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EDUCATION FOR SUSTAINABLE DEVELOPMENT – THEORETICAL PERSPECTIVES

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Introduction

The education for development paradigm has always instituted the state perception of education as the main mechanism for social and economic development. Using the human capital paradigm that sees the greater production of qualified manpower as the main capital for development, state effort had always tended to focus on the greater production of qualified students and other personnel as the mainstay of development efforts.

Consequently, increased enrolment, higher retention and even higher transition from one segment of education to another is heralded as the most effective way to achieve development via massive manpower production. In almost all analyses of such scenarios, comparisons are often made between the quality of education "in the past" and the quality of education "now". The overwhelming conclusion is often that "the quality of education is falling down". A perfect example was given by Gen. Muhammad Buhari (Rtd), a former military leader of Nigeria, and a presidential candidate in a civilian dispensation. In a speech delivered at a Conference on the Falling Standards of Education held in 1996, he argued.

> *When one examines statistics from examination bodies such as the West African Examinations Council, WAEC, National Board for Technical Education NBTE, Joint Admissions and Matriculation Board, JAMB and others the pathetic situation of the North become clearer. In the recent WAEC results some northern states recorded the abysmally low results of less than 1 percent pass. That is bad enough. But what JAMB results show is even worse, with regard to the disparity between the North and South. From 1992 to date the results show that the worst state in the south has more successful students than all the northern states put together, less Benue and Kwara. This situation, no doubt, makes every right thinking Nigerian see not only the widening gap between the northern and southern states, but also shows that the future, if indeed there is a future, is very bleak... there are many reasons why we are in the state that we are today. In the past of course, all educational development was planned. No school was established that was not needed; and none established was left unequipped or understaffed. And there was always some purpose of employment, general literacy or the demands for higher education in mind – whenever a school was established. Today, nothing more than the* desire to award contracts dictates the pace. Address at the Conference on Falling Standards in Education, December 30, 1996.

Similarly, in Tuvalu, a small Island State in the Pacific Ocean, the Minister of Education had cause to report to the United Nations that:

> *Universal access to basic education is a key priority for Tuvalu, and significant progress has been made. However, we are concerned about the decline in the quality and standards of education in our schools. This decline is linked to a combination of factors, particularly the inadequacy of human and financial resources. To address these issues, a national education forum will be convened later this year and to be followed by a table meeting with development partners to determine appropriate actions. Statement Delivered by The Honourable Dr. Alesana K. Seluka, Minister of Education and Sports*

and Minister of Health, Tuvalu, at United Nations General Assembly Special Session on Children Friday, May 10, 2002.

Even industry leaders had an opinion or so to state, such as this one from the MD Guinness Nigeria Ltd.

> *"Nigeria education was of very high standard, but now the standard is falling, it is sad people are now sending their children abroad to attend schools. This is unfortunate for Nigeria....I mean that the future of Nigeria depends on young men and women to talent needed to take over with good education. But constant strike by university lecturers (ASUU) cult activities, lack of funding mean that potentialities of youths can't be developed. You and me send our children abroad to study. This is not good. We'll want to develop.... "Managing Director, Guinness Nigeria Plc, Mr. Keith Richards. Interview with vanguard newspaper June 26, 2003.*

Thus the common perception by leaders is that there is a decline in the quality of education. Yet contradictory, the same leaders identify leadership as the main factor in the decline of this quality! It is therefore clear that there is a crisis of confidence in the way education is used for development purposes, even if education itself is seen as the mainstay of attaining development. What is not clear to development analysts, especially those with focus on African education is the precise way in which education can be used as an agency for effective social development. Shifting focus on this debate in the past decade lead to new configurations of the education for development debate, culminating in a new paradigm of Education for Sustainable Development (ESD). In this paper I want to first focus on education for development as the main bedrock around which the ideas of social development and educational acquisition are based, before analyzing the way in which this dovetailed into ESD.

Education and Development

The social and economic development of nations is fundamentally an education process in which people learn to create new institutions, use new technologies, cope with their environment, and alter their patterns of behavior. Education and schooling improve the capabilities of individuals and the capacity of institutions and become a catalyst for all the loosely interrelated economic, social, cultural, and demographic changes that are defined as national development. The extent to which this is done at the level of social service depends on the equitable distribution of education in social development.

Thus, if opportunities for schooling are unevenly distributed across population segments through inequitable selection practices, the formal education system may perpetuate and legitimize divisions based on gender, status, wealth, or socio-economic role. Nonetheless, as a whole, education (including non-formal education as well as formal schooling) is a process of providing enlightenment and skills as demonstrated by the profound influences of education on individual aspirations and achievements.

Education at all levels contributes to economic growth through imparting general attitudes and disciplines and specific skills necessary for a variety of workplaces. Education also contributes to economic growth by improving health, reducing fertility, and-possibly-by contributing to political stability. Although the link between education and labor productivity is not entirely clear, general knowledge and learning skills acquired in school are usually assumed to make for more flexible workers capable of acquiring new skills and adapting to new working environments. A various cycle is said to be created" (ADB 1998, p. 195). The relevance of the education system to the labor market, thus, lies most fundamentally in its ability to produce a literate, disciplined, flexible labor force through high-quality, universal, basic education. As an economy continues to develop and new technology is applied to production, the demand for workers with more and better education increases. Thus, economics with export oriented industries have higher education requirements than those continuing with traditional agriculture and commerce.

There has been a long standing debate about the contributions educational investment makes to economic growth. For a now familiar set of reasons there is no single answer to the question "how much does education contribute to economic growth" and even less to the question, "how much does education contribute to development." It would be surprising if there were. The relationship between educational investment and economic growth are complicated by many intervening variables which interact in differ nt ways in different national economics at different points in time. And of course, definitions of the characteristics of development are not stable either. But this does not mean that in either case we cannot reach inferences from the large volume of studies that have been undertaken. Rather we have to recognize that what may be true under certain circumstances may not be true under others and that the role education plays in supporting growth and development is one which is constantly evolving.'

The economic literate focuses on measurable returns to educational investment to the individual and to society as a whole. Historical and sociological perspectives emphasize more the interactive relationship between educational development and economic change. At the lowest levels some measure of economic development often appears as a pre-cursor to the development of school systems in recognizably modern forms – infrastructural investment has to have taken place and economic surpluses are needed to provide the resources to pay for a school system. As an education system is established it may begin to catalyze further economic development. Thus, as Foster has pointed out (Foster 1987, p. 94), the significance of increased schooling as an instrument of economic development may be highly variable over time. Expansion may have substantial economic and developmental pay-off at some stages and not at others. Some types of educational provision (at different levels, of different orientations, of different qualities) may have much greater effects than others.

The early studies of Denison (1962, 1967, 1979), Harbison and Myers (1964) and Schultz (1961) are fairly documented. For instance, Denison approached the problem of how much education contributes to economic growth by attributing a proportion of economic growth not explained by increases in capital, labor and productive land to improvements arising from increased educational levels in the labor force. This produced results suggesting that 23% of US economic growth was a result of educational investment between 1930 and 1960, and 15% for the period from 1950 to 1962, and 11% for 1948 to 1973. This kind of analysis claims to provide estimate of both the direct contribution of education and the indirect benefits that arise from advance in knowledge. The latter are argued to be responsible for about 29% of growth in Denison's last study thus attributing 40% (29% + 11%) to improvements in human capital and education broadly defined (Hicks 1987, p. 162). When the approach was applied to other countries the results varied widely – from 2% to 25% in a group of developed countries and from 1% to 16% in a group of developing countries (Psacharopoulos and Woolhall 1985, p. 16) Bowman (1980) suggested that in over 22 countries where estimates could be made for the period 1950-62 education made a direct contribution to economic growth of more than 10% in only four. She also noted that the residual to be explained seemed to the greatest the higher the economic growth rate but that the contribution of education seemed to be smaller where growth rates were high. Others (e.g. Christensen and Jorgenson 1969) have argued that if inputs and outputs are more completely specified than in the Denison model the residual to be explained is much more modest in size than suggested and by implication, the contribution of education is over-estimated.

Several other studies (Michaelowa, 2000; Psachropoulos, 1980; Saha, 1991: Fagerlind and Saha, 1989; Schultz, 1961, 1980, and 1981) further have demonstrated the relationship between education and economic levels of development among societies. For example, Becker (1964) found the return of investment in college of education in the U.S. higher than the rate of return on alternative investment. Denison (1979) observes that education accounted for 5.0 percent of the 2.4 percent of the growth in national income per worker in the non-residential business sector in the U.S. Schultz (1980) reinforces his original thesis by arguing that the modernization of the economies of both advanced and less

developed countries was due to the decrease in farmland and an increase in the mobilization of human resources. Also Schultz (1981) asserts that because of improved farm technology, farmers cultivated less acreage for more agricultural productivity. Therefore, Schultz stresses the significance of upgrading the quality of the population through education in order to improve the economic conditions of poor societies. In a study in 44 countries using the human capital approach, Psacharopoulos (1981) (cited in Fagerlind and Saha, 1989) substantiated Schultz's argument by conducting a survey on the rates of return to educational investment. He found that first, primary education reveals the highest social and private returns. Secondly, private returns are higher than social returns, particularly at the university level. Thirdly, all rates of return to investment in education exceed the rates of return in alternative investment in capital. And finally, developing countries rates of return to investment in education are higher than those of advanced industrialized countries at comparable levels.

Accordingly, from the early 1960's up to the mid 1970's, governments in developed and less developed countries encouraged investment in education to enhance the quality of human productivity. However, by the late 1970's lack of economic growth in most parts of the world showed governments' investment in education, especially, as researchers started to question the feasibility of human capital theory as the basis for a possible development strategy. (Webster, 1984; (Psachoropoulos and Woodhall; 1985, Fagerlind and Saha, 1989). Researchers no longer accepted that increased educational expenditure with a related increase in participation rates was enough to enhance economic productivity both in developed and less developed countries (Fagerlind and Saha, 1989).

According to Agbor (2000), some philosophers, scientists, social scientists, and planners incline to identify development with social structures found in countries that are highly industrialized and advanced in education, science and technology (e.g.' Rowstow, 1990). Some writers (Harrison, 1988; Inkeles and Smith 1974) regard development as the process of changing a basically traditional society into a modern one. Harrison (1988) contends that development is the same as modernization. According to Harrison, development is "a far-reaching, continuous, and positively evaluated change in the totality of human experience" (p. xiii-xiv). However, Harrison sees development as what is actually happening in modernization. According to Harrison, "Development, then is always a valued state, which may or have been achieved in some other social context, and which may not even be achievable." (p, xiii-xiv).

Thus, criticisms of the human capital theory have usually centered on the assumptions underlying the theory itself. First, the theory assumes that there is a perfect market for labor. In other words, it assumes that better educated and more skilled people obtain better jobs and are eventually more productive – a condition that does not prevail in the real world. Second, the human capital theory does not consider factors other than education, such as job satisfaction and working condition, which could contribute to higher worker productivity. Third, the human capital theory fails to recognize education as a screening or filtering device (Psacharopoulos and Woodhall, 1985). That is to say, employers merely use education to identify workers with superior ability and personal attributes; while education may identify productive capacity of employees it may not directly improve workers' skills and productivity.

Thus Fagerlind and Saha (1989) contend that a dialectical process occurs between education and society. Simply, put, education is a product of society and at the same time, acts continually upon society to effect change. Each of the principal dimensions of development, such as the economic, political, and social dimensions acts upon education and education in turn acts upon each of these dimensions. The contribution of education to the development process, therefore, depends upon the nature of the other dimensions of development in a given society at a particular time. It is the search for these additional dimensions and inputs that lead to the emergence of a new paradigm in the matrix of education for development debate.

ESD – The Upstart in the Stable Development

By late 1980s, it was becoming increasingly clear that the other variables that impact on education in its contribution to the development of society can only lead to a linear process – and often contradictorily enough, a vicious circle. The education for development paradigm started taking on new lexicon. What eventually became fashionable was *Education for Sustainable Development* (ESD). Two distinct approaches became easily discernible – and both extraneously motivated.

The first approach was the heavy involvement of development partners in the planning and implementation of educational policies and programs in developing countries. In this strategy the focus on education for sustainable development was on creating a socially equitable and politically accountable process of provision of education as an agency for development on a global standard. This was evidenced by the involvement of major partners in Nigeria education in which agencies such as The World Bank, Unicef, Unesco and national agencies such as the Federal Ministry of Education all provided a new perspective to the education for development debate.

The second was a shift in the focus of educational provision to increasingly take into consideration the more indigenous perspective in the consumption of education as a social commodity. As Olsen (1996, p. 187) noted.

> *We define "sustainable" development as development which respects the balances provided by political stability, social equity, economic stability and development in harmony with nature.*

Sustainable development is a difficult concept to define; it is also continually evolving, which makes it doubly difficult to define. One of the original descriptions of sustainable development is credited to the Brundtland Commission: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43).

Sustainable development is generally thought to have three components: ***environment, society, and economy.*** The well-being of these three areas is intertwined, not separate. For example, a healthy, prosperous society relies on a healthy environment to provide food and resources, safe drinking water, and clean air for its citizens. The sustainability paradigm rejects the contention that casualties in the environmental and social realms are inevitable and acceptable consequences of economic development. Thus sustainability is a paradigm for thinking about a future in which environmental, societal, and economic considerations are balanced in the pursuit of development and improved quality of life.

The concept of sustainable development touches upon all aspects of the social and institutional fabric. In this sense sustainable development provides a way of articulating the overall social project and aim of development. Since the Earth Summit in 1992 in Rio de Janeiro, there has been increasing recognition of the critical role of education in promoting sustainable consumption and production patterns in order to change attitudes and behavior of people as individuals, including as producers and consumers, and as citizens. If other related international education initiatives look at education as a fundamental human right and focus on providing educational opportunities to everyone and reducing illiteracy, ESD focuses on the underlying principles and values conveyed through education and the content and purpose of education.

International Efforts Undertaken in the Area of ESD

Since the Earth Summit, sustainable development has been high on the political agenda. The Agenda 21, in its Chapter 36, specifically discusses promoting education public awareness and training with special emphasis on

- Reorienting education towards sustainable development

- Increasing public awareness
- And promoting training

Thus Chapter 36 of Agenda 21 specifically discusses reorienting education towards sustainable development, and encompasses all streams of education, both formal and non-formal, basic education and all the key issues related to educating for sustainable human development.
During the World Conference on Higher Education in 1998, a thematic debate was organized (by the UNU at the request of UNESCO) on "sustainable (human) development," which brought fourteen different organizations together. This was the first major step towards uniting educators as a major stakeholder group.

The following year the first discusses were held to form the Global Higher Education for Sustainability Partnership. In 2000 the Agreement was signed and during the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, the International Association of Universities (IAU), the Association of University Leaders for a Sustainable Future (ULSF), Copernicus Campus and UNESCO launched the Global Higher Education for sustainability. Partnership (GHESP) as a type II Partnership to promote education for sustainable development in particular among higher education institutions. During the World Summit on Sustainable Development in 2002, the UNU-IAS took the lead in bringing together the Ubuntu Declaration Group for the signature of the Ubuntu Declaration in an effort to integrate science, technology and ESD. Further, based on the proposals by Japan and Sweden, the United Nations General Assembly, at its 58th Session in December 2002, adopted a resolution to start the Decade of Education for Sustainable Development (DESD) from January 2005, following the Johannesburg Plan of Implementation. UNESCO was designated to be the lead agency for the Decade and developed a draft International Implementation Scheme for the DESD.

Thus we need to situate the DESD in relation to other international initiatives that are already in place, in particular the Millennium Development Goal (MDG) process, the Education for All (EFA) movement, and the United Nations Literacy Decade (UNLD). All of these global initiatives aim to achieve an improvement in the quality of life, particularly for the most deprived and marginalized, fulfillment of human rights including gender equality, poverty reduction, democracy and active citizenship. If the MDGs provide a set of tangible and measurable development goals within which education is a significant input and indicator; if EFA focuses on ways of providing educational opportunities to everyone, and if the UNLD concentrates on promoting the key learning tool for all forms of structured learning, the United Nation's Decade on Education for Sustainable Development, DESD, is more concerned than the other three initiatives with the *content* and *purpose* of education. Conceiving and designing ESD challenges all forms of educational provision to adopt practices and approaches which foster the values of sustainable development.

Education and Sustainable Development

Education is an essential tool for achieving sustainability. Communities as well as educational policy makers around the world recognize that current economic development trends are nor sustainable and that public awareness, education and training are key to moving society toward sustainability. Beyond that, there is little agreement. There were arguments about the meaning of sustainable development and whether or not it is attainable. There are different visions of what sustainable societies will took like and how they will function. The lack of agreement and definition have stymied efforts to move education for sustainable development (ESD) forward.

However, critical in this debate is an important distinction between education about sustainable development and education *for* sustainable development. The first is an awareness lesson or theoretical discussion. The second is the use of education as a tool to achieve sustainability. While some people argue that "for" indicates indoctrination, yet "for" also indicates a purpose. All education serves a

purpose of society would not invest in it. The American driver education seeks to prevent first and tragic loss of lives and property. ESD promises to make the world more livable for this and future generations. Of course, a few will abuse or distort ESD and turn into indoctrination. This would be antithetical to the nature of ESD which in fact calls for giving people knowledge and skills for lifelong learning to help them find new solutions to their environmental, economic, and social issues.

Consequently, education for sustainable development is premised on the view that knowledge is never neutral and neither are scholars who produce it, like knowledge education too is not a neutral process or activity. Different people will therefore conceptualize education for sustainable development and the related process differently. The different conceptualizations certainly influence the practical actions educator take to address educational matters, whether the educators are aware of it or not. Thus, the curricula, methods, learning activities and outcomes always reflect the dominant thinking of the educators and the socio-political professional institutions, they belong to. Analyzing education for sustainable development is therefore calls for clear understanding of the different philosophical orientation to education and their implications on education practice which helps to explain why educational efforts yield particular learning outcomes.

Thus, the holistic nature of sustainable development opens it to a broad range of interpretations and misinterpretations often based on the particular socio-economic, political and other locations of practitioners. Economists and developers. For example, view it in terms of economic sustainability, environmentalists as environmental sustainability, and socio-economists as socio-economic sustainability. This often results conflicting scenarios at the operational level with varying levels; of emphasis depending on the professional orientations of the practitioners.

However, while is was a good principle to bring together the three concepts of economic development, social development and environment/ecology under the umbrella of sustainability, the concept of sustainable development itself was subjected to the major contradiction of having to exist in global capitalism. Global capitalism is rooted in the exploitation of natural and human resources focused on accumulation of wealth and informed by the economic growth and modernization development ideology. Development seen as economic growth often becomes a top-down process in which development experts impose their own perception of development on local people considered backward and ignorant. Although this approach has formed the backbone for the development of most developed countries, it has led to major environmental, social snd economic problems which the world is trying to address through Education for Sustainable Development (Babikwa 2004).

Moving Education for Sustainable Development Forward

According Charles A Hopkins and Rosalyn Mckeown (1999) while many nations around the world have embraced the need for education in achieving sustainability, only limited progress has been made on any level. The argue that this lack of progress stems from many sources. In some cases, a lack of vision or awareness has impeded progress. In others, it is a lack of policy or funding. Further, they pointed out that by addressing the following major issues in the planning stages, governments can help achieve in a quandary.

Purpose

Perhaps the greatest obstacle to reorienting the world's educational systems toward sustainability is the lack of clarity regarding goals. In simple terms, those who will be called upon to educate differently want to know. What am I to do differently? What should I do or say now that I didn't say before? These simple questions leave most experts in a quandary.

Each country most decide upon a method of implementation – whether to create another add-on subject, such as sustainable development, environmental education, or population education, or to reorient education programs and practices to address sustainable development. Nations will also need to clarify

whether their educators are being asked to teach about sustainable development or to go further by changing the goals and methods of education to achieve sustainable development. Those nations that elect to only educate about sustainable development will face significant limitations. Teaching about sustainable development is akin to a theoretical treatment of an abstract concept, such as teaching the principles of sustainability by role memorization. Such an approach will not give students the skills, perspectives, values, and knowledge to live sustainably in their community

Awareness

The initial step in launching an education program for sustainable is to develop an awareness within the educational community and public that reorienting education to achieve sustainability is essential. If a government or administration of a school district is unaware of the critical linkages between education and sustainable development, reorienting education to address sustainable development will not occur. Unfortunately. The need to achieve sustainable development is not perceived as sufficiently important to spark a large response in the education community today. If leaders at all levels of governance are to make progress, the recognition and active involvement of the education sector is imperative. Once people realize that education can improve the chance of success for implementing national, regional, and local policy, then education can be reoriented to help achieve sustainability.

Educational reform

The effectiveness of the world's educational systems is already being critically debated in light of changing needs of society. The current widespread acknowledgement of the need for educational reform could be advantageous for promoting sustainable development education. Proponents of sustainable development education need to identify and illustrate the linkages between the principles of sustainability and the long-term economic well-being of each nation.

If sustainable development education can be linked to the current global educational reform movement, educating for sustainability will be swept along with the energy of the reform effort. If however, the wave is missed, proponents of sustainable development education will be looking for a foothold in existing curricula and trying to wedge knowledge, skills, perspectives, and values associated with sustainability wherever possible. The former approach can guarantee sustainable development education to every child in school; otherwise, such education will be left to the whim of individual teachers, with resulting huge gaps and possible redundancies.

Complexity

Sustainable development is a complex, evolving concept. Many scholars and practitioners have invested years in trying to define what sustainable development is and how to achieve it on national and local levels. Because sustainable development is hard to define and implement, it is also difficult to teach. Its complexity stems from the intricate, complicated interactions of natural and human systems. The challenge to educators is to develop messages that illustrate complexity without overwhelming or confusing students.

When we examine successful national education campaign, we find they often have simple messages. Messages such as vaccinate your children, boil drinking water, do not drive drunk, and do not take drugs are simple statements compared to the complex range of environmental, economic, and social issue that sustainable development encompasses. Success in sustainable development education will therefore take much longer and be more costly than single-message public education campaigns.

Conceptual models

Sustainable development education remains an enigma to many governments and schools. Governments, ministries of education, school districts, and educators have expressed a willingness to

adopt education programs for sustainable development; however, no successful working models currently; exist. Without models to adapt and adopt, governments and schools need to create a process to define what education for sustainability is.

Sustainable development education carries with it the inherent idea of implementing programs that are locally relevant and culturally appropriate. Any sustainable development program must take into consideration local environmental, economic, and societal conditions. Accordingly, education programs for sustainable development must also take into consideration the same conditions.
As a result, an education program for sustainable development must be created for each region. Rather than searching for curricular models to adapt, ministries of education and school districts can better invest their time and resources in developing process by which communities of different sizes and traditions can define their own programs.

Traditional disciplines

Sustainable development education, by its nature is holistic and interdisciplinary and depends on concepts and analytical tools from a variety of disciplines. For that reason, it is difficult to teach in traditional school settings where studies are divided and taught in a disciplinary framework.
In countries where national curricula describe in detail the content and sequence of study in each discipline, sustainable development education will be difficult to implement. In other countries where content is described generally and teachers have flexibility in designing multidisciplinary courses, sustainable development education will be more easily implemented but will still require creative teachers who are comfortable and skilled at teaching across disciplines.

Shared responsibility

Who should be responsible for sustainable development education? Popular thinking promotes the myth that an informed society is solely the responsibility of the Ministry of Education. In reality, however, the ministries of environment, commerce, state health, and others also have a stake in sustainable development education, just as they have a stake in sustainable development itself. By combining expertise, resources, and funding from many ministries, the possibility of building a quality, successful education program increases.
And, of course, as consensus is being build in a country, it is essential that teachers be involved in the process.

Leadership

The successful implementation of a new educational trend will require responsible, accountable leadership. Realistic strategies must therefore be developed to quickly create knowledgeable capable leadership. Many resources currently exist in the educational and administrative labor pools. Talented educator-especially in the fields of the environment, population, and development-already teach strands of sustainable development education and could easily expand their focus to include other concepts of sustainable development. In developing curricula, however, someone must be sufficiently well versed in sustainable development education to pull together the pieces and to form a complete picture of the role that individuals, communities, and nations must play in a sustainable world.

Financial and material resources

To date, few financial resources have been dedicated to implementing an education program for sustainable development. At the national level, financial resources must be assigned for curricula development, administration, and teacher education. At the local level, developing curricula, purchasing accompanying resources, and training teachers depend on available funding.

Conclusion

Let conclude by further looking at statistics and research evidence to support education for development paradigm. Various studies have found that:

* farmer (in 18 low-income countries) with four years of primary education produced 8% more (1980. *Farmer Education and Farm Efficiency* World Bank);
* a one-year increase in schooling can increase wages by more than 10% and has raised farm output and income by over 2% (Korea) and 5% (Malaysia) (*World Development Report 1991*, pp.. 52-53);
* a 1% improvement in national literacy is directly associated with a two-year gain in life expectancy (Preston 1976);
* education is directly related on health: higher the parents' education, the less likely their child will die (Cochrane et al., 1980);
* children of educated mothers are more likely to be enrolled in school, and to attain higher education (World Bank, 1986);
* women's education leads to better family health, especially for the children and themselves, partly because of higher family income but also due to the mother's increased knowledge and use of better health and nutritional practices (*World Development Report 1993: investing in Health).*

What then can we conclude from the literature on the relationships between education and economic growth?

First, that there is no single answer to the question some wish to pose – there are many answers ***depending on circumstance,*** developmental status and the specifications of the variables.

Second, the direct policy implications of macro level research are very limited. They are constrained by dependence on historical relationships which may or may not persist, the level of aggregation is often so high that effective and ineffective years of schooling are treated as similar, and the application of findings from individual countries or groups to other countries is analytically hazardous.

Third far more studies imply, suggest and demonstrate plausible and positive links between educational investment and economic growth than suggest that the effects are nonexistent. Even fewer studies suggest a negative relationship. It would be pessimistic in the extreme to suggest that the widespread faith in educational investment as a component of economic development was an aberration that could persist so extensively for so long if it did not contain elements of truth no matter how difficult there are to demonstrate.

Fourth, there is evidence in many studies of productivity benefits derived from educational investment. The most policy relevant ones appear to be those based on recent data which relate to circumstances in particular countries which can give some guidance on the most worthwhile type of educational interventions. Placing them in context is a necessary pre-condition for confidence in conclusions that can be drawn.

Fifth, educational effects are associated with various externalities that may have economic consequences. They may also extend to influencing income distribution and wider social inequalities through dynamic processes that need careful unraveling.

Sixth, there are many methodological questions in the analysis of relationships between education and economic development which have only partial resolutions. These are extensively debated in the literature (e.g. Psacharopoulos et al 1983, Little 1986, Hough 1992) and need no repetition here. The results of the various studies have to be understood in the light of these.

However, because sustainable development education is a lifelong process, the formal education sector, the non-formal educational sector, and the informal educational sector should work together to accomplish local sustainability goals. In an ideal world, the three sectors would divide the enormous task of sustainable development education by identifying target audiences from the general public as well as themes of sustainability. They would then work innovatively within their mutually agreed upon realms. This division of effort would reach a broader spectrum of people and prevent redundant effort.

Creating and implementing sustainable development education requires vision, a purposely plan of action, resources, and persistence during implementation. We already know that our current path will not result in sustainability. We have to build another path, and educational change can be a primary tool. As Hopkins and Mckeown (1999) argue, sustainable development will require major changes in policy and mindset. The mindset will include fundamental changes in our lifestyle, economy, and worldview. Our societies will need to examine how goods are manufactured and consumed; the way we use preserve, conserve, and restore natural resources and the way we perceive and rank social, political, and economic needs. Sustainable development will require that we learn new ways to think about problems, create solutions, and make decisions to implement those solutions. Education is the key if we are to learn the new ways and mindset that sustainable development requires of us.

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