

Assessing Vocational Education Outcomes:
With Special Reference to Ethiopia

Wanna Leka*

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The viability of vocational programs correlates with other development processes. In the absence of this, no educational programs could contribute much to the society. In the Ethiopian situation, the role of vocational education has not been assessed to ascertain its benefits. The introduction of a program into any school system should not be an end in itself.

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Introduction

Since the 1960's, education has been considered as an investment in human capital (Glewwe, 1991; Psacharopoulos, 1988; Schultz, 1981). The human capital development concept got prominence after Thodore Schultz's (1961) publication of "Investment in Human Capital" (Tekeste, 1990).

According to Schultz (1981):

The most important economic resource in the world consists of the acquired abilities of the people -their education, experience skills, and health. This human capital ...is decisive in improving the welfare of poor people throughout the world. Investment in population quality through schooling, work experience, and improvement in health enhance human capital...(p.1).

Others like Becker(1975), Campbell (1986), Wykstra (1971) believe that education can enhance the development of human capital. Sodhi (1985) for example, states that "... human resource development is essentially the process of increasing the knowledge, the skills and the capacities of the people" (p.60).

In the process of human resource development, schools play significant role. According to Brotz (1981) "school is charged by the society ... to provide young people with experience that will help them make crucial decisions throughout their lives. One of... these decisions concerns career or occupation" (p.3). To Psacharopoulos and Woodhall (1985) "schooling

imparts specific knowledge and develops general reasoning skills; it also includes changes in beliefs, values and attitudes toward work and society" (p.45). In general, schools prepare individuals for productive life (Sodhi, 1985; Coombs, 1985; Todaro, 1985).

Most developing countries fashion their formal educational systems after the developed countries with the belief that such a system would promote economic growth (Psacharopoulos & Woodhall, 1985; Sodhi, 1985; Todaro, 1985; Coombs, 1985; Bishop, 1989).

In view of this, many African countries have committed themselves to the expansion of formal education since the early 1960s. The recognition that education can enhance human resource which in turn speeds up the development process made African countries set the following long-term plans (1961 - 1980) in the so called Addis Ababa Conference of 1961.

- a. Primary education shall be universal, compulsory and free;
- b. Education at the secondary level shall be provided to 30% of those who complete primary education;
- c. Higher education shall be provided ... to 20% of those who complete secondary education;
- d. The improvement of the quality of African schools and universities shall be a constant aim (Fassil, 1990).

Consequently, there was unprecedented growth in African education system between 1960-1970. In

reference to the same conference Wyss (1990:1) states that:

...many African countries pronounced intentions to reform their educational systems, by adjusting the length of education cycles, ... changing the curriculum content, or otherwise attempting to link the provision of education and training more closely to perceived requirements for national socio-economic development.

It was in this context that many secondary schools in Africa including those of Ethiopia introduced vocational programs. In 1962, Ethiopia introduced the comprehensive secondary education system with assistance from the United States. The stream was designed to meet the potential middle-level manpower demand in technical and commercial fields(Fassil, 1990).

Secondary Schools have the dual purpose of preparing students for the world of work and/or post secondary education (Eurich, 1970; Dore, 1980; Passow and Schiff, 1984; Boyer, 1985). Vocational education, as a part of secondary school curriculum is designed to prepare individuals for a variety of entry level jobs (UNESCO, 1982). Secondary school education by the nature of its content can be categorized into general, academic and vocational streams. According to Dilgassa and Lehtinen (1989:15), education can be classified into "general, occupational and Scientific" in terms of its content, (p.15). In this paper, for the sake of consistency the terms general, academic and vocational classification will be used.

In the Ethiopian secondary education system,

students are placed in either academic or vocational streams (Fassil, 1990). In order to be considered as viable social institutions, secondary schools have the responsibility to meet the needs of the students. This responsibility takes magnitude when one considers the following facts:

In Ethiopia, like in many other developing countries, education is heavily subsidized, particularly at post primary levels (Todaro, 1985; Bishop, 1989).

- The social cost of a four-year secondary education is over 4 times that of a 6 - year primary education ... (Fassil, 1990).

- It was estimated that secondary school teachers in Ethiopia receive more than twenty times the GNP percapita ... which is very much higher than that in developed countries (Psacharopoulos and Woodhall, 1985).

In view of such facts, it is apparent that the outcomes of schooling must be evaluated. According to Husen (1980), evaluation must be "both in terms of individual competence achieved and the adequacy of education in the world of work" (P.XIV).

School benefits could be assessed in terms of educational output or outcomes. Output refers to students achievement in terms of knowledge, skill, behavior and is usually measured through tests and examinations. Outcomes are external effects, showing that people are socially and economically productive due to their schooling (Simmons, 1980).

Schooling outcomes could be measured in monetary or non-monetary terms (Psacharopoulos and Woodhall,

1985). It could have short or long term, monetary or non-monetary effects. Attempts done so far to measure such outcomes were neither precise nor conclusive. However, a number of proxy measures have been used to estimate schooling outcomes (Simmons, 1980; Psacharopoulos and Woodhall, 1985).

Methodology and data

The focal point in this paper is the vocational program outcomes in Ethiopia. The general discussion first highlights the rationale for the introduction of vocational education into the Ethiopian educational system in 1962. The other part of the discussion, is on whether vocational education has served its main purpose; that is, "the preparation of skilled manpower for the world of work."

To substantiate the discussion both primary and secondary sources have been used. The primary data source is the opinion survey of 100 comprehensive high school vocational teachers. The secondary data came from different, but relevant documents selected on the bases of the following:

A. Sample selection

Participants in the survey were 100 high school vocational teachers attending summer inservice programs, between (1978-1983) in the Department of Technical Teacher Education, Addis Ababa University. The whole batch of teacher participants was used for the study. Such a procedure is called "incidental or "grap" (Hopkins, 1980).

The teachers came from various parts of the

country to study for their diplomas in vocational education. The criteria used for their selection were:

- (a) Completion of vocational high schools;
- (b) Completion of teacher training institutes of secondary school with some valid technical skills training,
- (c) Three years of teaching experience, at least.

Out of the 100 participants, 70 percent was vocational school graduates, 15 percent graduates of teacher training institutes and the rest were high school graduates with some technical skills. All were male.

B. Data Collection

A questionnaire having 38 items was designed for the teachers. The questionnaire included both open and closed questions to solicit the necessary information. Before its distribution staff members of the Technical Teacher Education Department and other resource persons were asked to give their opinions and comments on it. After the necessary adjustments were made based on the comments and suggestions, the teachers were asked to fill them out. Only the most relevant data were used in this paper.

C. Eventhough the main theme of the paper is vocational education outcomes in Ethiopia, four sub-Saharan countries, namely; Kenya, Tanzania, Uganda and Botswana were included to see how well vocational programs in these countries performed thereby giving

the paper some kind of a regional perspective. However, the discussion is not an exhaustive comparative per se.

The reasons for selecting these countries are the following:

1. According to UN, there are 31 countries in the world classified as "Least Developed Countries (LDCs)." Out of these, 20 are in Africa. They include Ethiopia, Botswana and Uganda (Colton, 1993).
2. Psacharopoulos and Loxely (1985) indicated that, Botswana, Ethiopia, Tanzania and Uganda are some of the few Eastern and Southern African countries that opted for diversified education programs which diluted traditional academic course work with vocational subjects.
3. Kenya is included in the paper to show that despite its tremendous effort in the educational field, its graduates of vocational schools still have serious problems of getting jobs just like Ethiopia.
4. Like Ethiopia, the four countries mentioned i.e. Kenya, Tanzania, Uganda, Botswana have committed themselves to the expansion of education since the early 1960s. It was believed that vocational education should be part of their formal and non-formal education in order to train the required manpower. After pursuing such policies for the last 25 years, they have found out that the long term plans outlined in the Addis Ababa Conference of 1961 have not been met as expected. They started

reassessing their educational policies and guidelines to streamline them to the realities of the current situation (Eshiwani, 1990; Galabawa, 1990; Cameron & Hurst, 1985; Odaet, 1990).

Assessing the impact of Vocational Education on Youth

The available literature on the impact of the vocational programs on youth indicates that one can measure the outcomes to ascertain the benefits an individual gains (Conroy, 1980; Mertens, 1981). So far, identifying the expected as well as the observed outcomes was neither simple nor conclusive (Phillips, 1980; Darcy, 1980; Mertens, 1981; Lewis & Pratzner, 1984). However, a number of researchers have attempted to define and categorize vocational program outcomes.

One of the bases for selecting program outcomes was by referring to what educational legislation or policy states as being the desired goals of educational programs (UNESCO, 1982).

When comprehensive secondary education was introduced in Ethiopia in 1962, vocational education was designed to meet the demand for skilled manpower in the technical and commercial fields. One could therefore, take this as one of the bases for assessing outcomes.

The efficiency of such programs in preparing students for entry-level jobs needs a thorough investigation. However, problems associated with the program were reported as early as 1969. These include: lack of clear objectives, poor equipment,

shortage of supplies, classrooms and laboratories.

A study done in 1984 on vocational education, (with special reference to industrial arts education, currently referred to as productive technology) surveyed the opinions of 100 comprehensive high school teachers in relation to their teaching experience. The attitudes expressed, and the prevalent school conditions at the time are shown in Table I and II respectively.

TABLE I

ATTITUDES OF THE INDUSTRIAL ARTS (PRODUCTIVE-EDUCATION) TEACHERS (Percent)

	Yes	NO	Un-decided
Want to change the teaching job	57.14 (57)*	41.66 (42)	1.20 (1)
Better off with a college degree	92.8 (93)	4.8 (5)	2.4 (2)
Minimum attention is given to the program by administration	71.4 (72)	27.4 (27)	1.20 (1)
Program considered by the community as having low status	50.0 (59)	48.8 (49)	1.20 (1)

*Parentheses show sample size

Source: Wanna, L. The Teaching of Industrial Arts in Ethiopia: Problems and their Effects as Related by Ethiopian Comprehensive High School Industrial Arts Teachers. Unpublished M.S. Thesis (Southern Illinois University (1984).

TABLE II

CONDITIONS OF SCHOOL SHOPS AS PERCEIVED BY THE TEACHERS (Percent)

	Yes	No	No Response
Shops equipped well with hand tools	35.7 (36)*	61.9 (62)	2.4 (2)
Shops equipped with working power machines	25.0 (25)	69.0 (69)	6.0 (6)

*Parentheses show sample size

Source: Wanna, L. (1984) The Teaching of Industrial Arts in Ethiopia: Problems and their Effects as Related by Ethiopian Comprehensive High School Industrial Arts Teachers. Unpublished M.S. Thesis (Southern Illinois University).

Such an environment and conditions would not provide a venue for effective instructions. Wilber and Pendered (1967:344) state that:

If the equipment is adequate and well suited to the requirements of the teacher and students, meeting the objectives of the course will be greatly facilitated. If on the other hand the equipment is inadequate or a type not suited to the needs of the program, the achievement of

desired purpose becomes difficult if not impossible.

According to a (1982) UNESCO policy paper, vocational education has the following major branches; Industrial, Commercial, Agricultural, and Social service (i.e., home economics and family) education.

The outcomes of such a broad program could be varied and may not be assessed easily. Outcomes could be assessed at national, regional or local levels.

Numerous definitions of outcomes exist in the educational literature. Generally they may be classified into two groups. The first group relates outcomes to changes in individuals as a result of an educational program. For example, Levine (1981) defined such outcomes as changes in program participants. The second group of definitions is broader, relating outcomes to all consequences of educational programs. It may include changes in individuals, without being limited to it. Darcy's (1979) definition would be an example of this group. He defined educational outcomes as real-world consequences of educational programs.

Vocational education outcomes may be viewed as a subset of educational outcomes-those that are specific to a vocational program. Darcy (1979) defines vocational education outcomes as short-term consequences and longer-term impacts resulting from vocational programs. The application of this definition has provided further clarifications about the concept of outcomes. Darcy (1979) suggests that outcomes include outputs, products, consequences, effects, results, and the impact of vocational

programs whether intended or unintended, positive or negative, short-term or long-term, economic or noneconomic, direct or indirect. He further states that outcomes are typically multidimensional. For example, an outcome may be a mixture of educational and economic consequences, cognitive and affective, or individual and societal, and often occurs as joint products. These vocational outcomes are manifested as changes in individual or societal capabilities, attitudes, status or circumstances. While some outcomes may be easily observable or quantifiable, others may be perceived more subjectively.

In the process of identifying outcomes, Silberman (1980) made distinctions between intrinsic and extrinsic goals of vocational programs. According to him, "in the intrinsic perspective, income and future placement (extrinsic goals) are secondary concerns; human development and personal satisfaction with the experience provided in the program are primary" (p.43).

Lotto (1986) suggested that from a multitude of listed outcomes, classifications should be made "between expectation held for vocational education programs and empirically observed outcomes" (p.41). Evans (1984) classified vocational education program in terms of individual, institutional, and societal outcomes.

Vocational education outcomes could be studied in terms of employment wages, post-secondary education, achievement, self-concept, drop-out rate, job satisfaction, satisfaction with training, employer, occupational mobility, etc. It was assumed that up to 200 possible vocational outcomes could be listed. However, Lotto (1986) attempted to

show a comparison between expectations held for Vocational program and actually observed outcomes. Table III below shows such outcomes.

TABLE III
COMPARATIVE SUMMARY OF EXPECTATIONS AND OUTCOMES

Expectations	Observed Outcomes
Gains in skills, knowledge and attitudes	Gains in occupational and job specific skills Deficiencies in basic academic skills Little or no impact on attitudes
Employment, earning and further education	Little or no impact on rate of employment Employment keyed to occupations trained-for Wage advantage over comparable students in jobs related to training Less likely to pursue further education than academic track students
General social educational and economic benefits	Weak ties to labour markets Part of economic development efforts Unclear role in high school retention

Source: Lotto, L.S. (1986:55) JER, Vol. II No.1

Since the outcomes of vocational education programs are multifarious in nature, it would be futile to try to achieve them all.

To try to account for what participants gain after completing high school Vocational programs could be quite exhaustive. Since there are long and short term gains, economic and non-economic benefits, positive and negative effects, it would be a matter of necessity to make a manageable empirical observation. In view of this, many researchers undertake follow up(tracer) studies and in most cases use market related outcomes of vocational education as a measure of individual gains.

Two conceivable justifications could be given for using market outcomes as bases for measuring the effects of vocational programs on participants.

First, vocational education is designed to train individuals for gainful employment by developing entrylevel skills. Second, the human development theory considers schooling as an investment that develops human capital. An elaborated version of this theory states:

... formal education, training, and recognized investments in human capital ... can be considered one way to invest in human capital ... all such activities have similar effects on earnings, and rates of return on this investment can, on certain reasonable assumptions, be estimated from information on observed earnings alone (Becker, 1975:232).

Taking into account the basic tenets of vocational education and the theoretical assumptions stated above, it is reasonable to assess the outcome (i.e. in terms of wages, earnings, employment, labor force participation etc.) an individual gains by participating in high school vocational programs.

Many attempts have been made to assess the market outcomes of high school Vocational programs. These outcomes could be studied by comparing ... vocational students with their non-vocational counterparts ... (Grasso and Shea, 1979; Desy et al., 1984; Bishop, 1986; and Campbell et al., 1986).

Does Vocational Education Make A Difference?

Many developed countries have recognized the viability of vocational education and have consequently geared their educational systems to students of various social backgrounds. Since students vary in their socio-economic background, ability, aspiration, self esteem, attitudes, etc., the diversification of school curriculum helps to meet their needs.

Comparative studies done (in countries like U.S.A.) on students of vocational and non-vocational high school programs tend to show that vocational graduates, both men and women, had initial advantages over nonvocational graduates (Conroy and Diamond, 1976; Steinmeier and Gustman, 1982; Dean and Lawrence, 1974; Bishop, 1986). In many African countries, the benefits of vocational education have not been documented in detail. As stated before, many African countries have introduced vocational education into their secondary school programs to make education more relevant to the world of work. Some of the countries have assessed their programs and the facts are as shown in Table IV.

TABLE IV

Country	Observed Outcomes	Year Reported
Botswana	Manpower shortage persist; dependence on the skills of expatriates	1990
Ethiopia	Shortages and surpluses re- ported for key occupations as early as 1973. Since 1981 the situation has becomes worse.	1990
Kenya	No advantage for vocational graduates over non-vocational students	1984
Tanzania	Program failed to achieve stat- ted objectives	1980
Uganda	Incompatibility between the oc- cupational programs offered in schools and the openings avail- able in the employment market	1980

Source: Wyss, H. & Psacharopoulos, G. (1990)
 Why Educational Policies can
 fail: An overview of selected African
 experience. World Bank discussion papers
 African technical department series No.82
 The World Bank.

Even in developed countries some studies tend to show that "... there is little economic advantage to vocational training, as opposed to non-vocational training" (Kantor and Tyack, 1982 p.2). Bishop (1986) Campbell et al. (1986) found that the market effects of vocational programs become significant when individuals work in areas related to their training.

Compared with other secondary school programs, vocational education is expensive (Coombs, 1985; Psacharopoulos and Woodhall, 1985; Middleton and Demsky, 1989). Consequently, the social rate of return (i.e., the relationship between all the social costs of education that must be borne by society as a whole, and the benefits that are expected to accrue to society) of such programs is lower than others. Social rate of return to education is also seen as the total benefit the society gets by incurring cost on education. Estimates of expected rate of return are based on pupils earnings, expectations and actual costs (Psacharopoulos & Woodhall, 1985, P. 122). This social estimated rate of return is shown in Table V.

TABLE V

Educational level	Field of Study	Rate of Return (Social)
Secondary School curriculum	General, academic	16
	Technical, Vocational	12
University level	Law, economics, Soc. Science	12
	Engineering	12
	Agronomy	8

Source: Psacharopoulos, G. (1988:102) Education and Development: A review. Research Observer, Vol. III, No. 1.

Vocational education makes a difference when jobs related to training exist in the labour market. If such is the case, vocational education graduates have initial employment advantage over their non-vocational counterparts (Phelps, 1986; Bishop and Suk, 1984).

The available data indicate that many African countries, including Ethiopia, are not quite successful in their educational programs. Most government schools are inefficient and there is a mismatch between what students learn and what the world outside school expects. This is more so with vocational programs than with non-vocational ones.

After observing researches done on vocational education in Tanzania, Ivory Coast and other African countries, Bishop (1989) stated that "by and large vocational schools have been less than successful, if not downright failures. They have little prestige" (p.110).

The unit cost of vocational programs in secondary schools is higher than that of non-vocational programs. This adds more to the highly subsidized secondary education, which is a very common phenomenon in almost all African and other developing countries.

However, Latin American countries such as Brazil, Colombia, Peru, practise employment based vocational training. Such programs seem efficient and relatively cost effective. Their social rate of return is higher than that of formal secondary technical/vocational education (Psacharopoulos, 1988).

CONCLUSION

The viability of vocational education programs correlates with the development and expansion of the labour market that requires technical skills. This is what has been observed in the developed world.

In countries like Ethiopia, the introduction of vocational programs should not be an end in itself. There must be an articulation between what students' learn and what the world of work requires. So far this has not been the case. In view of this, the objectives initially desired have not been met.

What students benefit from their training calls for assessments and follow-up studies. This is what vocational secondary schools in this country must consider in the near future.

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