddle Class) lower Middle Class) led (Lower Class) (Lower Class)	35 195 337 84	.22 .02 02 04	.14	24 02 .03 .04	.16
Grand mean = . Multiple $R = .$ $R^2 = .$						

Table 61. Multiple Classification Analysis Between Employment and Achievement Level, Sex and Socioeconomic Level

Deviation

<sup>b</sup>Academic achievement level was recoded from five categories to four, because only one subject was in the fifth category

<sup>C</sup>Socioeconomic status was recoded from six categories into four categories because the sixth category (higher professional managerial) was empty and the fifth category (LPM) had only five subjects

<sup>d</sup>LPM - Lower Professional Managerial

Table 62. Analysis ( and Socio	of Covar economic	riance Between Fu : Level	rther Education	and Academic	Achievement Le	vel, Sex,
Source of Variation			Sum of Squares	đf	Mean Square	ц
Main Effects			1.991	7	.284	4.078*
Academic Achiev Sex Socioecnomic 14	ement le evel	vel	.762 .021 882	с ц с	.254 .021 294	3.644* .305 4.216*
2-Way Interactions			1.681	15	.112	1.607
Achievement Achievement Sex	Sex Socioea Socioea	momic Status momic Status	.182 1.183 .438	ო ი ო	.061 .131 .146	.870 1.384* 2.095
3-Way Interactions						
Achievement {	Sex	ocioeconomic Status	.844	ø	.105	1.513
Explained			4.515	30	.151	2.158
Residual			48.889	102	.070	
Total			53.404	731	.073	
* ש_ י ס5						

.

152

.

\* <sup>Cul</sup>

Variable + Category	N	Unadju Dev.N <sup>6</sup>	isted <sup>1</sup> Eta	Adjusto Indepen Dev.N	ed for ndents Beta
Achievement Level					
Unsatisfactory Poor Satisfactory Good	159 353 196 24	02 03 .05 .09	.14	01 03 .04 .09	.12
Sex					
Male Female	335 397	01 .01	.05	01 .01	.02
Socioeconomic Status <sup>C</sup>					
LPM <sup>d</sup> + Highly Skilled (Upper Middle Class) Skilled (Lower Middle Class) Semi-skilled (Lower Class) Unskilled (Lower Class)	43 235 363 91	.08 .04 03 04	.15	.07 .04 03 03	.13
Grand mean = .08 Multiple R = .193 $R^2$ = .037					

## Table 63. Multiple Classification Analysis Between Further Education and Socioeconomic Level and Achievement

#### a Deviation

<sup>b</sup>Academic achievement level was recoded from five to four categories because only one subject was in the fifth category.

<sup>C</sup>Socioeconomic level was recoded into four groups because the higher professional managerial group was empty and lower professional managerial had only five subjects.

Table 64. Confidence Interv Employment and th	vals for Pra ne Practical	ctical F Progra	rogram <b>ms</b>	s Calculé	ated fro	m Covari	ance Analyses Between
Practical Courses	N	q	ъ	s2	ß	м <sup>о</sup>	95 Percent Confidence Internal
Agriculture	36	.19	.81	.1539	.3923	• 06	.19 ± .12 = 7-31%
Business	124	.23	.77	.1771	.4208	.04	$.23 \pm .8 = 15-31$
Crafts	29	.31	.69	.2139	.4625	.08	.31 <sup>±</sup> .16 = 15-47%
Home Economics	186	.12	. 88	.1056	.3250	.02	.12 ± .4 = 8-168
Industrial	218	.18	.82	.1476	.3842	•03	$.18 \stackrel{+}{-} .6 = 12-24$

p = percentage employed

q = percentage unemployed s<sup>2</sup>= variance

s = standard deviation

s = standard error
APPENDIX C

SUPPLEMENTARY FIGURES





THE VOCATIONAL OUTCOME	TIME TO GET FIRST JOB	EMPLOYMENT SECURITY		REPORTED JOB SATISFACTION	INITTAL JOB EARNINGS	EARNINGS PROGRESSION	PLUS OTHER OUTCOMES	the Vocational Outcomes of School, Student and Occu-	
THE OPPORTUNITY			LOCAL	STATE REGIONAL NATIONAL MANPOWER REQUIREMENTS FOR T & I	OCCUPATIONS			eneral Hypothesis is that is an Interaction Product	
THE HUMAN RESOURCE	GENERAL INTELLIGENCE	APTITUDES AND ABILITIES	SUBJECT GRADE PERFORMANCE	X SCHOOL SOCIAL X ADJUSTMENTS X	INTEREST AND ATTITUDES	PERSONAL CHARACTERLISTICS	PLUS OTHER INPUT VARLABLES	The Vocational Equation: The G Experienced by T & I Graduates pational Opportunity Variables	
THE SCHOOL SYSTEM	CURRICULUM AND COURSES	INSTRUCTTONAL METHODS	GENERAL AND SHOP FACILITIES	TEACHER CHARACTERISTICS	GUIDANCE AND OTHER SERVICES	SCHOOL MANAGEMENT	PLUS OTHER INPUT VARLABLES	Figure 4.	

M. U. Eninger, The Process and Product of T & I High School Level Vocational Education in the United States (The Process Variables) Pittsburgh: American Institute for Research, April 1968). Source:

APPENDIX D

QUESTIONNAIRE, LETTERS TO GRADUATES AND CODES FOR OPEN-ENDED QUESTIONS

.



Please return Survey Form to:

157





Please leave the above columns blank.

# SAMPLE SURVEY OF 1977 GRADUATES FROM JAMAICAN NEW SECONDARY SCHOOLS

All answers which you give will be kept strictly confidential.

## **GENERAL INSTRUCTIONS**

THESE INSTRUCTIONS MUST BE CAREFULLY READ BEFORE STARTING THIS QUESTIONNAIRE

- 1. Please complete All sections that apply to you by placing an "X" in the box next to the answer of your choice. Your frank answer is important in order that your school may continue to improve the vocational programs.
- 2. Be certain to read the instructions at the head of each section, because some sections do not apply to everyone. For example, if you are a continuing education graduate, then the section for vocational graduates does not concern you OR if you are employed, then the section dealing with those who have not been employed since graduation, should not be answered.

THANKS FOR YOUR HELP IN THIS IMPORTANT STUDY

# I. SOCIOECONOMIC DATA

- A. Sex
- (8) 1 Male
  - 2 Female
- B. Age (check the one nearest to your age)
- (9) <u>1</u> 17 years
  - 2 18 years
  - 3 19 years
  - 4 20 years
- C. Geographic Location
- (10) Where do you live? (Please specify location)

# Place

Parish

D. Parents' Occupation

Uncle

(11) What work does your father do most of the time?

(e.g., small farmer, (net returns under \$3,000), medium size farmer, (net returns between \$3,000 to \$10,000), large farmer, (net returns over \$10,000), doctor, mechanic, tailor, teacher, agricultural worker, factory worker, etc.)

(12) What work does your mother do most of the time?

(e.g., small farmer, (net returns under \$3,000), medium size farmer, (net returns between \$3,000 to \$10,000), large farmer, (net returns over \$10,000), housewife, teacher, higgler, agricultural worker, factory worker, etc.)

Who is chiefly responsible for supporting for your family? (check only one)

1 (13) Father 6 Aunt 2 Mother 17 **Older Sister** 3 8 Grandmother **Older Brother** Grandfather 9 Other\_ (specify)



-

.

-	-	•
	5	×
-	-	0

(If your answer is father or mother, use the same answer as that given in 11 or 12)

- E. Have you got any older brothers or sisters who have graduated from or presently attending a secondary or high school?
- (15) 1 Yes 2 No
- F. Are you satisfied with the opportunity to have attended the New Secondary School or would you have preferred to attend another secondary school? (check only one)
- (16) 1 am satisfied I attended the New Secondary School.
  - 2 I would have preferred to have attended a Comprehensive High School.
  - 3 I would have preferred to have attended a Technical High School.
  - 4 I would have preferred to have attended a Grant Aided High School.
  - 5 I would have preferred to have attended a private secondary school.

State your reason for choosing the one you did in above

#### II OPTION TAKEN IN SECONDARY SCHOOL

- A. When you attended the New Secondary School, what group were you in? (check only one)
- (17) 1 Functional Education (means you took around 16 periods of a practical subject each week)
  - Prefunctional Education (also means you took around **16 periods of a practical subject each** week)
  - 3 Continuing Education (means you took around 5 to 6 periods of practical subjects each week)
- B. If you took a practical area course, check one of the following:
- (18) 1 Agriculture
  - 2 Business education (specify what area)
  - 3 Crafts
  - 4 Home economics (e.g., textiles, child care, etc. (name the area)
  - 5 Industrial education (e.g., electrical, carpentry, etc. (name the area) \_\_\_\_\_\_
  - 6 Other (specify)\_

#### **III EMPLOYMENT INFORMATION** - Present Status

Are you presently employed or unemployed? (check only one)

- (19) 1 Employed
  - 2 Unemployed (I am actively looking for a job but can't find one)
  - 3 Do not need employment (I am unemployed but I am not seeking employment. See VIII A for some likely reasons.)

#### IV JOB INFORMATION

IF YOU HAVE BEEN EMPLOYED ANY TIME SINCE GRADUATION FROM SECONDARY SCHOOL OR ARE PRESENTLY EMPLOYED, FILL IN THE FOLLOWING SECTIONS; OTHER-WISE, SKIP TO SECTION VII.

A. Job Status (check one) (20) 1 Full time (employe

- Full time (employed regularly for\_\_\_\_\_ hours per week)
- 2 Part time (employed regularly for \_\_\_\_\_ hours per week)
- 3 Seasonal (typically employed about \_\_\_\_\_ weeks per year)

When employed seasonally, about \_\_\_\_\_ hours per week

Name of Employer \_\_\_\_\_\_ Name of Immediate Supervisor \_

Address of Employee

Address of Employer \_\_\_\_\_ District or Town

Post Office

B. Salary (check one)

(21)

- 1 Less than \$30 per week
- 2 \$30-\$39 per week
- 3 \$40-\$49 per week
- 4 Over \$50 per week
- C. Who helped you to find a job? (check all that apply)
- (22) 1 Work experience coordinator
- (23) 1 Teacher
- (24) **1** Parent, other relative or friend
- (25) 1 The Principal
- (26) [1] No one but myself
- (27) **1** Counsellor
- (28) 1 Other (please specify)
- D. Is the job: (check one)
- (29) 1 Related to your area of training?
  - 2 Not related to your area of training?
- E. Give the name of your employer. (For example, Ministry of Agriculture or Hendricks and Co.
- (30) or Public Health Clinic, etc.)

# V CURRICULUM

- A. In light of your experience on the job, how well were you prepared by your training to perform the skills your work requires? (check only one)
- (31) 1 Very well prepared
  - 2 Well prepared
  - 3 Moderately prepared
  - 4 Not well prepared
  - 5 Not at all prepared
- B. How did you get into your practical area of training? (check one)
- (32) 1 My teacher or counselor placed me there
  - 2 It was the only area available that was not filled
  - 3 I selected that area
  - 4 Other (specify)

TO BE ANSWERED ONLY BY GRADUATES (INCLUDING FUNCTIONAL, PREFUNCTIONAL AND CONTINUING EDUCATION) WHO ARE PRESENTLY EMPLOYED.

# VI JOB SATISFACTION SURVEY

- A. How do you feel about your present job? (check only one)
  - Like it very much [4] Dislike it somewhat
  - Like it somewhat 5 Dislike it very much
  - 3 Neither like or dislike it
- B. Rate the degree to which you are satisfied with each of the following in your present job. (Select only one answer for each question)

		Satisfied	Not Sure	Dissatisfied
(34)	Amount of salary	1	2	3
(35)	Chances for promotion	1	2	3
(36)	Amount and type of supervision	1	2	3
(37)	Relationship with coworkers	1	2	3
(38)	Type of working conditions	1	2	3
(39)	Variety of work tasks	1	2	3
(40)	The security of the job	1	2	3
(41)	Facilities and equipment with which to do the job	1	2	3
~				

С.

(33)

11

2

(42) If you had a choice, name the area of Jamaica where you would like to work.

(e.g., Kingston, Linstead, Mandeville, Montego Bay, Malvern, etc.)

THIS SECTION IS ONLY FOR GRADUATES WHO HAVE NOT WORKED SINCE GRADUATION. IF YOU ARE ACTIVELY SEEKING EMPLOYMENT BUT CANNOT FIND ONE, ANSWER VII A AND B ONLY. IF DO NOT NEED EMPLOYMENT, SKIP TO VIII A AND ALSO B IF APPLIES.

VII	UNEN	IPLO	YED (you are actively looking for a job but can't find one)
	Α.	Whi	ich ones of the following ways have you used in an effort to get a job? (check all that apply)
	(43)	1	Wrote applications in response to published advertisements
	(44)	1	Personally asked employers for a job
	(45)	1	Sought the help of your school counselor, teacher or work coordinator
	(46)	1	Sought the help of your parents, relatives or friends
	(47)	ī	Wrote applications for unpublished jobs
	(48)	៣	Checked with the Ministry of Labour's employment division
	(49)	៣	Other (please specify)
	B. (50) VIII A. (51)	Fro for 1234 56 DO F chec	m your experiences since graduating, which one of the following has made it most difficult you to get employment? (check one) Lack of sufficient skill preparation at Secondary School Lack of jobs Jobs are too far away from where I live Employers prefer to hire other high school graduates rather than New Secondary graduates What is your reason for saying so?
		2 3 4 5	Illness       etc.)         Pregnancy       Presently not working and not interested in employment         Other (specify)
	В.	lf y Tra	rou are presently furthering your education at a post secondary institutional (e.g., JSA, de Training, CAST, Teacher's College, etc.), is it in an area: (check <b>one</b> )
	(52)	1	Related to your special area of training in secondary school? (specify) Name the institution you are attending
		2	Unrelated to your special area of training in secondary school?
	SEC WHO		IS IX AND X ARE TO BE COMPLETED ONLY BY VOCATIONAL GRADUATES RE EMPLOYED. ALL OTHER GRADUATES SKIP TO SECTION XI.
IX	(53)	Hov 1	w much do you use the practical training which you received? (check <b>only one</b> ) All of the time 2 Some of the time 3 Very rarely 4 Never
۰.	FACI		ES AND EQUIPMENT
-	A	The	e amount of equipment at my Secondary School in my practical training area was such
	(54)	1 2 3 4	More than enough to use Enough to use Not enough to use None to use
	B. (55)	The 1 2 3	e equipment at my Secondary School in my training area was such that: (check one) I found it easy to handle the equipment on the job I had some problems handling the equipment on the job I found it very difficult to handle the equipment on the job

# THIS SECTION IS TO BE COMPLETED BY ALL STUDENTS

XI	WOR	K EXPERIENCE (This refers to the work experience that is suggested for Grade XI students)			
	Α.	Please check one			
	(56)	1 I took part in the grade eleven work experience program			
		2 I did not take part in the grade eleven work experience program			
	Β.	My grade eleven work experience program: (check one)			
	(57)	1 Was related to my specific area of practical training at the New Secondary School			
		2 Was unrelated to my specific area of practical training at the New Secondary School			
	C.	The work experience I received: (check all that apply)			
	(58)	1 Improved my skills in my practical area of training			
	(59)	1 Did not make any difference			
	(60)	1 Helped me in getting my job			
	(61)	<b>Gave me a better idea of working conditions outside of school</b>			
	(62)	1 Was a waste of time			
	(63)	(63) 1 Increased my interest in my practical area of training			
	(64) 1 Other (specify)				
хн	INST	RUCTION			
	Α.	Did you find it easy to follow or understand the lessons taught by your teacher in your specific practical area?			
	(65)	1 Very difficult 2 Difficult 3 Fair 4 Easy 5 Very Easy			
	В.	Did your teacher show any interest in your work in your specific practical area?			
	(66)	1 Very little interest 2 Little interest 3 Some interest 4 Much interest			
		5 Very much interest			
XII	l. lf tra	you had to start all over again, would you choose the same practical program you received aining in at the New Secondary School?			
	(67)	1 Yes 2 No			
	Give	the reason for your answer:			

Comments or suggestions for improvement of the program:

(If space is not sufficient here, continue on back of page)

Section 2. Copy of Letter Sent with the First Questionnaire to All the Graduates in the Sample

Address of School

Dear

Mr. Bennett, Senior Education Officer, Ministry of Education is carrying out a Research project which could help to improve the teaching of practical subjects in your schools.

Your help is very important in successfully completing this Research. You are asked to fill out the enclosed questionnaire and return in two (2) days in the enclosed addressed/ franked envelope.

Please give your <u>frank</u> answers. Thanks for your help in this important study.

Yours respectfully,

P. S. Bennett Senior Education Officer (Agriculture) Ministry of Education



Section 3. Copy of Letter Sent with the Second Questionnaire to All Graduates Who Failed to Respond to the First Questionnaire

Address of School

Dear

This is a reminder asking you to return the first questionnaire regarding the teaching of practical subjects in your school.

A new set is enclosed, in case you have mislaid the first one. Kindly fill out and return in two (2) days in the enclosed franked envelope. Your help is most appreciated.

Thanks for your help in this important study.

Yours respectfully,

P. S. Bennett Senior Education Officer (Agriculture) Ministry of Education Section 4. Key to Codes for Uncoded Sections of Questionnaire



## 1.C. Geographic Location

(10) Where do you live? (Please specify location)



# 1.D. Parents Occupation

(11) What does your father do most of the time?

1	

Higher Professional and Managerial



Lower Professional and Managerial



Highly Skilled



- (12) What does your mother do most of the time? (The same classification as at number 11)
- (13) What type of work is the person selected in number 13 engaged in most of the time? (The same classification as at number 11)

No. of the second se

## IV.E.

(30) Give the name of your employer





Quazi-Government



Government

VI.C. (42) If you had a choice, name the area of Jamaica where you would like to work?





Rural



2

Semi-Urban



Urban

REFERENCES

#### REFERENCES

### Books

- Agency for Public Information. <u>Prime Minister's Budget</u> Speech - 29th April 1974. Kingston, Jamaica: 1974.
- Al Bakhari, Najiti Mohammed Amin. <u>Issues in Occupational</u> <u>Education: A Case Study in Jordan</u>. Stanford, California: Stanford University, Stanford International Development Centre, 1968.
- Al Bukkari, Najiti Mohammed Amin. <u>Issues in Occupational</u> <u>Education: A Case Study in Tunisia</u>. Stanford, California: Standord University, Stanford International Development Centre, 1968.
- American Psychological Association. <u>Publication Manual</u>. Washington, D. C.: 1974.
- Anderson, C. Arnold, and Mary Jean Bowman, eds. Education and Economic Development. Chicago: Aldine Publishing Company, 1965.
- Blaug, Mark. Education and the Employment Problem in Developing Countries. Geneva: International Labor Office, 1973.
- Campbell, Donald T., and Julian C. Stanley. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally College Publishing Company, 1963.
- Campbell, William Giles, and Stephen Vaughan Ballau. Form and Style. Boston: Houghton Mifflin Company, 1978.
- Commonwealth Secretariat. <u>The Young Unemployed A Carib-</u> <u>bean Development Problem</u>. London: Marlborough House, 1976.
- Court, David, and Dharam P. Ghai, eds. Education, Society and Development. Nairobi: Oxford University Press, 1974.

- Department of Statistics. <u>National Income and Product</u> 1977. Kingston, Jamaica: 1978.
- Department of Statistics. <u>Population Census 1970</u>. Kingston, Jamaica: Division of Censuses and Surveys, 1973.
- Department of Statistics. <u>The Labor Force 1977</u>. Kingston, Jamaica: 1978.
- Dewey, John. The Child and the Curriculum. Chicago: The University of Chicago Press, 1902.
- Eninger, Max U. The Process and Product of T and I High School Level Vocational Education in the United States (Abstract), <u>The Product</u>. Pittsburgh: American Institutes for Research, September 1965.
- Eninger, Max U. The Process and Product of T and I High School Level Vocational Education in the United States (The Process Variables). Pittsburgh: American Institutes for Research, April 1968.
- Erickson, Richard C., and Tim L. Wentling. <u>Measuring</u> Student Growth. Boston: Allyn and Bacon, Inc., 1976.
- Government of Jamaica. <u>Five Year Development Plan 1978-82</u>. Kingston, Jamaica: National Planning Agency, Ministry of Finance and Planning, 1978.
- Hanson, John W., and Cole S. Brembeck, eds. Education and the Development of Nations. New York: Holt, Rinehart and Winston, 1966.
- Harewood, Jack. The Impact of Education on the Labor Force In Major Caribbean Islands. Mona, Kingston, Jamaica: Department of Sociology, July 1968.
- Isaac, Stephen, and William B. Michael. Handbook in Research and Evaluation. San Diego, California: Edits Publishers, 1941.
- Kerlinger, Fred. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, Inc., 1973.
- Kuper, Adam. <u>Changing Jamaica</u>. London: Rutledge and Kegan Paul, 1976.
- McClelland, David C. <u>The Achieving Society</u>. Princeton, N.J.: D. Van Nostrand, 1961.

- Meaders, O. Donald. <u>Contributions of Senior Middle School</u> <u>Graduates to Taiwan Agricultural Development</u>. East Lansing: Institute of International Studies and Department of Secondary Education and Curriculum, Michigan State University, December, 1968.
- Miller, William Houston, and Ross M. Murray, eds. Jamaica Sector Survey. Kingston, Jamaica: Publications Branch, Ministry of Education, 1977.
- Ministry of Education. <u>Educational Statistics 1975-1976</u>. Kingston, Jamaica.
- Ministry of Education. Educational Statistics 1976-1977. Kingston, Jamaica.
- National Planning Agency. <u>Social and Economic Survey 1976</u>. Kingston, Jamaica.
- National Planning Agency. <u>Social and Economic Survey 1977</u>. Kingston, Jamaica.
- Nie, Norman H., and others. <u>Statistical Package for the</u> <u>Social Sciences</u>. New York: McGraw-Hill Book Company, 1975.
- Oppenheim, A. N. <u>Questionnaire Design and Attitude</u> Measurement. New York: Basic Books, Inc., 1966.
- Staley, Eugene. <u>Planning Occupational Education and</u> <u>Training for Development</u>. New York: Praeger Publishers, 1971.
- Wentling, Tim L., and Tom E. Lawson. <u>Evaluating</u> Occupational Education and Training Programs. Boston: Allyn and Bacon, Inc., 1975.
- Wiersma, William. <u>Research Methods in Education</u>. Itasca, Illinois: E. Peacock Publishers, Inc., 1975.

### Periodicals

- Blaug, Mark. "Economics and Educational Planning in Developing Countries." <u>Prospects</u>, 11 (Winter, 1972), 437.
- Brown, Joe. "German Gift School in Seaford Town." The Jamaican Weekly Gleaner, March 19, 1979.

- Callaway, Archibald. "Unemployment Among African School Leavers." Journal of Modern African Studies, 1 (September, 1963), 351-357.
  - Campbell, Carl. "The Development of Vocational Training in Jamaica: First Steps." <u>Caribbean Quarterly</u>, 11 (March - June, 1965), 13-35.
  - Evans, Emmit B. Jr. "Secondary Education, Unemployment and Crime in Kenya." Journal of Modern African Studies, 13 (March, 1975), 55-66.

V

1

- Green, T. L. "The Implications of Vocational Problems in Education." West African Journal of Education, 17 (February, 1973), 161.
- Green, T. L. "Vocational Problems in Education in S. E. Asia." Journal of Educational Sociology, 26 (April, 1953), 380-391.
- Kinyanjui, Kabiru. "Education, Training and Employment of Secondary School Leavers in Kenya." <u>Education</u> in Eastern Africa, 11 (1971), 20.
- Kirton, Robert K. "The Employability Hypothesis and the Effective Supply of Effort." Social and Economic Studies, 20 (June, 1971), 134-150.
  - Miller, Errol. "Ambitions of Jamaican Adolescents and the School System." <u>Caribbean Quarterly</u>, 13 (1967), 29-33.
  - Miller, Errol. "Education and Society in Jamaica." Savacou, 5 (June, 1971), 51-70.
  - Miller Errol L. "Self Education Among Jamaican High School Girls." Social and Economic Studies, 22 (December, 1973), 407-426.
  - Newbry, Burton C., and Kenneth L. Martin. "The Educational Crisis in Lesser Developed Countries." Journal of Developing Areas, 6 (January, 1972), 155-162.
  - Powell, Dorian L. "Female Labor Force Participation and Fertility: An Exploratory Study of Jamaican Women." <u>Social and Economic Studies</u>, 25 (March, 1976), 234-258.
  - Smith, M. G. "Education and Occupational Choice in Rural Jamaica." <u>Social and Economic Studies</u>, 9 (September, 1960), 332-354.

"Survey of Vocational Training in the Caribbean." <u>Caribbean Economic Review</u>, 1 (December, 1949), 88-132.

- Switz, Frank J. "Educational Crisis in Developing Countries: Alternatives." Journal of Developing Areas, 8 (January, 1974), 173-180.
- Weeks, S. G. "Education with Employment." Journal of the Papau New Guinea Teachers Association, 1 (1976).

## Government Documents

- Conroy, William G. Jr., and Daniel E. Diamond. <u>The</u> <u>Impact of Secondary School Occupational Education</u> <u>in Massachusetts</u>. <u>Massachusetts State Department of</u> <u>Education, ERIC Document ED 122095, 1976.</u>
- Creech, F. Reid, and Others. <u>Comparative Analysis of Post</u> <u>Secondary Occupational and Educational Outcomes for</u> <u>the High School Class of 1972</u>. Office of Education (DHEW), ERIC Document ED 139845, 1977.
- Eninger, Max U. Report on New York State Data from a National Follow-up Study of High School Level T and I Vocational Graduates. ERIC Document ED 020414, 1968.
- Kaufman, Jacob J., and Morgan V. Lewis. <u>The Potential of</u> <u>Vocational Education: Observations and Conclusions</u> <u>Based on a Study of Three Selected Cities in</u> <u>Pennsylvania.</u> Office of Education (DHEW), ERIC <u>Document ED 023902</u>, 1969.
- Texas University Center for International Education. A Comparative Analysis of the Occupational Achievement of Vocational and Non-Vocational High School Graduates in Texas: Final Report, Texas Education Agency, ERIC Document ED 118944, 1976.

### Unpublished Sources

- Carnegie, Lucille. "School Leavers in the Secondary Schools of Jamaica: The Role of the Schools in Preparing Students for Employment in an Independent Nation." Ph.D. Dissertation, Columbia University, 1975.
  - Gooding, Velda E. "A Study of Certain Factors in Selected Jamaican High Schools of the Vocational Preparation of Students and Their Acceptability to Employers." B. Ed. Thesis at Institute of Education, University of The West Indies, 1973.
  - Grasso, John T. "The Contributions of Vocational Education, Training and Work Experience to the Early Career Achievement of Young Men." Ph.D. Dissertation, Ohio State University, 1975.
  - Harewood, Jack. "The Impact of Education on the Labor Force." Paper presented to the Caribbean Education Seminar, Department of Sociology, University of The West Indies, Kingston, Jamaica, July 1968.
  - Jamaica Ministry of Education. "Technical and Vocational Education in Jamaica." Kingston, Jamaica: Undated.
  - McBean, Theresa. "A Study on the Relationship Between the Junior Secondary School Programme for Ninth Graders and Employment Opportunities in an Urban Setting." B. Ed. Thesis, Institute of Education, University of The West Indies, 1973.
  - McNeil, Hazel. "An Investigation into the Job Expectations of the School Leavers of the New Secondary School in the Corporate Area." B. Ed. Thesis. Institute of Education, University of The West Indies, 1976.
  - Michigan Department of Education. "Follow-up Survey of 1977 Graduates." (Questionnaire), Lansing, Michigan: 1977.
  - Ministry of Education. "Annual Report." Kingston, Jamaica: 1975.
  - Ministry of Education. "Employment, Unemployment and Further Education of the 1976 Graduates." Kingston, Jamaica: Undated. (Mimeographed.)

- Ministry of Education. "Five Year Education Plan." Kingston, Jamaica: 1978.
- Ministry of Education. "Grade 10." Kingston, Jamaica: Undated. (Mimeographed.)
- Ministry of Education. "Grades 10 and 11." Kingston, Jamaica: Undated. (Mimeographed.)
- Ministry of Education. "New Secondary Education-Evaluation of Grades 10 and 11 Students." Kingston, Jamaica: Undated. (Mimeographed.)
- Ministry of Education. "Papers on The New Secondary Education." Kingston, Jamaica: Undated. (Mimeographed.)
- Ministry of Education. "Secondary Education (General)." Kingston, Jamaica: Undated. (Mimeographed.)
- Ministry of Education. "The Job Expectations of the 1977 New Secondary Graduates Related to Their Courses." Kingston, Jamaica: Research Section - Ministry of Education, 1977. (Mimeographed.)
- Richards, Leopold A. "The Career Aspirations of Secondary School Students in Jamaica in Relation to Educational Programmes and Manpower Needs." Ph.D. Dissertation, Rutgers University. The State University of New Jersey, 1974.
  - Sieuchand, A. C. "A Study of the Aspirations and Expectations of Certain Secondary School Leavers in Trinidad Within the Age Group 15-19 Years." M.A. Thesis, University of The West Indies.
  - Stewart, Thelma. "The Attitudes of Parents and Teachers for Vocational Education in Jamaica." Ph.D. Dissertation, Institute of Education, University of The West Indies, 1976.
  - Thuemmel, William Leslie. "High Schools and Vocational Agriculture Schools: A Comparison of the Farmer-Performances of Their Senior Graduates in Taiwan." Ph.D. Dissertation, Michigan State University, 1970.



